



280-Watt AC-Power Supply Replacement Instructions

Product Numbers: PWR-7200-AC=, PWR-7200-ACA=, PWR-7200-ACE=, PWR-7200-ACI=, PWR-7200-ACU=, MAS-7200PSCOVER=, CISCO7204=, CISCO7206=, RS7206S=, RS7206VXR=, CISCO7202=, CISCO7204VXR=, CISCO7206VXR=

Introduction

This document explains how to remove and replace the 280-Watt (W) AC-input power supply in the Cisco 7200 series routers—which consist of the 2-slot Cisco 7202, 4-slot Cisco 7204 and Cisco 7204VXR, and the 6-slot Cisco 7206 and Cisco 7206VXR. It includes instructions for powering down the router, removing an installed power supply, and installing a new power supply. This document also includes steps for verifying the initialization of the system after you power up the router.



Note

The Cisco 7206VXR and Cisco 7206 can be used as router shelves in a Cisco AS5800 Universal Access Server. References to the Cisco 7200 VXR routers and the Cisco 7200 routers in this document include the Cisco 7206VXR and Cisco 7206 as router shelves in a Cisco AS5800 Universal Access Server, unless indicated otherwise.

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Related Documentation

Your router and the Cisco IOS software running on it contain extensive features and functionality, which are documented in the following resources:

- For Cisco IOS software configuration information and support, refer to the modular configuration and modular command reference publications in the Cisco IOS software configuration documentation set that corresponds to the software release installed on your Cisco hardware on the World Wide Web at <http://www.cisco.com>.
- For hardware installation and maintenance information on the Cisco 7200 VXR routers, refer to
 - For hardware installation and maintenance information on the Cisco 7200 routers, refer to
 -
 - *Cisco 7206 Quick Start Guide*
- For hardware installation and maintenance information and software configuration information on the Cisco AS5800 Universal Access Server, refer to the *Cisco AS5800 Universal Access Server Hardware Installation and Configuration Guide*.
- For international agency compliance, safety, and statutory information for wide-area network (WAN) interfaces for the Cisco 7200 series routers and the Cisco AS5800 Universal Access Server refer to the following publications:
 - *Regulatory Compliance and Safety Information for the Cisco 7200 Series Routers*
 - *Cisco AS5800 Universal Access Server Regulatory Compliance and Safety Information*
- For general information about documentation, refer to the “[Obtaining Documentation](#)” section on [page 18](#).
- For customer support information, see the “[Obtaining Technical Assistance](#)” section on [page 21](#).

AC-Input Power Supply Overview

A fully configured Cisco 7200 series router comes equipped with one power supply. An optional, second AC-input power supply is available for the router; it must be ordered as a spare. The router operates with one installed power supply; however, the second power supply provides hot-swappable, load-sharing redundant power.

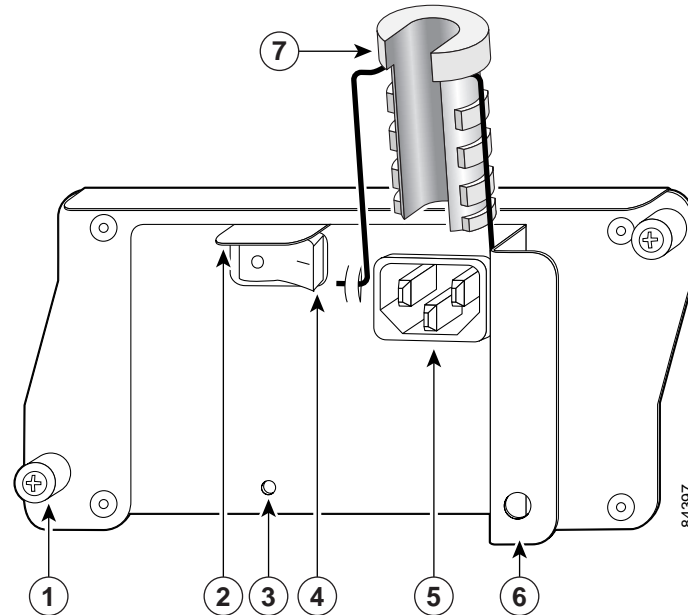
The faceplate of the 280W AC-input power supply has a green OK LED, a power switch, a handle for removing, installing, and handling the power supply, an AC-input power receptacle, a power cable retention-clip, and two captive installation screws (see [Figure 1](#)).



Note

Do not mix AC-input and DC-input power supplies in the same router.

Figure 1 Cisco 7200 Series AC-Input Power Supply Faceplate



1	Captive installation screw	5	AC-input power receptacle
2	Power switch guard	6	Handle
3	OK LED	7	Power cable-retention clip
4	Power switch		

The AC-input power supply operates between 100 and 240 VAC input voltage and supplies +5V, +12V, -12V, and +3V DC power to the router's internal components through the router midplane.



Note

Each AC-input power supply operating at 120 VAC requires a minimum of 5A service. We recommend powering Cisco 7200 series routers from a 120 VAC, 15A receptacle U.S. (240 VAC, 10A international) at the power source.

