



Cisco 12010, Cisco 12410, and Cisco 12810 Router Rack-Mount and Center-Mount Brackets Replacement Instructions

Product Number: ACS-GSR10-RMK
Document Order Number: DOC-7816077=

This document contains instructions for removing and installing the rack-mount brackets and the center-mount brackets on Cisco 12010, Cisco 12410, and Cisco 12810 Routers.

Contents

- [Mounting Brackets Overview, page 2](#)
- [Preparing for Installation, page 3](#)
- [Removing and Installing Rack-Mount Brackets, page 6](#)
- [Removing and Installing Center-Mount Brackets, page 7](#)
- [Regulatory, Compliance, and Safety Information, page 8](#)
- [Obtaining Documentation, page 11](#)
- [Obtaining Technical Assistance, page 12](#)
- [Obtaining Additional Publications and Information, page 13](#)



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Mounting Brackets Overview

There are two types of mounting brackets associated with Cisco 12010, Cisco 12410, and Cisco 12810 Routers:

- Rack-mount brackets that attach to the rack posts and support the lower surface of the chassis. (See [Figure 1.](#))
- Center-mount brackets that are attached to the router when it is center-mounted in a rack. (See [Figure 2.](#))

Figure 1 Rack-Mount Brackets

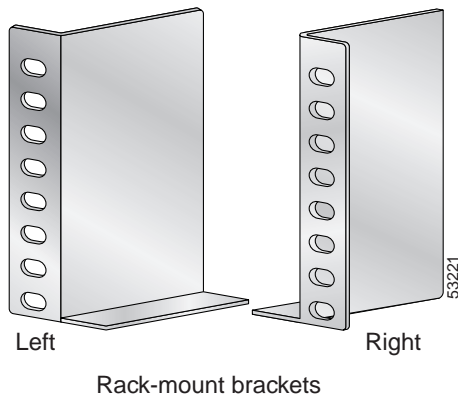
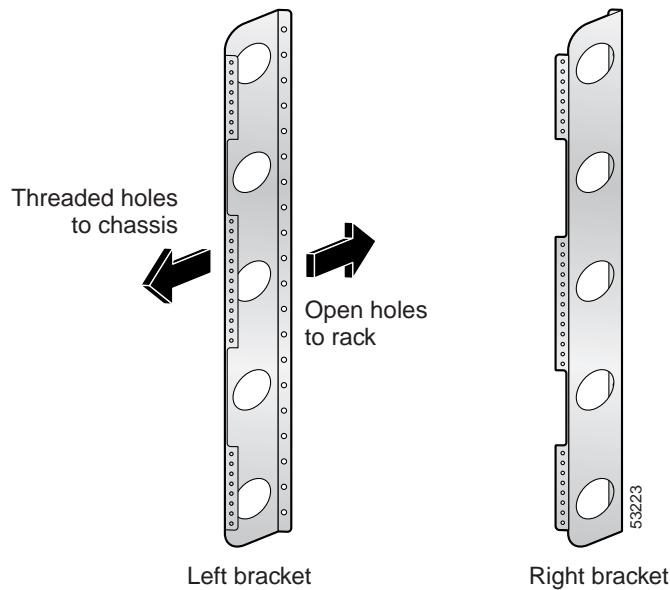


Figure 2 Center-Mount Brackets



Preparing for Installation

Installation preparation is presented in the following sections:

- [Safety Guidelines](#)
- [Preventing Electrostatic Discharge Damage](#)
- [Required Tools and Equipment](#)
- [Related Documentation](#)

Safety Guidelines

Before you perform any procedure in this publication, review the safety guidelines in this section to avoid injuring yourself or damaging the equipment. In addition, review the safety warnings listed in the *Regulatory Compliance and Safety Information for the Cisco 12000 Series Internet Router* publication that accompanied your router before installing, configuring, or maintaining the router.

The following guidelines are for your safety and to protect equipment. The guidelines do not include all hazards. Be alert.

Safety with Equipment

- Always disconnect all power cords and interface cables before moving the system.
- Never assume that power is disconnected from a circuit; always check.
- Keep tools and assembly 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.

