



Port Adapter Jacket Card Installation Guide

This document provides installation information about Cisco 7200 VXR router Port Adapter Jacket Card, Product ID C7200-JC-PA.

Document Revision History

The Document Revision History table below records technical changes to this document.

Document Version	Date	Change Summary
OL-8427-04	July, 2007	Adding support for PA-MC-T3-EC and PA-T3/E3-MC.
OL-8427-03	February, 2007	Adding Cisco IOS Release 12.2(31)SB2 support.
OL-8427-02	September, 2006	This version of the document adds support for the NPE-G2 and the VPN Services Adapter.
OL-8427-01	March, 2006	This is the first version of this document.

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Americas Headquarters:
Cisco Systems, Inc., 170 West Tasman Drive, San Jose, CA 95134-1706 USA

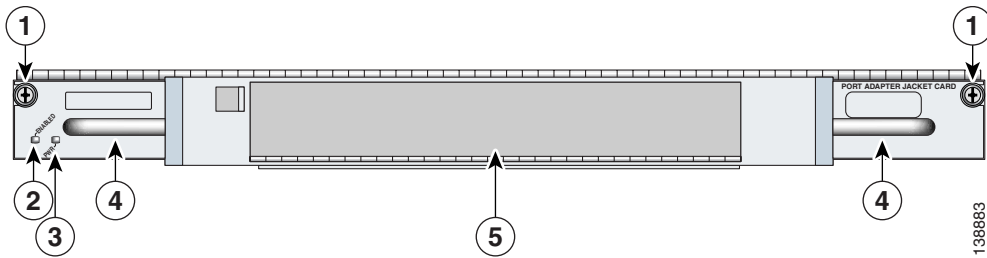
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Product Overview

The Port Adapter Jacket Card is used in the I/O controller slot of a Cisco 7200 VXR router with an NPE-G1 or NPE-G2 installed, and allows a port adapter to be installed in it. Both the NPE-G1 or NPE-G2 incorporate I/O controller functionality, so that the I/O controller slot is available for the Port Adapter Jacket Card. The NPE-G1 or NPE-G2 has a third dedicated peripheral component interconnect (PCI) bus that provides additional bandwidth to the chassis. The third PCI bus allows a port adapter with a high bandwidth point requirement to be used with the Port Adapter Jacket Card in the I/O controller slot.

Figure 1 Port Adapter Jacket Card Faceplate



1	Captive installation screw	4	Handle
2	ENABLE LED	5	Port adapter slot
3	PWR (power) LED		

Table 1 Port Adapter Jacket Card LEDs

LED	Color	Indicates
ENABLE	Green	Port Adapter Jacket Card is enabled for operation.
	Off	Port Adapter Jacket Card is not enabled for operation.
PWR (power)	Yellow	Port Adapter Jacket Card is receiving power.
	Off	Port Adapter Jacket Card is not receiving power.

Table 2 Port Adapter Jacket Card Specifications

Description	Specification
Physical dimensions	Height: 1.4 in. (3.56 cm) Width: 13.5 in. (34.29 cm) Depth: 7.5 in. (19.05 cm)
Weight	3.8 lbs.
Temperature range	Operating, nominal: 41°F to 104°F (5°C to 40°C) Storage: 38°F to 150°F (3°C to 70°C)
Humidity	Operating humidity, nominal: 5 percent to 85 percent relative humidity, non-condensing Operating humidity, short term: 5 percent to 90 percent relative humidity, non-condensing Storage, relative humidity: 5 percent to 95 percent relative humidity, non-condensing

Interface Address Format of the Port Adapter Jacket Card

With the Port Adapter Jacket Card installed in a Cisco 7200 VXR router, the Port Adapter Jacket Card slot address is identified as slot 0. While the Port Adapter Jacket Card slot address is slot 0, the port adapter in the Port Adapter Jacket Card is identified as residing in port adapter slot 5 or slot 7, depending on the number of chassis slots available. The Port Adapter Jacket Card slot number is not required in the interface address of the port adapter in slot 5 or slot 7. Use the interface address format used for any port adapter, as shown in [Table 3](#).

Most *show* commands provide information on the port adapter in slot 5 or slot 7 (depending on the chassis), and ignore the fact that the Port Adapter Jacket Card is present. However, the **show diag** command provides information on both the port adapter and the Port Adapter Jacket Card.

The interface address format is shown in [Table 3](#).