The power supply handle provides a grip point for pulling the power supply out of the router (refer to [Figure 1](#)). The two captive installation screws secure the power supply in the router. A modular power cable connects the AC-input power supply to the site AC power source.

A cable-retention clip on the power supply secures the cable in the power supply and provides strain relief for the power cable. The power switch turns the power supply on and starts the system.

Installation Prerequisites

This section provides a list of parts and tools you need to remove and replace the AC-input power supply in the Cisco 7200 series routers. This section also includes safety guidelines to help you avoid injury to yourself and damage to the equipment.

Tools and Parts Required

You need the following tools and parts to remove and replace an AC-input power supply:

- A new AC-input power supply
- Number 2 Phillips and a 3/16-inch flat-blade screwdriver
- Several cable ties (if the router is mounted in an equipment rack)
- 18 AWG three-wire cable, with a three-lead IEC-320 receptacle on the power supply end, and a country-dependent plug on the power source end (current rating 5A at 100–240 VAC with the chassis fully configured.) (See also the *Cisco 7200 VXR Installation and Configuration Guide* specifications.)

Safety Guidelines

Following are safety guidelines that you should follow when working with any equipment that connects to electrical power or telephone wiring.

Safety Warnings



Warning

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

Statement 1030



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. To see translations of the warnings that appear in this publication, refer to the translated safety warnings that accompanied this device.

Statement 1070

Note: SAVE THESE INSTRUCTIONS

Note: This documentation is to be used in conjunction with the specific product installation guide that shipped with the product. Please refer to the Installation Guide, Configuration Guide, or other enclosed additional documentation for further details.

Waarschuwing

BELANGRIJKE VEILIGHEIDSINSTRUCTIES

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 de standaard praktijken om ongelukken te voorkomen. Voor een vertaling van de waarschuwingen die in deze publicatie verschijnen, dient u de vertaalde veiligheidswaarschuwingen te raadplegen die bij dit apparaat worden geleverd.

Opmerking BEWAAR DEZE INSTRUCTIES.

Opmerking Deze documentatie dient gebruikt te worden in combinatie met de installatiehandleiding voor het specifieke product die bij het product wordt geleverd. Raadpleeg de installatiehandleiding, configuratiehandleiding of andere verdere ingesloten documentatie voor meer informatie.

Varoitus

TÄRKEITÄ TURVALLISUUTEEN LIITTYVIÄ OHJEITA

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 asiakirjassa esitettyjen varoitusten käännökset löydät laitteen mukana toimitetuista ohjeista.

Huomautus SÄILYTÄ NÄMÄ OHJEET

Huomautus Tämä asiakirja on tarkoitettu käytettäväksi yhdessä tuotteen mukana tulleen asennusoppaan kanssa. Katso lisätietoja asennusoppaasta, kokoonpano-oppaasta ja muista mukana toimitetuista asiakirjoista.

Attention IMPORTANTES INFORMATIONS DE SÉCURITÉ

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. Pour prendre connaissance des traductions d'avertissements figurant dans cette publication, consultez les consignes de sécurité traduites qui accompagnent cet appareil.

Remarque CONSERVEZ CES INFORMATIONS

Remarque Cette documentation doit être utilisée avec le guide spécifique d'installation du produit qui accompagne ce dernier. Veuillez vous reporter au Guide d'installation, au Guide de configuration, ou à toute autre documentation jointe pour de plus amples renseignements.

Warnung WICHTIGE SICHERHEITSANWEISUNGEN

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 sind im Lieferumfang des Geräts enthalten.

Hinweis BEWAHREN SIE DIESE SICHERHEITSANWEISUNGEN AUF

Hinweis Dieses Handbuch ist zum Gebrauch in Verbindung mit dem Installationshandbuch für Ihr Gerät bestimmt, das dem Gerät beiliegt. Entnehmen Sie bitte alle weiteren Informationen dem Handbuch (Installations- oder Konfigurationshandbuch o. Ä.) für Ihr spezifisches Gerät.

Figyelem! FONTOS BIZTONSÁGI ELŐÍRÁSOK

Ez a figyelmeztető jel veszélyre utal. Sérülésveszélyt rejtő helyzetben van. Mielőtt bármely berendezésen munkát végezte, legyen figyelemmel az elektromos áramkörök okozta kockázatokra, és ismerkedjen meg a szokásos balesetvédelmi eljárásokkal. A kiadványban szereplő figyelmeztetések fordítása a készülékhez mellékelt biztonsági figyelmeztetések között található.

Megjegyzés ŐRIZZE MEG EZEKET AZ UTASÍTÁSOKAT!

Megjegyzés Ezt a dokumentációt a készülékhez mellékelt üzembe helyezési útmutatóval együtt kell használni. További tudnivalók a mellékelt Üzembe helyezési útmutatóban (Installation Guide), Konfigurációs útmutatóban (Configuration Guide) vagy más dokumentumban található.