Safety with Electricity

- Before beginning any procedures requiring access to the interior of the router, locate the emergency power-off switch for the room in which you are working.
- Disconnect all power and external cables before installing or removing a router.
- Never assume that power has been disconnected from a circuit; always check.
- Do not perform any action that creates a potential hazard to people or makes the equipment unsafe.
- Never install equipment that appears damaged.
- Carefully examine your work area for possible hazards such as moist floors, ungrounded power extension cables, and missing safety grounds.
- If an electrical accident does occur, proceed as follows:
 - Use caution; do not become a victim yourself. Disconnect power to the router.
 - If possible, send another person to get medical aid; otherwise, assess the condition of the victim and then call for help.

- Determine if the person needs rescue breathing or external cardiac compressions; then take appropriate action.

In addition, observe the following guidelines when working with any equipment that is disconnected from a power source but still connected to telephone or network wiring:

- 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.

Preventing Electrostatic Discharge Damage

Many router components can be damaged by static electricity. Some components can be damaged by voltages as low as 30V, while static voltages as high as 35,000V can be generated just by handling plastic or foam packing material, or by sliding assemblies across plastic and carpets. Not exercising the proper electrostatic discharge (ESD) precautions can result in intermittent or complete component failures. To minimize the potential for ESD damage, observe the following guidelines:

- Always use an ESD-preventive antistatic wrist strap or ankle strap and ensure that it makes good skin contact.

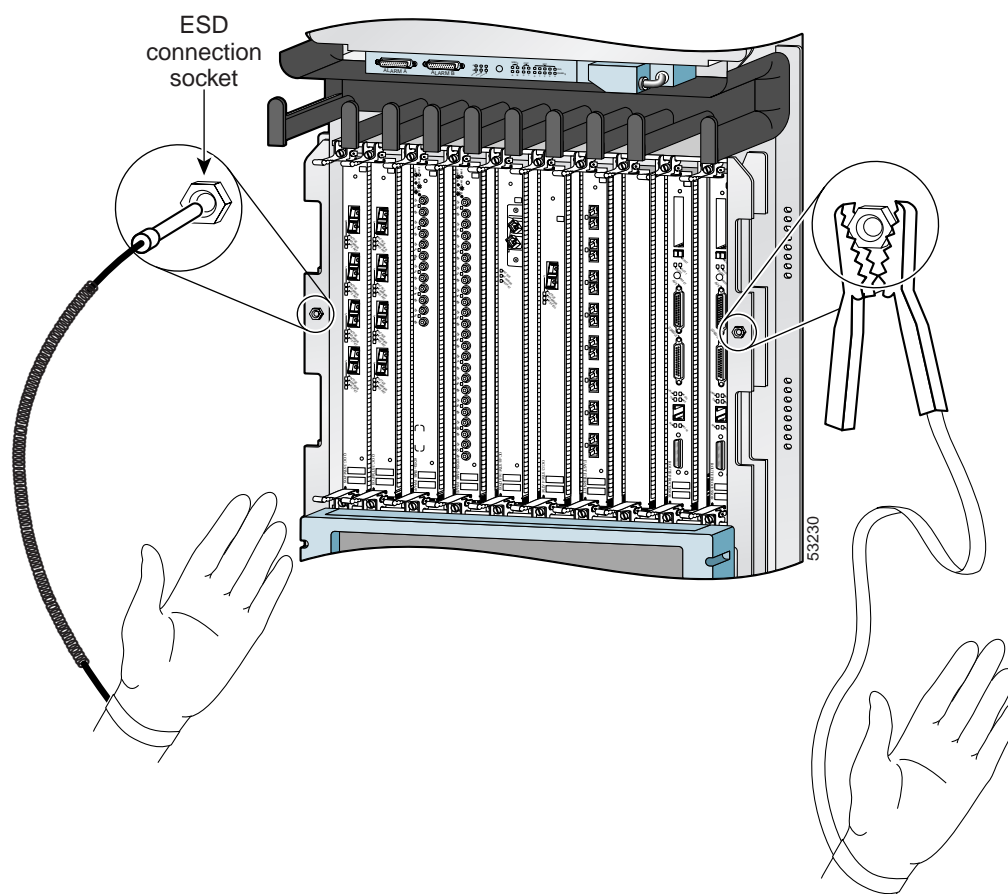


Caution

You should periodically check the resistance value of the ESD-preventive strap. The measurement should be between 1 and 10 megohms.