Table 3 Interface Address Format

Interface Address Format	Numbers	Syntax
<i>Port-adapter-slot-number/interface-port-number</i>	Port adapter slot—1 through 7 (Cisco 7206 VXR) Port adapter slot—1 through 5 (Cisco 7204 VXR) Interface port—0 or 1	1 / 0

The following example provides the **show diag** output for slot 0 (the Port Adapter Jacket Card) and slot 7, (the port adapter inserted into the Port Adapter Jacket Card):

```
Router# show diag
Slot 0:
C7100 Escort/Jacket Card Port adapter, 1 port
Port adapter is analyzed
Port adapter insertion time 3d16h ago
EEPROM contents at hardware discovery:
EEPROM format version 4
EEPROM contents (hex):
0x00: 04 FF 40 05 11 FF FF FF FF FF FF FF FF FF FF FF

(display text omitted)

Slot 1:
Dual OC3 POS Port adapter, 2 ports
Port adapter is analyzed

(display text omitted)

Slot 2:
Dual OC3 POS Port adapter, 2 ports
Port adapter is analyzed

(display text omitted)

Slot 3:
POS Single Width, Multi Mode Port adapter, 1 port
Port adapter is analyzed

(display text omitted)

Slot 4:
E3 PA Port adapter, 1 port
Port adapter is analyzed

(display text omitted)

Slot 5:
2CT3+ single wide Port adapter, 2 ports
Port adapter is analyzed

(display text omitted)

Slot 6:
ATM WAN OC3 (MM) Port adapter, 1 port
Port adapter is analyzed

(display text omitted)

Slot 7:
Dual OC3 POS Port adapter, 2 ports
Port adapter is analyzed
Port adapter insertion time 2d23h ago
EEPROM contents at hardware discovery:
Hardware Revision : 1.0
PCB Serial Number : JAE0932HDGK
Part Number : 73-8220-05
Board Revision : A0
RMA Test History : 00
RMA Number : 0-0-0-0
RMA History : 00
```

```

Deviation Number : 0
Product (FRU) Number : PA-POS-2OC3
Top Assy. Part Number : 800-21857-04
EEPROM format version 4
EEPROM contents (hex):
0x00: 04 FF 40 03 E3 41 01 00 C1 8B 4A 41 45 30 39 33
0x10: 32 48 44 47 4B 82 49 20 1C 05 42 41 30 03 00 81
0x20: 00 00 00 00 04 00 88 00 00 00 00 CB 94 50 41 2D
0x30: 50 4F 53 2D 32 4F 43 33 20 20 20 20 20 20 20 20
0x40: 20 C0 46 03 20 00 55 61 04 FF FF FF FF FF FF FF
0x50: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
0x60: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
0x70: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF

```

Hardware and Software Support

The Port Adapter Jacket Card is supported only on the Cisco 7200 VXR platform with an NPE-G1 or NPE-G2.

The following port adapters and service adapters are supported:

- SA-VAM2
- SA-VAM2+
- PA-POS-2OC3
- PA-MC-2T3+
- PA-MC-STM1
- VPN Service Adapter (VSA)
- PA-MC-T3-EC
- PA-T3/E3-EC

For a listing of supported port adapters and service adapters after first customer shipment (FCS), see [Software Advisor](http://www.cisco.com/en/US/support/tsd_most_requested_tools.html) at http://www.cisco.com/en/US/support/tsd_most_requested_tools.html.

The Port Adapter Jacket Card minimum software releases are:

- Cisco IOS Release 12.4(7) and later releases of Cisco IOS Release 12.4
- Cisco IOS Release 12.4(6)T1 and later releases of Cisco IOS Release 12.T
- Cisco IOS Release 12.4(4)XD2 and later releases of Cisco IOS Release 12.4(4)XD
- Cisco IOS Release 12.2(31)SB2 and later releases of Cisco IOS Release 12.2SB

Field Notice

The following field notice has been issued regarding the Port Adapter Jacket Card and NPE-G2:

FN - 62514 - C7200-JC-PA - Compatibility Issue Can Cause System Crash With NPE-G2 - RMA Required

Document ID: 71315

September 6, 2006

See <http://www.cisco.com/warp/public/770/fn62514.shtml>.

Online Insertion and Removal

OIR is not supported on the Port Adapter Jacket Card. However, OIR is supported for any port adapter inserted in the Port Adapter Jacket Card.

Preparing for Installation

We suggest you have the following tools and parts readily available for installation of the Port Adapter Jacket Card:

- Number 2 Phillips or a 3/16-inch flat-blade screwdriver
- Port Adapter Jacket Card
- Port adapter
- Cables for the port adapter
- Any optical fiber devices, such as SFP modules that are required
- Your own ESD-prevention equipment or the disposable grounding wrist strap included with all upgrade kits, field-replaceable units (FRUs), and spares
- Antistatic mat or surface, or static shielding bag

If you need additional equipment, contact a service representative for ordering information.

Safety Guidelines

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



Warning

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

Statement 1030

Safety Warning



Warning

IMPORTANT SAFETY INSTRUCTIONS

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device. Statement 1071

SAVE THESE INSTRUCTIONS

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. Gebruik het nummer van de verklaring onderaan de waarschuwing als u een vertaling van de waarschuwing die bij het apparaat wordt geleverd, wilt raadplegen.

BEWAAR DEZE INSTRUCTIES

Varoitus

TÄRKEITÄ TURVALLISUUSOHJEITA

Tämä varoitusmerkki merkitsee vaaraa. Tilanne voi aiheuttaa ruumiillisia vammoja. Ennen kuin käsittelet laitteistoa, huomioi sähköpiirien käsittelyyn liittyvät riskit ja tutustu onnettomuuksien yleisiin ehkäisytoimiin. Turvallisuusvaroitusten käännökset löytyvät laitteen mukana toimitettujen käännettyjen turvallisuusvaroitusten joukosta varoitusten lopussa näkyvien lausuntonumeroiden avulla.