Avvertenza IMPORTANTI ISTRUZIONI SULLA SICUREZZA

Questo simbolo di avvertenza indica un pericolo. La situazione potrebbe causare infortuni alle persone. Prima di intervenire su qualsiasi apparecchiatura, occorre essere al corrente dei pericoli relativi ai circuiti elettrici e conoscere le procedure standard per la prevenzione di incidenti. Per le traduzioni delle avvertenze riportate in questo documento, vedere le avvertenze di sicurezza che accompagnano questo dispositivo.

Nota CONSERVARE QUESTE ISTRUZIONI

Nota La presente documentazione va usata congiuntamente alla guida di installazione specifica spedita con il prodotto. Per maggiori informazioni, consultare la Guida all'installazione, la Guida alla configurazione o altra documentazione acclusa.

Advarsel VIKTIGE SIKKERHETSINSTRUKSJONER

Dette varselssymbolet betyr fare. Du befinner deg i en situasjon som kan forårsake personskade. Før du utfører arbeid med utstyret, bør du være oppmerksom på farene som er forbundet med elektriske kretssystemer, og du bør være kjent med vanlig praksis for å unngå ulykker. For å se oversettelser av advarslene i denne publikasjonen, se de oversatte sikkerhetsvarslene som følger med denne enheten.

Merk TA VARE PÅ DISSE INSTRUKSJONENE

Merk Denne dokumentasjonen skal brukes i forbindelse med den spesifikke installasjonsveiledningen som fulgte med produktet. Vennligst se installasjonsveiledningen, konfigureringsveiledningen eller annen vedlagt tilleggsdokumentasjon for detaljer.

Aviso INSTRUÇÕES IMPORTANTES DE SEGURANÇA

Este símbolo de aviso significa perigo. O utilizador encontra-se numa situação que poderá ser causadora de lesões corporais. Antes de iniciar a utilização de qualquer equipamento, tenha em atenção os perigos envolvidos no manuseamento de circuitos eléctricos e familiarize-se com as práticas habituais de prevenção de acidentes. Para ver traduções dos avisos incluídos nesta publicação, consulte os avisos de segurança traduzidos que acompanham este dispositivo.

Nota GUARDE ESTAS INSTRUÇÕES

Nota Esta documentação destina-se a ser utilizada em conjunto com o manual de instalação incluído com o produto específico. Consulte o manual de instalação, o manual de configuração ou outra documentação adicional inclusa, para obter mais informações.

¡Advertencia! INSTRUCCIONES IMPORTANTES DE SEGURIDAD

Este símbolo de aviso indica peligro. Existe riesgo para su integridad física. Antes de manipular cualquier equipo, considere los riesgos de la corriente eléctrica y familiarícese con los procedimientos estándar de prevención de accidentes. Vea las traducciones de las advertencias que acompañan a este dispositivo.

Nota GUARDE ESTAS INSTRUCCIONES

Nota Esta documentación está pensada para ser utilizada con la guía de instalación del producto que lo acompaña. Si necesita más detalles, consulte la Guía de instalación, la Guía de configuración o cualquier documentación adicional adjunta.

Varning! VIKTIGA SÄKERHETSANVISNINGAR

Denna varningssignal 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 vanliga förfaranden för att förebygga olyckor. Se översättningarna av de varningsmeddelanden som finns i denna publikation, och se de översatta säkerhetsvarningarna som medföljer denna anordning.

OBS! SPARA DESSA ANVISNINGAR

OBS! Denna dokumentation ska användas i samband med den specifika produktinstallationshandbok som medföljde produkten. Se installationshandboken, konfigurationshandboken eller annan bifogad ytterligare dokumentation för närmare detaljer.

Предупреждение ВАЖНЫЕ СВЕДЕНИЯ ПО БЕЗОПАСНОСТИ

Этот символ предупреждает о наличии опасности. При неправильных действиях возможно получение травм. Перед началом работы с любым оборудованием необходимо ознакомиться с ситуациями, в которых возможно поражение электротоком, и со стандартными действиями для предотвращения несчастных случаев. Переведенный текст предупреждений содержится в соответствующем документе, поставляемом вместе с устройством.

Примечание **СОХРАНЯЙТЕ ЭТУ ИНСТРУКЦИЮ**

Примечание Эта инструкция должна использоваться вместе с руководством по установке конкретного изделия, входящим в комплект поставки. Дополнительные сведения см. в руководстве по установке, руководстве по настройке и другой документации, поставляемой с изделием.

警告 有关安全的重要说明

这个警告符号指有危险。您所处的环境可能使身体受伤。操作设备前必须意识到电流的危险性，务必熟悉操作标准，以防发生事故。如果需要了解本说明中出现的警告符号的译文，请参阅本装置所附之安全警告译文。

注意 保存这些说明

注意 本文件应与本产品附带的特定安装说明一并阅读。如欲了解详情，请参阅《安装说明》、《配置说明》或所附的其他文件。

警告 安全上の重要な注意事項

「危険」の意味です。人身事故を予防するための注意事項が記述されています。装置の取り扱い作業を行うときは、電気回路の危険性に注意し、一般的な事故防止対策に留意してください。このマニュアルに記載されている警告の各国語版は、装置に付属の「Translated Safety Warnings」を参照してください。

注 これらの注意事項を保管しておいてください。

注 この資料は、製品に付属のインストラクション ガイドと併用してください。詳細は、インストラクション ガイド、コンフィギュレーション ガイド、または添付されているその他のマニュアルを参照してください。

Electrical Equipment Guidelines

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 when potentially hazardous conditions exist.
- 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.
- Carefully examine your work area for possible hazards such as moist floors, ungrounded power extension cables, and missing safety grounds.