- When removing or installing a component, make sure the equipment end of your antistatic strap leash is connected to one of the ESD connection sockets on the front of the chassis or to a bare metal surface on the chassis. (See [Figure 3](#).) Avoid contact between the component and your clothing. The ESD-preventive wrist strap only protects the component from ESD voltages on the body; ESD voltages on your clothing can still cause component damage.
- Always place a card component-side-up on an antistatic surface, in an antistatic card rack, or in a static shielding bag. If you are returning the item to the factory, immediately place it in a static shielding bag.
- When installing a line card or route processor (RP), use the ejector levers to seat the card connectors in the backplane, then tighten both captive screws on the faceplate of the card. These screws prevent accidental removal, provide proper grounding for the router, and help to ensure that the card connector is seated in the backplane.
- When removing line cards, clock and scheduler cards, switch fabric cards, or an RP, use the ejector levers to unseat the card connector from the backplane. Pull the metal card carrier out slowly, placing one hand along the bottom of the carrier to guide it straight out of the slot.
- Handle line cards, clock and scheduler cards, switch fabric cards, or an RP by the metal card carrier edges only; avoid touching the board or any connector pins.

Figure 3 Connecting an ESD-Preventive Wrist Strap to the Chassis



Required Tools and Equipment

The following tools and equipment are required to remove and install mounting brackets:

- ESD-preventive wrist strap
- Flat-blade screwdriver

Related Documentation

The following Cisco publications contain additional information:

- *Cisco 12010, Cisco 12410, and Cisco 12810 Router Installation and Configuration Guide*
- *Regulatory Compliance and Safety Information for the Cisco 12000 Series Internet Router*



Note

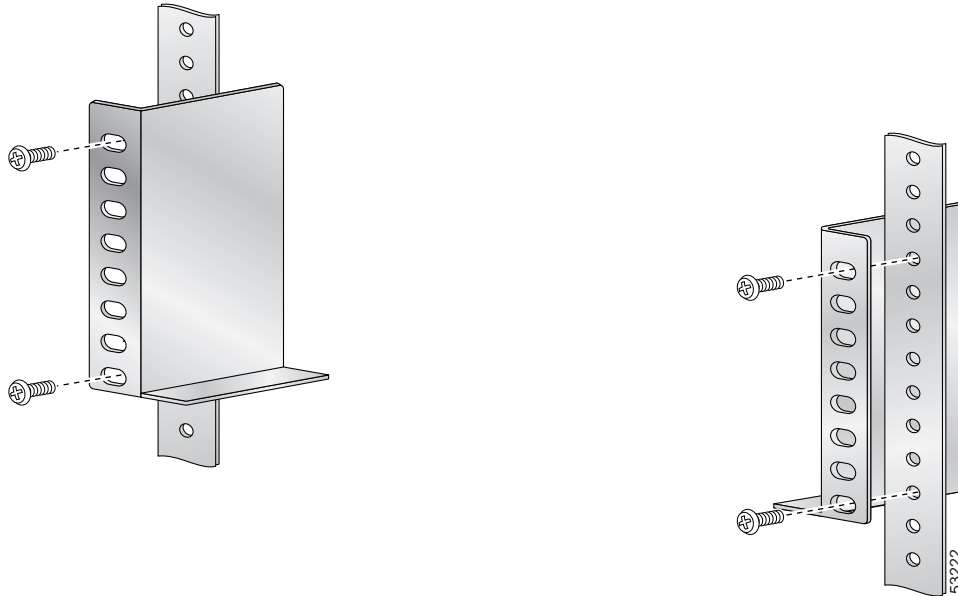
Since removing and replacing a center-mount or a rack-mount bracket could involve a complete installation of the router, you should have the installation and configuration guide on hand. The procedures in this document describe only the installation of the brackets themselves and not the entire system.