SÄILYTÄ NÄMÄ OHJEET

Attention

IMPORTANTES INFORMATIONS DE SÉCURITÉ

Ce symbole d'avertissement indique un danger. Vous vous trouvez dans une situation pouvant entraîner des blessures ou des dommages corporels. Avant de travailler sur un équipement, soyez conscient des dangers liés aux circuits électriques et familiarisez-vous avec les procédures couramment utilisées pour éviter les accidents. Pour prendre connaissance des traductions des avertissements figurant dans les consignes de sécurité traduites qui accompagnent cet appareil, référez-vous au numéro de l'instruction situé à la fin de chaque avertissement.

CONSERVEZ CES INFORMATIONS

Warnung WICHTIGE SICHERHEITSHINWEISE

Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu Verletzungen führen kann. Machen Sie sich vor der Arbeit mit Geräten mit den Gefahren elektrischer Schaltungen und den üblichen Verfahren zur Vorbeugung vor Unfällen vertraut. Suchen Sie mit der am Ende jeder Warnung angegebenen Anweisungsnummer nach der jeweiligen Übersetzung in den übersetzten Sicherheitshinweisen, die zusammen mit diesem Gerät ausgeliefert wurden.

BEWAHREN SIE DIESE HINWEISE GUT AUF.

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. Utilizzare il numero di istruzione presente alla fine di ciascuna avvertenza per individuare le traduzioni delle avvertenze riportate in questo documento.

CONSERVARE QUESTE ISTRUZIONI

Advarsel VIKTIGE SIKKERHETSINSTRUKSJONER

Dette advarselssymbolet betyr fare. Du er i en situasjon som kan føre til skade på person. Før du begynner å arbeide med noe av utstyret, må du være oppmerksom på farene forbundet med elektriske kretser, og kjenne til standardprosedyrer for å forhindre ulykker. Bruk nummeret i slutten av hver advarsel for å finne oversettelsen i de oversatte sikkerhetsadvarslene som fulgte med denne enheten.

TA VARE PÅ DISSE INSTRUKSJONENE

Aviso INSTRUÇÕES IMPORTANTES DE SEGURANÇA

Este símbolo de aviso significa perigo. Você está em uma situação que poderá ser causadora de lesões corporais. Antes de iniciar a utilização de qualquer equipamento, tenha conhecimento dos perigos envolvidos no manuseio de circuitos elétricos e familiarize-se com as práticas habituais de prevenção de acidentes. Utilize o número da instrução fornecido ao final de cada aviso para localizar sua tradução nos avisos de segurança traduzidos que acompanham este dispositivo.

GUARDE ESTAS INSTRUÇÕES

¡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. Al final de cada advertencia encontrará el número que le ayudará a encontrar el texto traducido en el apartado de traducciones que acompaña a este dispositivo.

GUARDE ESTAS INSTRUCCIONES

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. Använd det nummer som finns i slutet av varje varning för att hitta dess översättning i de översatta säkerhetsvarningar som medföljer denna anordning.

SPARA DESSA ANVISNINGAR**FONTOS BIZTONSÁGI ELOÍRÁSOK**

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; a fordítás az egyes figyelmeztetések végén látható szám alapján kereshető meg.

ORIZZE MEG EZEKET AZ UTASÍTÁSOKAT!**Предупреждение****ВАЖНЫЕ ИНСТРУКЦИИ ПО СОБЛЮДЕНИЮ ТЕХНИКИ БЕЗОПАСНОСТИ**

Этот символ предупреждения обозначает опасность. То есть имеет место ситуация, в которой следует опасаться телесных повреждений. Перед эксплуатацией оборудования выясните, каким опасностям может подвергаться пользователь при использовании электрических цепей, и ознакомьтесь с правилами техники безопасности для предотвращения возможных несчастных случаев. Воспользуйтесь номером заявления, приведенным в конце каждого предупреждения, чтобы найти его переведенный вариант в переводе предупреждений по безопасности, прилагаемом к данному устройству.

СОХРАНИТЕ ЭТИ ИНСТРУКЦИИ**警告****重要的安全性说明**

此警告符号代表危险。您正处于可能受到严重伤害的工作环境中。在您使用设备开始工作之前，必须充分意识到触电的危险，并熟练掌握防止事故发生的标准工作程序。请根据每项警告结尾提供的声明号码来找到此设备的安全性警告说明的翻译文本。

请保存这些安全性说明

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、一般的な事故防止策に留意してください。警告の各国語版は、各注意事項の番号を基に、装置に付属の「Translated Safety Warnings」を参照してください。

これらの注意事項を保管しておいてください。

주의 **중요 안전 지침**

이 경고 기호는 위험을 나타냅니다. 작업자가 신체 부상을 일으킬 수 있는 위험한 환경에 있습니다. 장비에 작업을 수행하기 전에 전기 회로와 관련된 위험을 숙지하고 표준 작업 관례를 숙지하여 사고를 방지하십시오. 각 경고의 마지막 부분에 있는 경고문 번호를 참조하여 이 장치와 함께 제공되는 번역된 안전 경고문에서 해당 번역문을 찾으십시오.