Telephone Wiring Guidelines

Use the following guidelines when working with any equipment that is connected to telephone wiring or to 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.

Ensuring Easy Access to the Router

If your Cisco 7200 series router is installed in a standard 19-inch, 4-post or 2-post rack, cables from other equipment in the rack may obstruct access to the rear of the router. Also, rack power strips or other permanent fixtures may obstruct access to the router. Review the following guidelines to ensure easy access to the rear of the router when it is installed in a rack. If the router is not installed in a rack, or if you already have clear access to the rear of the router, proceed to the following section, [“Removing and Replacing the AC-Input Power Supply.”](#)

Use the following guidelines to ensure easy access to the rear of the router when it is installed in a rack:

- Ensure that you have at least 3 feet (0.91 m) to 4 ft. (1.22 m) of working space at the rear of the router.
- If cables from other equipment in the rack fall in front of the rear end of the router, carefully gather the cables (using care not to strain them) and use cable ties to anchor them away from the rear of the router.
- If access to the rear of the router is partially blocked by a power strip or some other permanent rack fixture, detach the router from the rack and carefully slide it forward until there is enough clearance to remove the power supply, the network processing engine or network services engine, and the subchassis from the router. Detailed steps for detaching the router from the rack are contained in the following section, [“Removing and Replacing the AC-Input Power Supply.”](#)



Caution

Make sure that at least one other person is available to support the front of the router as you slide it out from the rack and, if necessary, to continue to support it while you remove and insert the power supply, network processing engine or network services engine, or subchassis.

Removing and Replacing the AC-Input Power Supply

The following sections explain how to remove and replace an AC-input power supply in a Cisco 7200 series router.



Note

The procedures for removing and replacing an AC-input power supply in a single or dual power supply configuration are the same for the Cisco 7200 series routers and the Cisco 7206 and Cisco 7206VXR when used as router shelves in the Cisco AS5800 Universal Access Server. Therefore, the illustrations and procedures in the following sections apply to the Cisco 7200 series and the Cisco AS5800 Universal Access Server router shelf, unless indicated otherwise.



Caution

Do not mix AC- and DC-input power supplies in the same router.

Single Power Supply Configuration

The procedures for removing and replacing the AC-input power supply in a single power supply configuration are explained in the following sections:

- [Powering Down the Router and Disconnecting Input Power, page 10](#)
- [Removing the AC-Input Power Supply, page 11](#)
- [Replacing the AC-Input Power Supply, page 13](#)
- [Reconnecting Input Power and Powering Up the Router, page 13](#)

Powering Down the Router and Disconnecting Input Power

To power down Cisco 7200 series routers, that have an installed AC-input power supply, complete the following steps:



Caution

This unit might have more than one power cord. To reduce the risk of electric shock, disconnect the two power cords before servicing the unit. Statement 83



Note

Before powering down the router, use the **copy running-config startup-config** command to save the router's running configuration to nonvolatile memory.

Step 1 Facing the rear of the router, place the power switch on the power supply in the off (O) position.

Step 2 Observe the following items:

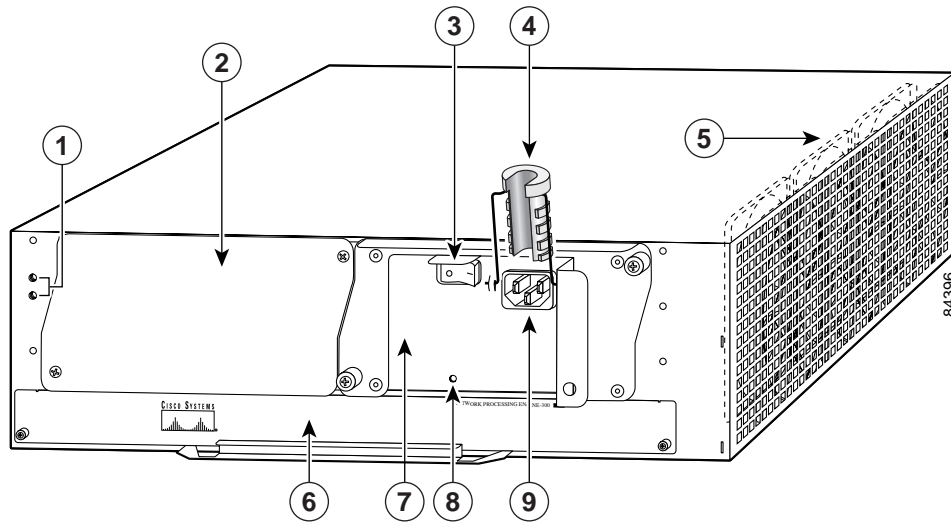
- The green OK LED on the power supply turns off.
- The fans stop operating.
- The LEDs on the I/O controller turn off.
- The LEDs on the port adapters turn off.