Removing and Installing Rack-Mount Brackets

To remove and install the rack-mount brackets, follow these steps:

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- Step 1** If necessary refer to the *Cisco 12010, Cisco 12410, and Cisco 12810 Router Installation and Configuration Guide* to remove the router from the rack to gain access to the rack-mount brackets.
 - Step 2** Remove the rack-mount bracket to be replaced by removing the two screws that secure it to the rack post. (See [Figure 4](#).)
 - Step 3** Position the replacement rack-mount bracket over the rack rail holes in the position of the bracket that was just removed.
 - Step 4** Secure the rack-mount bracket to the rack rails. (See [Figure 4](#).)
 - Step 5** If necessary, repeat [Step 2](#) through [Step 4](#) for the other rack-mount bracket.
 - Step 6** If necessary, refer to the *Cisco 12010, Cisco 12410, and Cisco 12810 Router Installation and Configuration Guide* to reinstall the router into the rack.
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Figure 4 Rack-Mount Brackets

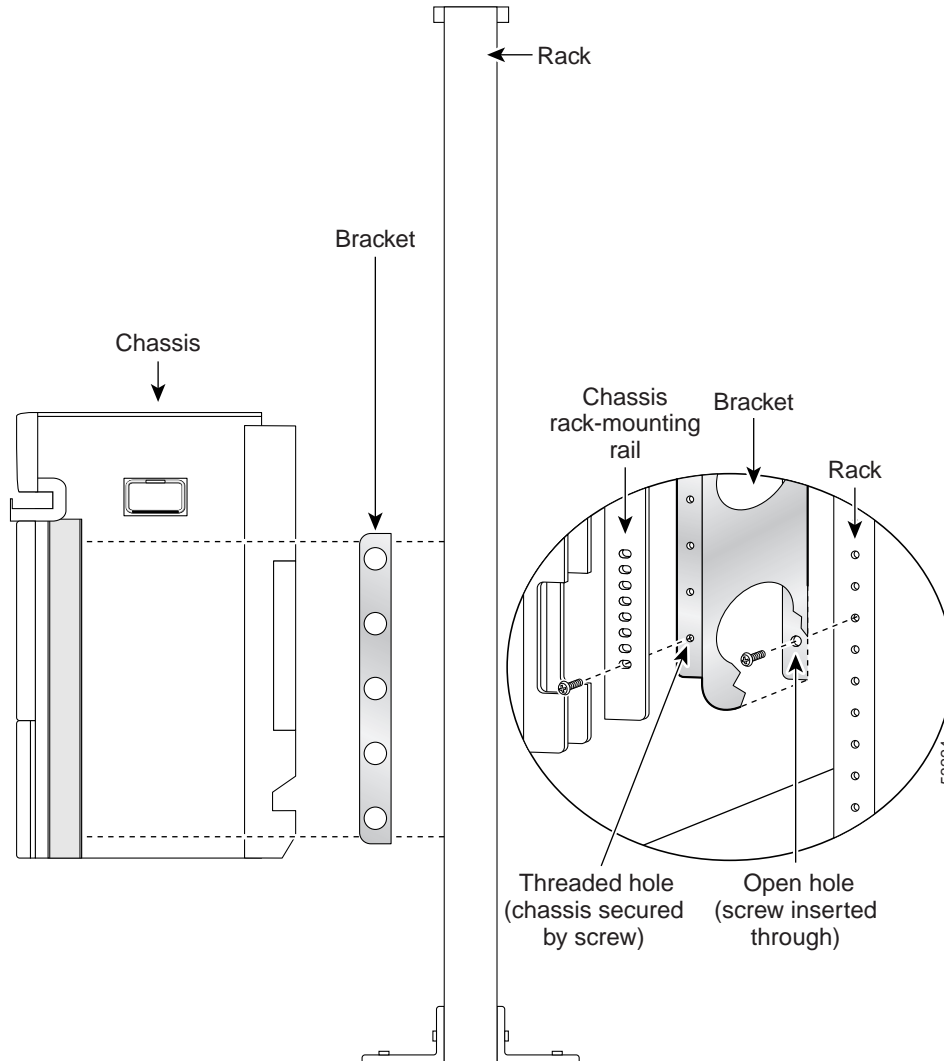


Removing and Installing Center-Mount Brackets

To remove and install a center-mount bracket, follow these steps:

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- Step 1** If necessary, refer to the *Cisco 12010, Cisco 12410, and Cisco 12810 Router Installation and Configuration Guide* to remove the router from the rack to gain access to the center-mount brackets.
- Step 2** Use [Figure 5](#) as a reference and remove the center-mount bracket to be replaced from the rack. Each bracket is attached to the rack with five screws.
- Step 3** Attach the replacement bracket to the rack:
- Position the bracket on the rack in the same position as the center-mount bracket that you previously removed.
 - Hold the bracket against the right mounting rail on the rack and align the bottom screw hole in the bracket with the marked screw hole near the bottom of the mounting rail on the rack.
 - While supporting the bracket against the mounting rail with one hand, use the other hand to insert a screw through a hole in the bottom hole group in the bracket that aligns with a hole on the mounting rail on the rack. (See [Figure 5](#).) Use your fingers to tighten the screw.
 - Insert a second screw in the top hole group in the bracket and use your fingers to tighten the screw.
 - Repeat [c.](#) for the three middle hole groups in the bracket.
 - Use a screwdriver to tighten the five screws.
- Step 4** If necessary, repeat [Step 2](#) and [Step 3](#) for the other center-mount bracket.
- Step 5** If necessary, adjust the width between the brackets by loosening the screws that secure them to the rack posts and retightening them.
- The distance must be greater than 17.25 inches (43.8 cm) wide for the chassis to clear the brackets.
- Step 6** If necessary, refer to the *Cisco 12010, Cisco 12410, and Cisco 12810 Router Installation and Configuration Guide* to reinstall the router into the rack.
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Figure 5 Center-Mount Rack-Mounting Bracket



Regulatory, Compliance, and Safety Information

This section includes regulatory, compliance, and safety information in the following sections:

- [Translated Safety Warnings and Agency Approvals](#)
- [Electromagnetic Compatibility Regulatory Statements](#)

Translated Safety Warnings and Agency Approvals

The complete list of translated safety warnings and agency approvals is available in the *Regulatory Compliance and Safety Information for Cisco 12000 Series Internet Routers* publication. (Document Number 78-4347-xx.)

Electromagnetic Compatibility Regulatory Statements

FCC Class A Compliance

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio-frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case users will be required to correct the interference at their own expense.

Modifying the equipment without Cisco's authorization may result in the equipment no longer complying with FCC requirements for Class A digital devices. In that event, your right to use the equipment may be limited by FCC regulation and you may be required to correct any interference to radio or television communication 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.)

CISPR 22

This apparatus complies with CISPR 22/EN55022 Class B radiated and conducted emissions requirements.

Canada

English Statement of Compliance

This class A digital apparatus complies with Canadian ICES-003.

French Statement of Compliance

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Europe (EU)

This apparatus complies with EN55022 Class B and EN55024 standards when used as ITE/TTE equipment, and EN300386 for Telecommunications Network Equipment (TNE) in both installation environments, telecommunication centers and other indoor locations.

VCCI Class A Notice for Japan



Warning

This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions. Statement 191

警告 これは、情報処理装置等電波障害自主規制協議会（VCCI）の規定に基づくクラスA装置です。この装置を家庭環境で使用すると、電波妨害を引き起こすことがあります。この場合には、使用者が適切な対策を取るようにより要求されることがあります。

Class A Notice for Hungary



Warning

This equipment is a class A product and should be used and installed properly according to the Hungarian EMC Class A requirements (MSZEN55022). Class A equipment is designed for typical commercial establishments for which special conditions of installation and protection distance are used. Statement 256

Figyelem

Figyelmeztetés a felhasználói kézikönyv számára: Ez a berendezés "A" osztályú termék, felhasználására és üzembe helyezésére a magyar EMC "A" osztályú követelményeknek (MSZ EN 55022) megfelelően kerülhet sor, illetve ezen "A" osztályú berendezések csak megfelelő kereskedelmi forrásból származhatnak, amelyek biztosítják a megfelelő speciális üzembe helyezési körülményeket és biztonságos üzemelési távolságok alkalmazását.