이 지시 사항을 보관하십시오.

Aviso **INSTRUÇÕES IMPORTANTES DE SEGURANÇA**

Este símbolo de aviso significa perigo. Você se encontra em uma situação em que há risco de lesões corporais. Antes de trabalhar com qualquer equipamento, esteja ciente dos riscos que envolvem os circuitos elétricos e familiarize-se com as práticas padrão de prevenção de acidentes. Use o número da declaração fornecido ao final de cada aviso para localizar sua tradução nos avisos de segurança traduzidos que acompanham o dispositivo.

GUARDE ESTAS INSTRUÇÕES**Advarsel** **VIGTIGE SIKKERHEDSANVISNINGER**

Dette advarselssymbol betyder fare. Du befinder dig i en situation med risiko for legemeskadedigelse. Før du begynder arbejde på udstyr, skal du være opmærksom på de involverede risici, der er ved elektriske kredsløb, og du skal sætte dig ind i standardprocedurer til undgåelse af ulykker. Brug erklæringsnummeret efter hver advarsel for at finde oversættelsen i de oversatte advarsler, der fulgte med denne enhed.

GEM DISSE ANVISNINGER**تحذير****إرشادات الأمان الهامة**

يوضح رمز التحذير هذا وجود خطر. وهذا يعني أنك متواجد في مكان قد ينتج عنه التعرض لإصابات. قبل بدء العمل، احذر مخاطر التعرض للصدمة الكهربائية وكن على علم بالإجراءات القياسية للحيلولة دون وقوع أي حوادث. استخدم رقم البيان الموجود في آخر كل تحذير لتحديد مكان ترجمته داخل تحذيرات الأمان المترجمة التي تأتي مع الجهاز. قم بحفظ هذه الإرشادات

Upozorenje VAŽNE SIGURNOSNE NAPOMENE

Ovaj simbol upozorenja predstavlja opasnost. Nalazite se u situaciji koja može prouzročiti tjelesne ozljede. Prije rada s bilo kojim uređajem, morate razumjeti opasnosti vezane uz električne sklopove, te biti upoznati sa standardnim načinima izbjegavanja nesreća. U prevedenim sigurnosnim upozorenjima, priloženima uz uređaj, možete prema broju koji se nalazi uz pojedino upozorenje pronaći i njegov prijevod.

SAČUVAJTE OVE UPUTE**Upozornění DŮLEŽITÉ BEZPEČNOSTNÍ POKYNY**

Tento upozorňující symbol označuje nebezpečí. Jste v situaci, která by mohla způsobit nebezpečí úrazu. Před prací na jakémkoliv vybavení si uvědomte nebezpečí související s elektrickými obvody a seznamte se se standardními opatřeními pro předcházení úrazům. Podle čísla na konci každého upozornění vyhledejte jeho překlad v přeložených bezpečnostních upozorněních, která jsou přiložena k zařízení.

USCHOVEJTE TYTO POKYNY

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.

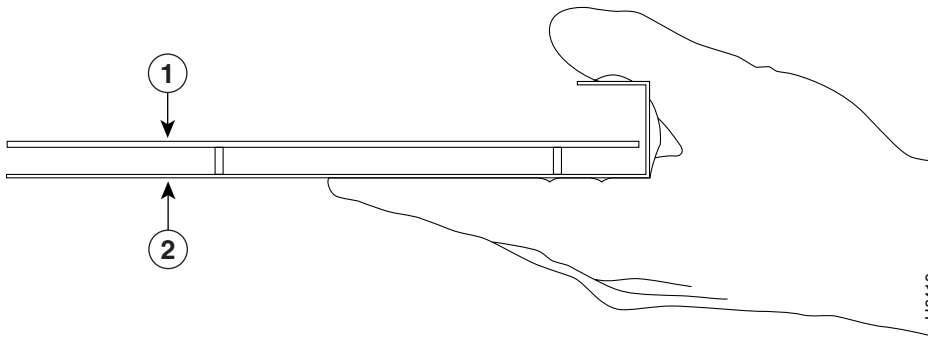
Electrostatic Discharge Prevention

Electrostatic discharge (ESD) damages equipment and impairs electrical circuitry. ESD occurs when printed circuit boards are improperly handled and results in complete or intermittent failures.

The Port Adapter Jacket Card and port adapters consist of a printed circuit board that is fixed in a metal carrier. Electromagnetic interference (EMI) shielding, connectors, and a handle are integral components of the carrier. Hold the Port Adapter Jacket Card and port adapter by its carrier edges and handle; never touch the printed circuit board or connector pins.

Do not touch the printed circuit board when handling any of the components.