This completes the procedure for powering down Cisco 7200 series routers.

To disconnect AC-input power to Cisco 7200 series routers, complete the following steps:

- Step 1** Unplug the input power cable from the power source.
- Step 2** Pull up on the cable-retention clip that secures the input power cable to the router's power supply.
- Step 3** Unplug the other end of the input power cable from the power supply. (See [Figure 2](#).)

Figure 2 Disconnecting Power from a Cisco 7200 Series AC-Input Power Supply



1	Grounding receptacle	6	Network processing engine
2	Power supply filler panel	7	AC-input power supply
3	Power switch	8	OK LED
4	Power cord retention-clip	9	AC power-input receptacle
5	Internal fans		

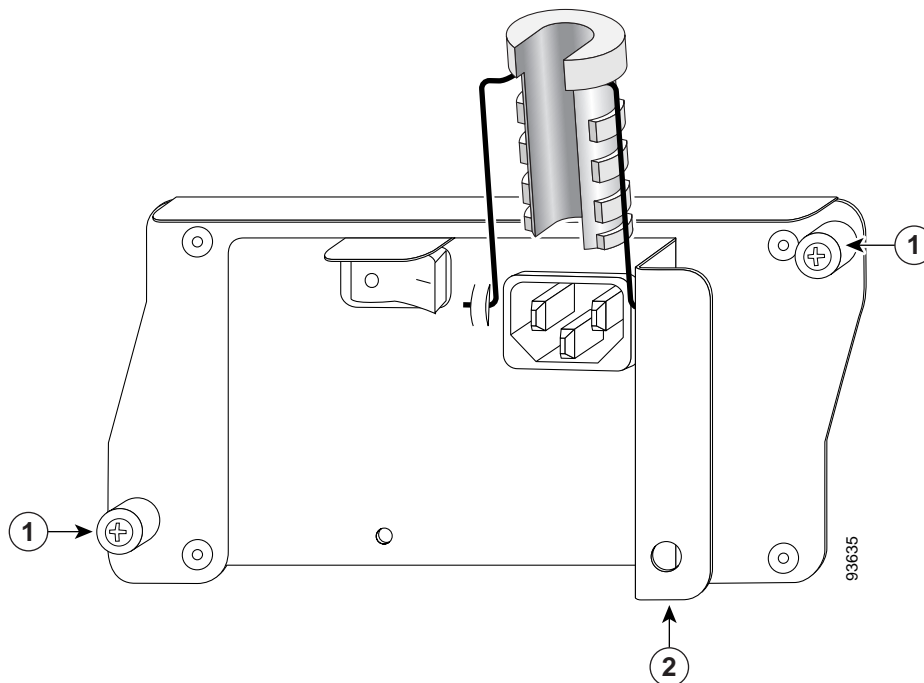
This completes the procedure for disconnecting AC-input power.

Removing the AC-Input Power Supply

To remove the AC-input power supply from Cisco 7200 series routers, complete the following steps:

- Step 1** Using a number 2 Phillips or a 3/16-inch flat-blade screwdriver, loosen the two captive installation screws on the faceplate of the power supply. (See [Figure 3](#).)
If the router is *not* installed in a standard 19-inch, 4-post or 2-post rack, skip to [Step 5](#). If the router is installed in a rack, determine if any permanent rack fixtures, such as a power strip, are obstructing access to the power supply. If a rack fixture is obstructing access to the power supply, proceed to [Step 2](#).

Figure 3 Captive Installation Screws and Handle on the AC-Input Power Supply



1	Captive installation screws	2	Handle
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- Step 2** Using a 3/16-inch flat-blade screwdriver, loosen the screws that secure the router to the front mounting strips of the rack.
- Step 3** Position at least one person in front of the rack to support the front underside of the router.
- Step 4** From the rear of the rack, carefully push the router out of the front of the rack until there is enough clearance to remove the power supply.
- Step 5** Grasp the power supply handle and pull the AC-input power supply from the router.

Caution

To maintain agency compliance requirements and meet EMI emissions standards for Cisco 7200 series routers with a single power supply, the power supply filler plate must remain in the power supply adjacent to the installed power supply. Do not remove this filler plate from the router unless you intend to install a redundant power supply.

This completes the procedure for removing the AC-input power supply from Cisco 7200 series routers.

Replacing the AC-Input Power Supply



Caution Do not mix AC- and DC-input power supplies in the same router.

To install a new AC-input power supply in a Cisco 7200 series chassis, complete the following steps:

- Step 1** Make sure the power switch on the power supply is in the off (O) position.
- Step 2** Grasp the power supply handle with one hand and place your other hand underneath the power supply for support.
- Step 3** Align the power supply to the power supply bay.
- Step 4** Slide the power supply completely into the power supply bay until its faceplate is flush with the router's rear panel.