Class A Notice for Taiwan and Other Traditional Chinese Markets



Warning

This is a Class A Information Product, when used in residential environment, it may cause radio frequency interference, under such circumstances, the user may be requested to take appropriate countermeasures. Statement 257

警告 這是甲類資訊產品，在居住環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Class A Notice for Korea



Warning

This is a Class A Device and is registered for EMC requirements for industrial use. The seller or buyer should be aware of this. If this type was sold or purchased by mistake, it should be replaced with a residential-use type. Statement 294

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Obtaining Documentation

Cisco provides several ways to obtain documentation, 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 on the World Wide Web at this URL:

<http://www.cisco.com/univercd/home/home.htm>

You can access the Cisco website at this URL:

<http://www.cisco.com>

International Cisco websites can be accessed from this URL:

http://www.cisco.com/public/countries_languages.shtml

Documentation CD-ROM

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

Registered Cisco.com users can order a single Documentation CD-ROM (product number DOC-CONDOCCD=) through the Cisco Ordering tool:

http://www.cisco.com/en/US/partner/ordering/ordering_place_order_ordering_tool_launch.html

All users can order annual or quarterly subscriptions through the online Subscription Store:

<http://www.cisco.com/go/subscription>

Click Subscriptions & Promotional Materials in the left navigation bar.

Ordering Documentation

You can find instructions for ordering documentation at this URL:

http://www.cisco.com/univercd/cc/td/doc/es_inpk/pdi.htm

You can order Cisco documentation in these ways:

- Registered Cisco.com users (Cisco direct customers) can order Cisco product documentation from the Networking Products MarketPlace:

<http://www.cisco.com/en/US/partner/ordering/index.shtml>

- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco Systems Corporate Headquarters (California, USA) at 408 526-7208 or, elsewhere in North America, by calling 800 553-NETS (6387).

Documentation Feedback

You can submit e-mail comments about technical documentation to bug-doc@cisco.com.

You can submit comments by using the response card (if present) behind the front cover of your document or by writing to the following address:

Cisco Systems
Attn: Customer Document Ordering
170 West Tasman Drive
San Jose, CA 95134-9883

We appreciate your comments.

Obtaining Technical Assistance

For all customers, partners, resellers, and distributors who hold valid Cisco service contracts, the Cisco Technical Assistance Center (TAC) provides 24-hour-a-day, award-winning technical support services, online and over the phone. Cisco.com features the Cisco TAC website as an online starting point for technical assistance. If you do not hold a valid Cisco service contract, please contact your reseller.

Cisco TAC Website

The Cisco TAC website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The Cisco TAC website is available 24 hours a day, 365 days a year. The Cisco TAC website is located at this URL:

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

Accessing all the tools on the Cisco TAC website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a login ID or password, register at this URL:

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

Opening a TAC Case

Using the online TAC Case Open Tool is the fastest way to open P3 and P4 cases. (P3 and P4 cases are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Case Open Tool automatically recommends resources for an immediate solution. If your issue is not resolved using the recommended resources, your case will be assigned to a Cisco TAC engineer. The online TAC Case Open Tool is located at this URL:

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

For P1 or P2 cases (P1 and P2 cases are those in which your production network is down or severely degraded) or if you do not have Internet access, contact Cisco TAC by telephone. Cisco TAC engineers are assigned immediately to P1 and P2 cases to help keep your business operations running smoothly.

To open a case 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 listing of Cisco TAC contacts, go to this URL:

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

TAC Case Priority Definitions

To ensure that all cases are reported in a standard format, Cisco has established case priority definitions.

Priority 1 (P1)—Your 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.

Priority 2 (P2)—Operation of an existing network is severely degraded, or significant aspects of your business operation 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.

Priority 3 (P3)—Operational performance of your network is impaired, but most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Priority 4 (P4)—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 Catalog describes the networking products offered by Cisco Systems, as well as ordering and customer support services. Access the Cisco Product Catalog at this URL:

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

- 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 online at this URL:

<http://www.ciscopress.com>

- Packet magazine is the Cisco quarterly publication that provides the latest networking trends, technology breakthroughs, and Cisco products and solutions to help industry professionals get the most from their networking investment. Included are networking deployment and troubleshooting tips, configuration examples, customer case studies, tutorials and training, certification information, and links to numerous in-depth online resources. You can access Packet magazine at this URL:

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

- iQ Magazine is the Cisco bimonthly publication that delivers the latest information about Internet business strategies for executives. You can access iQ Magazine at this URL:

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

- 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/en/US/about/ac123/ac147/about_cisco_the_internet_protocol_journal.html
- Training—Cisco offers world-class networking training. Current offerings in network training are listed at this URL:
<http://www.cisco.com/en/US/learning/index.html>

This document is used in conjunction with the *Cisco 12010*, *Cisco 12410*, and *Cisco 12810 Router Installation and Configuration Guide*.

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