Figure 2 Handling the Port Adapter Jacket Card and Port Adapter



1	Printed circuit board	2	Metal carrier
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Although the metal carrier helps to protect the Port Adapter Jacket Card or port adapter from ESD, wear a preventive antistatic strap whenever handling the Port Adapter Jacket Card and port adapter. Ensure that the strap makes good skin contact and connect the strap's clip to an unpainted chassis surface to safely channel unwanted ESD voltages to ground.

If no wrist strap is available, ground yourself by touching the metal part of the chassis.

Following are guidelines for preventing ESD damage:

- Always use an ESD wrist strap or ankle strap when installing or replacing the Port Adapter Jacket Card and port adapter. Ensure that the ESD strap makes contact with your skin.
- Handle the Port Adapter Jacket Card or port adapter by its metal carrier edges and handles; avoid touching the printed circuit board or any connector pins.
- When removing a Port Adapter Jacket Card or port adapter, place it on an antistatic surface with the printed circuit board components facing upward, or in a static shielding bag. If you are returning a port adapter or Port Adapter Jacket Card to the factory, immediately place it in a static shielding bag.


Caution

Periodically check the resistance value of the antistatic strap. The measurement should be within the range of 1 and 10 megohms (Mohms).

Order of Software and Hardware Installation

Depending on the hardware you have installed, your tasks for installing a Port Adapter Jacket Card may vary. Hardware and software installation must happen in a particular order for the installation to be successful.

- If you have a network processing engine other than an NPE-G1 or NPE-G2 and an I/O controller installed, you should first install the NPE-G1 or NPE-G2. See the instructions in the “[NPE-G1 and NPE-G2 Installation and Configuration Information](#)” chapter of the *Network Processing Engine and Network Services Engine Installation and Configuration* document so that you do not lose your running configuration. Then return to this document for information about removing the I/O controller and installing the Port Adapter Jacket Card software image and boot image as well as the Port Adapter Jacket Card and supported port adapter.
- If you have an NPE-G1 or NPE-G2 installed, with or without an I/O controller, and are installing a Port Adapter Jacket Card, you may choose to install the Port Adapter Jacket Card and software in one of two ways:
 - Remove the I/O controller and install the Port Adapter Jacket Card in two steps, powering down the router twice and powering up the router twice (Scenario 1)
 - Remove the I/O controller and install the Port Adapter Jacket card in one step, powering down the router once and powering up the router once (Scenario 2)

Scenario 1

Scenario 1 requires powering down the router twice and powering up the router twice.

-
- Step 1** Remove all the configurations that use the I/O controller ports.
 - Step 2** Save the running configuration to NVRAM on the NPE-G1 or NPE-G2 by executing the **write** command.
 - Step 3** Move the console and auxiliary cables from the I/O controller to the NPE-G1 or NPE-G2.
 - Step 4** Power down the router. (The Port Adapter Jacket Card does not support OIR.) See the “[Powering Down the Router and Disconnecting Input Power](#)” section on page 14.
 - Step 5** Remove the I/O controller. See the “[Removing the I/O Controller Blank Panel or I/O Controller](#)” section on page 18.
 - Step 6** Power on the router. See the “[Reconnecting Input Power and Powering Up the Router](#)” section on page 25.
 - Step 7** Log in to a router to ensure that the console and auxiliary cable connections are working.
 - Step 8** Install the new Cisco IOS image and boot image that support the Port Adapter Jacket Card and the port adapter.
 - Step 9** Set the default boot image to the newly installed boot image.
 - Step 10** Set the default system image to the newly installed Cisco IOS image.
 - Step 11** Save the configuration to NVRAM on the NPE-G1 or NPE-G2 by executing the **write** command.
 - Step 12** Power down the router. See the “[Powering Down the Router and Disconnecting Input Power](#)” section on page 14.

- Step 13** Install the Port Adapter Jacket Card and a supported port adapter. See the “[Installing a Port Adapter Jacket Card and Port Adapter](#)” section on page 21.
 - Step 14** Power on the router. See the “[Reconnecting Input Power and Powering Up the Router](#)” section on page 25.
-

Scenario 2

Scenario 2 requires powering down the router once and powering up the router once.

- Step 1** Remove all the configurations that use the I/O controller ports.
 - Step 2** Install the Port Adapter Jacket Card software and boot image.
 - Step 3** Set the default boot image to the Port Adapter Jacket Card boot image.
 - Step 4** Set the default system image to the Port Adapter Jacket Card boot image.
 - Step 5** Save the configuration to NVRAM on the NPE-G1 or NPE-G2 by executing the **write** command.
 - Step 6** Move the console and auxiliary cables from the I/O controller to the NPE-G1 or NPE-G2.
 - Step 7** Power down the router. See the “[Powering Down the Router and Disconnecting Input Power](#)” section on page 14.
 - Step 8** Remove the I/O controller. See the “[Removing the I/O Controller Blank Panel or I/O Controller](#)” section on page 18.
 - Step 9** Install the Port Adapter Jacket Card and a supported port adapter. See the “[Installing a Port Adapter Jacket Card and Port Adapter](#)” section on page 21.
 - Step 10** Power on the router. See the “[Reconnecting Input Power and Powering Up the Router](#)” section on page 25.
 - Step 11** Log in to another router to ensure that the console and auxiliary cable connections are working.
-

Powering Down the Router and Disconnecting Input Power

Complete the steps in the following sections to power down the router and disconnect input power.