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

- Step 5** Seat the power supply in the router by tightening its captive installation screws with a number 2 Phillips or a 3/16-inch flat-blade screwdriver.



Note The power supply is not fully seated in the router midplane until you tighten its captive installation screws.

- Step 6** If you removed a power supply and are not replacing it, replace the filler plate on the empty power supply bay. Using a number 2 Phillips screwdriver, tighten the filler plate captive installation screws.
- Step 7** If you pushed the router from the rack, slowly guide the router back into the rack.
- Step 8** Use a 3/16-inch flat-blade screwdriver to tighten the screws that secure the router to front mounting strips of the rack.



Caution To maintain agency compliance requirements and meet EMI emissions standards for the Cisco 7200 series routers with a single power supply, the power supply filler plate must remain in the power supply adjacent to the installed power supply. Do not remove this filler plate from the router unless you intend to install a redundant power supply.

This completes the procedures for replacing an AC-input power supply in the router.

Reconnecting Input Power and Powering Up the Router

The following procedures explain how to reconnect AC-input power to Cisco 7200 series routers, power up the router, and verify a successful system boot.

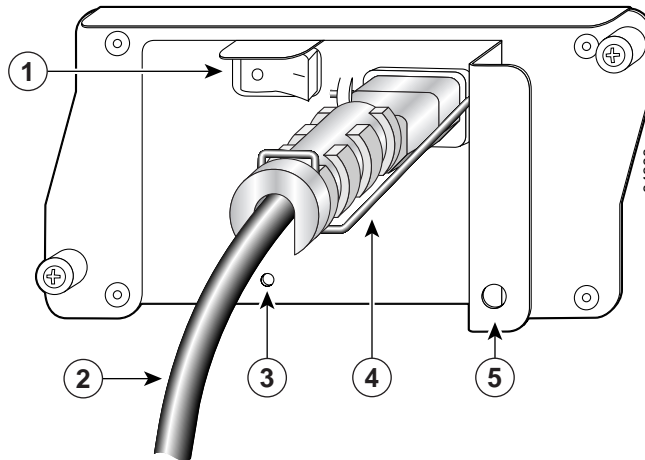


Warning Read the installation instructions before you connect the system to its power source. Statement 10

To reconnect AC-input power to Cisco 7200 series routers, complete the following steps:

- Step 1** At the rear of the router, check that the power switch on the power supply is in the OFF (O) position.
- Step 2** Slide the cable-retention clip up, away from the AC receptacle, and plug in the power cable.
- Step 3** Secure the cable in the power supply AC receptacle by sliding the cable-retention clip down until it snaps around the connector. The cable-retention clip provides strain relief for the AC power cable (refer to Figure 4).

Figure 4 Connecting AC-Input Power to Cisco 7200 Series Routers



1	Power switch	4	Power cable retention clip
2	Power cord	5	Handle
3	OK LED		

- Step 4** Plug the AC power supply cable into the AC power source.



Note Each AC-input power supply operating at 120 VAC requires a minimum of 5A service. We recommend powering Cisco 7200 series routers from a 120 VAC, 15A receptacle U.S. (240 VAC, 10A international) at the power source.

This complete the steps for connect AC-ionput power to the Cisco 7300 series routers.

To power up Cisco 7200 series routers that have an installed AC-input power supply, complete the following steps:

- Step 1** Check for the following:
 - Each port adapter is inserted in its slot, and its respective port adapter lever is in the locked position.
 - The network processing engine or network services engine and the I/O controller are inserted in their respective slots, and their captive installation screws are tightened.
 - All network interface cables are connected to the port adapters.

- A Flash memory card is installed in its PCMCIA slot (if present).
 - Each AC-input power cable is connected and secured with the cable-retention clip.
 - The console terminal is turned on.
- Step 2** At the rear of the router, place the power switch on the power supply in the on (I) position. Repeat this step if a second power supply is installed in the router. The green OK LED on the power supply turns on.
- Step 3** Listen for the fans; you should immediately hear them operating.
- Step 4** During the boot process, observe the system's LEDs. The LEDs on most of the port adapters go on and off in irregular sequence. Some may go on, go out, and go on again for a short time. On the I/O controller, the IO power OK LED comes on immediately.
- Step 5** Observe the initialization process. When the system boot is complete (a few seconds), the network processing engine or network services engine begins to initialize the port adapters and the I/O controller. During this initialization, the LEDs on each port adapter behave differently (most flash on and off). The enabled LED on each port adapter goes on when initialization is completed, and the console screen displays a script and system banner similar to the following:

```
Cisco Internetwork Operating System Software
IOS (tm) 7200 Software (C7200-J-M), Version 11.1(9)
Copyright (c) 1986-1996 by cisco Systems, Inc.
Compiled Sun 21-Apr-96 04:10 by
```

This completes the procedures for replacing the AC-input power supply in a single power supply configuration and reconnecting and powering up the router.