Warning

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

To see translations of the warnings that appear in this publication, refer to the *Regulatory Compliance and Safety Information* document that accompanied this device.

Powering Down the Router

To power down a Cisco 7200 VXR router, complete the following steps:

-
- Step 1** At the rear of the router, place the power switch on the power supply in the Off (O) position. Repeat this action if a second power supply is installed in the router.
- Step 2** Observe the following items:
- The yellow OK LED on the power supply goes off.
 - The fans stop operating.
 - The LEDs on the I/O controller go off.
 - The LEDs on the port adapters go off.

**Caution**

Wait at least 30 seconds before powering on a Cisco 7200 VXR router after you have powered it off.

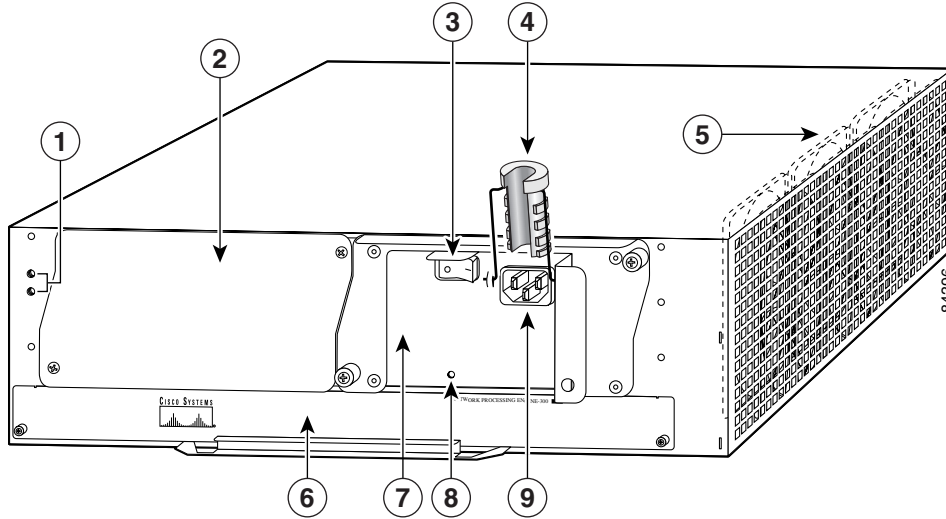
This completes the procedure for powering down a Cisco 7200 VXR router.

Disconnecting AC-Input Power

To disconnect AC-input power from a Cisco 7200 VXR router complete the following steps:

-
- Step 1** Unplug the input power cable from the power source.
- Step 2** Unlock the cable-retention clip. Push up on the cable-retention clip that secures the input power cable to the router power supply.
- Step 3** Unplug the input power cable from the power supply. (See [Figure 3](#).)

Figure 3 Disconnecting Power from a Cisco 7200 VXR AC-Input Power Supply



1	Chassis grounding receptacles	6	Network processing engine or network services engine
2	Power supply filler plate	7	AC-input power supply
3	Power switch	8	PWR OK LED
4	AC-input power cable-retention clip	9	AC-input power supply receptacle
5	Internal fans		

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

This completes the procedure for disconnecting AC-input power from a Cisco 7200 VXR router.

Disconnecting DC-Input Power



Warning

Before completing any of the following steps, and to prevent short-circuit or shock hazards, ensure that power is removed from the DC circuit. To ensure that all power is off, locate the circuit breaker on the panel board that services the DC circuit, switch the circuit breaker to the off position, and tape the switch handle of the circuit breaker in the off position. Statement 322



Warning

When installing the unit, the ground connection must always be made first and disconnected last. Statement 202

To see translations of the warnings that appear in this publication, refer to the *Regulatory Compliance and Safety Information* document that accompanied this device.

To disconnect DC-input power from a Cisco 7200 VXR router, complete the following steps:

Step 1 Turn off the power source and disconnect the –V and +V leads from the power source. You can leave the ground cable connected.

Step 2 Remove the cable tie that secures the –V, +V, and ground leads to the power supply faceplate. Save the cable tie.



Note The cable tie that accompanied your Cisco 7200 VXR router DC-input power supply can be removed and replaced on the power supply without the use of a tool. If you secured the DC-input power supply leads to the power supply faceplate using a different type of cable tie, use a wire stripper to cut that cable tie from the power supply.