Dual Power Supply Configuration

The procedures for removing and replacing an AC-input power supply in a dual power supply configuration are explained in involves the following sections:

- [Turning Off the Power Supply and Disconnecting AC-Input Power, page 15](#)
- [Removing the AC-Input Power Supply, page 16](#)
- [Replacing the AC-Input Power Supply, page 16](#)
- [Reconnecting AC-Input Power and Turning On the Power Supply, page 17](#)

Turning Off the Power Supply and Disconnecting AC-Input Power

To turn off the AC-input power supply you plan to replace and to disconnect power , complete the following steps:

- Step 1** Facing the rear of the router, place the power switch (on the power supply) in the off (O) position.
- Step 2** Observe the following items:
- The green OK LED on the power supply turns off,
 - The second power supply maintains full system power (the system continues to operate as normal),
- Step 3** Unplug the input power cable from the power source.
- Step 4** Push on the cable-retention clip that secures the input power cable to the router's power supply.

- Step 5** Unplug the input power cable from the power supply.
-

This completes the procedure for disconnecting AC-input power to the power supply.

Removing the AC-Input Power Supply

To remove the AC-input power supply from Cisco 7200 series routers, complete the following steps:

- Step 1** Using a number 2 Phillips or a 3/16-inch flat-blade screwdriver, loosen the two captive installation screws on the faceplate of the power supply. (See [Figure 3](#).)
- If the router is *not* installed in a standard 19-inch, 4-post or 2-post rack, skip to [Step 5](#). If the router is installed in a rack, determine if any permanent rack fixtures, such as a power strip, are obstructing access to the power supply. If a rack fixture is obstructing access to the power supply, proceed with [Step 2](#).
- Step 2** Using a 3/16-inch flat-blade screwdriver, loosen the screws that secure the router to the front mounting strips of the rack.
- Step 3** Position at least one person in front of the rack to support the front underside of the router.
- Step 4** From the rear of the rack, carefully push the router out of the front of the rack until there is enough clearance to remove the power supply from the router.
- Step 5** Grasp the power supply handle and pull the AC-input power supply from the router.
- Step 6** If you do not intend to replace a second power supply, install the filler plate on the empty power supply bay. Using a number 2 Phillips or a 3/16-inch flat-blade screwdriver, tighten the filler plate's captive screws.
-

This completes the procedure for removing the AC-input power supply from Cisco 7200 series routers.

Replacing the AC-Input Power Supply



Caution Do not mix AC- and DC-input power supplies in the same router.

To install a new AC-input power supply in Cisco 7200 series routers, complete the following steps:

- Step 1** Make sure the power switch on the power supply is in the off (O) position.
- Step 2** Grasp the power supply handle with one hand and place your other hand underneath the power supply for support.
- Step 3** Align the power supply to the power supply bay.
- Step 4** Slide the power supply completely into the power supply bay until its faceplate is flush with the router's rear panel.



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

Step 5 Seat the power supply in the router by tightening its captive installation screws with a number 2 Phillips or a 3/16-inch flat-blade screwdriver.



Note The power supply is not fully seated in the router midplane until you tighten its captive installation screws.

Step 6 If you pushed the router forward in the rack, slowly guide the router back into the rack.

Step 7 Use a 3/16-inch flat-blade screwdriver to tighten the screws that secure the router to the front mounting strips of the rack.

This completes the procedures for replacing an AC-input power supply in the router.

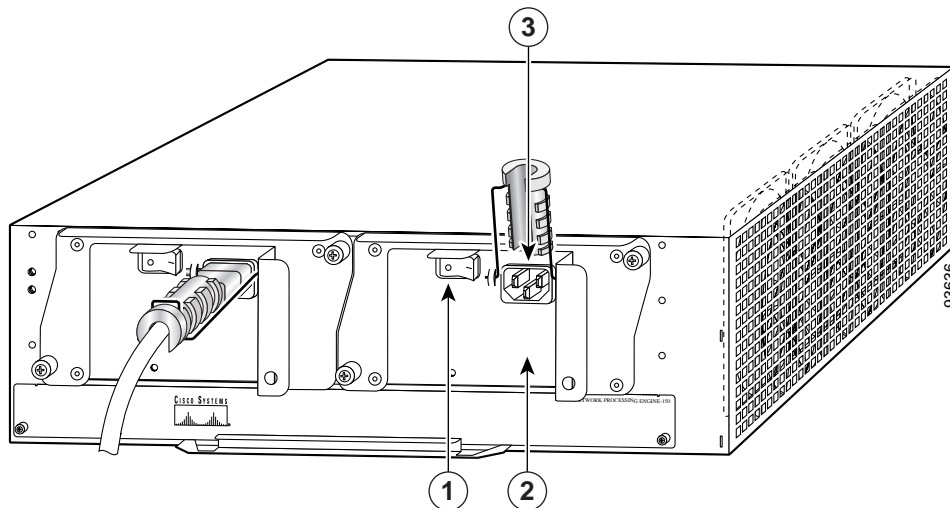
Reconnecting AC-Input Power and Turning On the Power Supply

The following procedures explain how to reconnect AC-input power to Cisco 7200 series routers, turn on the power supply, and verify the power supply is operating properly.