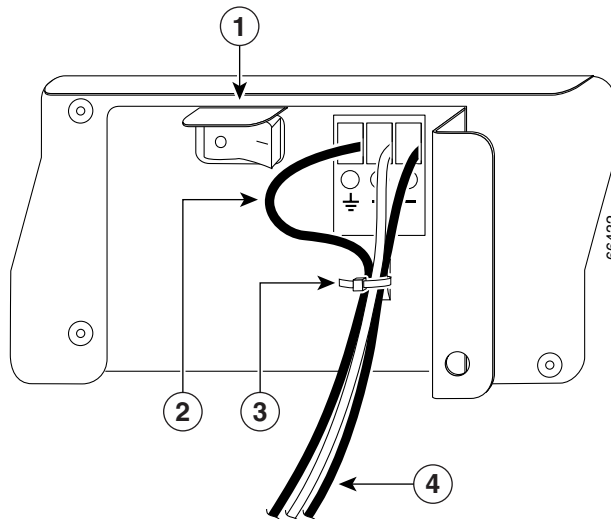
Step 3 Using a 3/16-inch flat-blade screwdriver, loosen the screw below the +V lead receptacle, and pull the lead from the connector. (See [Figure 4](#).)

Step 4 Repeat this step for the –V lead and the ground lead.



Note The color coding of the DC-input power supply leads depends on the color-coding of the DC power source at your site. Typically, green or green/yellow is used for ground, black is used for +V (return), and red or white is used for –V. Make certain that the lead color-coding you choose for the DC-input power supply matches the lead color-coding used at the DC power source.

Figure 4 Disconnecting Power from a Cisco 7200 VXR DC-Input Power Supply



1	Power switch	3	Cable tie
2	Ground lead service loop	4	DC power leads

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

This completes the procedure for disconnecting DC-input power from a Cisco 7200 VXR router.

Removing the I/O Controller Blank Panel or I/O Controller

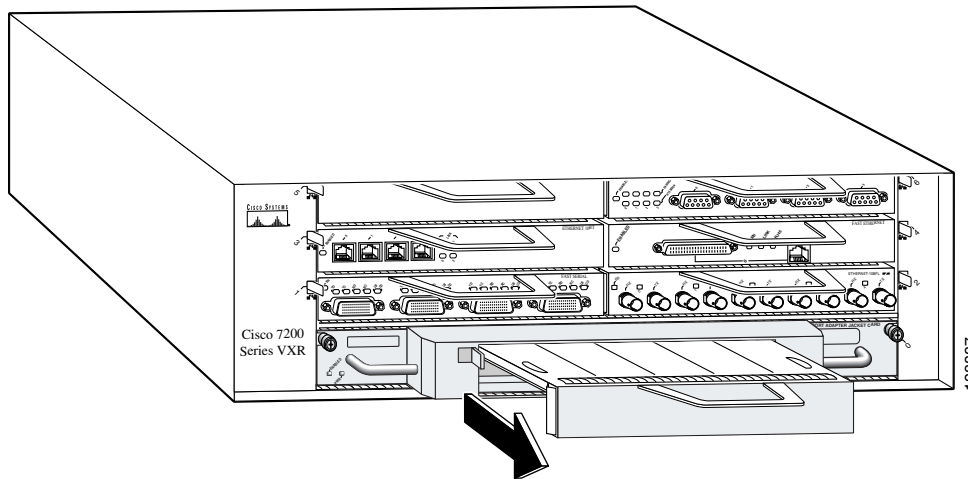
For information on removing an I/O controller blank panel, see the [“Removing an I/O Controller Blank Panel”](#) section on page 18.

For information on removing an I/O controller, see the [“Removing the I/O Controller”](#) section on page 19.

Removing an I/O Controller Blank Panel

- Step 1** Power down the router and disconnect the input power cable. (See the [“Powering Down the Router and Disconnecting Input Power”](#) section on page 14.)
- Step 2** Attach an ESD-preventive wrist strap between you and an unfinished chassis surface.

Figure 5 Removing an I/O Controller Blank Panel



- Step 3** Using a number 2 Phillips or a 3/16-inch flat-blade screwdriver, loosen the two captive installation screws on the I/O controller blank panel.
- Step 4** Gently pull the I/O controller blank panel from the chassis.



Note If you have difficulty removing an I/O controller blank panel from the lowest slot of a Cisco 7200 VXR router that is rack-mounted, first remove the port adapters and processing engine from the chassis.

Removing the I/O Controller

Caution

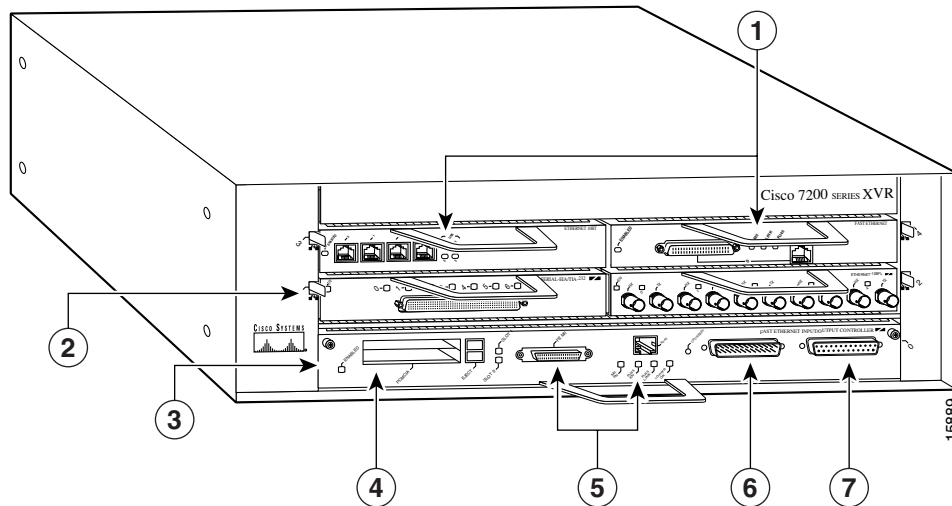
If your current hardware configuration includes a network processing engine that is older than an NPE-G1 or NPE-G2, and an I/O controller, and you are upgrading to both an NPE-G1 or NPE-G2 and the Port Adapter Jacket Card, you must copy the running configuration file to a PC card, flash disk or TFTP server before installing the NPE-G1 or NPE-G2. See the instructions in the “[NPE-G1 and NPE-G2 Installation and Configuration Information](#)” chapter of the *Network Processing Engine and Network Services Engine Installation and Configuration* document. Then remove the I/O controller, following the instructions in this section.