To reconnect AC-input power to Cisco 7200 series routers, complete the following steps:

- Step 1** At the rear of the router, check that the power switch on the power supply is in the off (O) position.
- Step 2** Slide the cable-retention clip up, away from the AC receptacle, and plug in the power cable.
- Step 3** Secure the cable in the power supply AC receptacle by sliding the cable-retention clip down until it snaps around the connector. The cable-retention clip provides strain relief for the AC power cable. (See [Figure 5](#).)

Figure 5 Cisco 7200 Series Power Supply AC Receptacles and Power Switch



1	Power switch	3	AC power receptacle
2	Power supply		

Step 4 Plug the AC power supply cable into the AC power source.



Note Each AC-input power supply operating at 120 VAC requires a minimum of 5A service. We recommend powering Cisco 7200 series routers from a 120 VAC, 15A receptacle U.S. (240 VAC, 10A international) at the power source.

Step 5 Repeat Step 1 through Step 4 if a second power supply is installed.

This completes the steps for reconnecting AC-input power to Cisco 7200 series routers.

To turn on the power supply, complete the following steps:

Step 1 Check for the following:

- Each port adapter is inserted in its slot, and its respective port adapter lever is in the locked position.
- The network processing engine or network services engine and the I/O controller are inserted in their respective slots, and their captive installation screws are tightened.
- All network interface cables are connected to the port adapters.
- A Flash memory card is installed in its PCMCIA slot (if present).
- Each AC-input power cable is connected and secured with the cable-retention clip.
- The console terminal is turned on.

Step 2 At the rear of the router, place the power switch on the power supply in the on (I) position. Repeat this step if a second power supply is installed in the router. The green OK LED on the power supply turns on.

Step 3 Listen for the fans; you should immediately hear them operating.

Step 4 During the boot process, observe the system's LEDs. The LEDs on most of the port adapters go on and off in irregular sequence. Some may go on, go out, and go on again for a short time. On the I/O controller, the IO power OK LED comes on immediately.

Step 5 Observe the initialization process. When the system boot is complete (a few seconds), the network processing engine or network services engine begins to initialize the port adapters and the I/O controller. During this initialization, the LEDs on each port adapter behave differently (most flash on and off). The enabled LED on each port adapter goes on when initialization is completed, and the console screen displays a script and system banner similar to the following:

```
Cisco Internetwork Operating System Software
IOS (tm) 7200 Software (C7200-J-M), Version 11.1(9)
Copyright (c) 1986-1996 by cisco Systems, Inc.
Compiled Sun 21-Apr-96 04:10 by
```

This completes the procedures for removing and replacing the AC-input power supply in a dual power supply configuration, reconnecting input power, and turning on the power supply.

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>

You can access the Cisco website at this URL:

<http://www.cisco.com>

You can access international Cisco websites at this URL:

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

Product Documentation DVD

Cisco documentation and additional literature are available in the Product Documentation DVD package, which may have shipped with your product. The Product Documentation DVD is updated regularly and may be more current than printed documentation.

The Product Documentation DVD is a comprehensive library of technical product documentation on portable media. The DVD enables you to access multiple versions of hardware and software installation, configuration, and command guides for Cisco products and to view technical documentation in HTML. With the DVD, you have access to the same documentation that is found on the Cisco website without being connected to the Internet. Certain products also have .pdf versions of the documentation available.

The Product Documentation DVD is available as a single unit or as a subscription. Registered Cisco.com users (Cisco direct customers) can order a Product Documentation DVD (product number DOC-DOCDVD=) from Cisco Marketplace at this URL:

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

Ordering Documentation

Beginning June 30, 2005, registered Cisco.com users may order Cisco documentation at the Product Documentation Store in the Cisco Marketplace at this URL:

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

Nonregistered Cisco.com users can order technical documentation from 8:00 a.m. to 5:00 p.m. (0800 to 1700) PDT by calling 1 866 463-3487 in the United States and Canada, or elsewhere by calling 011 408 519-5055. You can also order documentation by e-mail at tech-doc-store-mkpl@external.cisco.com or by fax at 1 408 519-5001 in the United States and Canada, or elsewhere at 011 408 519-5001.

Documentation Feedback

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

We appreciate your comments.

Cisco Product Security Overview

Cisco provides a free online Security Vulnerability Policy portal at this URL:

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

From this site, you can perform these tasks:

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

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

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

If you prefer to see advisories and notices as they are updated in real time, you can access a Product Security Incident Response Team Really Simple Syndication (PSIRT RSS) feed from 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 might have identified a vulnerability in a Cisco product, contact PSIRT:

- Emergencies—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.

- 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 to encrypt any sensitive information that you send to Cisco. PSIRT can work from encrypted information that is compatible with PGP versions 2.x through 8.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.

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)—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.

Severity 2 (S2)—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.

Severity 3 (S3)—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.

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.

- 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>

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