If your current hardware configuration includes an NPE-G1 or NPE-G2 and an I/O controller, do not copy the running configuration file to a flash disk, PC card, or TFTP server before removing the I/O controller. It is not necessary because the running configuration file resides in NVRAM on the NPE-G1 or NPE-G2.

To remove an I/O controller from a Cisco 7200 VXR router, complete the following steps:

- Step 1** Power down the router and disconnect the input power cable. (See the “[Powering Down the Router and Disconnecting Input Power](#)” section on page 14.)
- Step 2** Attach an ESD-preventive wrist strap between you and an unfinished chassis surface.

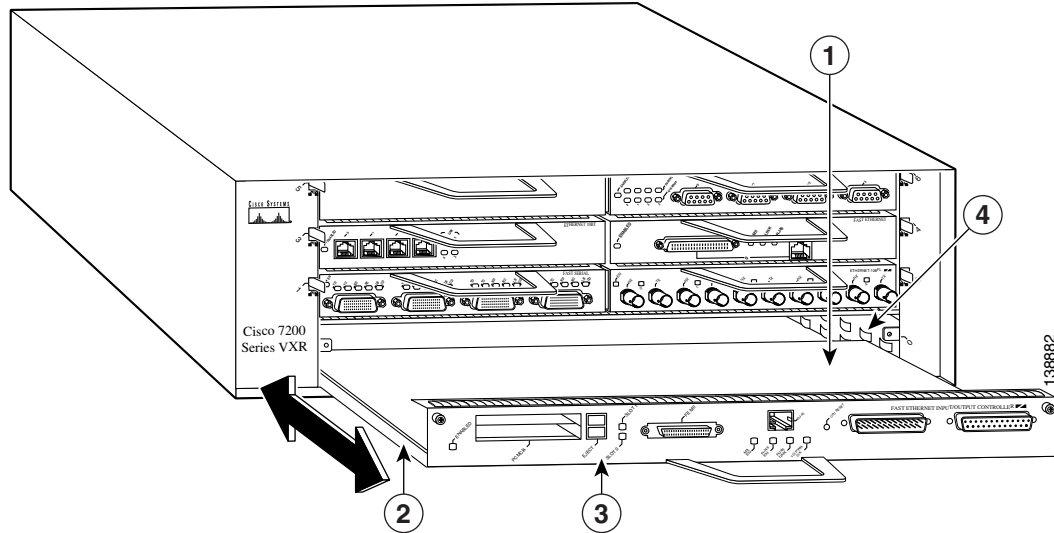
Figure 6 Cisco 7200 VXR Input/Output Controller and Ports



1	Port adapter	5	MII and RJ-45 Fast Ethernet ports
2	Port adapter latch	6	Auxiliary port
3	I/O controller	7	Console port
4	PC card slots		

- Step 3** Disconnect the cables from the I/O controller console, auxiliary, and Fast Ethernet ports (if present).
- Step 4** Remove the flash disk or PC cards (if present) from the I/O controller PC card slots.

Figure 7 Removing the I/O Controller



1	Printed circuit board	3	I/O controller
2	Metal carrier	4	Slot guide

Step 5 Using a number 2 Phillips or a 3/16-inch flat-blade screwdriver, loosen the two captive installation screws on the faceplate of the I/O controller. (See [Figure 6](#).)



Note

If you have difficulty removing the I/O controller from the lowest slot of a Cisco 7200 VXR router that is rack-mounted, remove the port adapters and processing engine from the chassis.

Step 6 Grasp the I/O controller handle and carefully pull the I/O controller from its chassis slot.



Caution

Handle the I/O controller by the carrier edges and handle only; never touch the printed circuit board components or connector pins. (See [Figure 2](#).)

Step 7 Place the I/O controller on an antistatic surface, or in a static shielding bag, with its components facing upward. If you are returning the I/O controller to the factory, immediately place it in a static shielding bag.

This completes the procedure for removing an installed I/O controller.

Installing a Port Adapter Jacket Card and Port Adapter

Follow these steps to install a Port Adapter Jacket Card and port adapter:

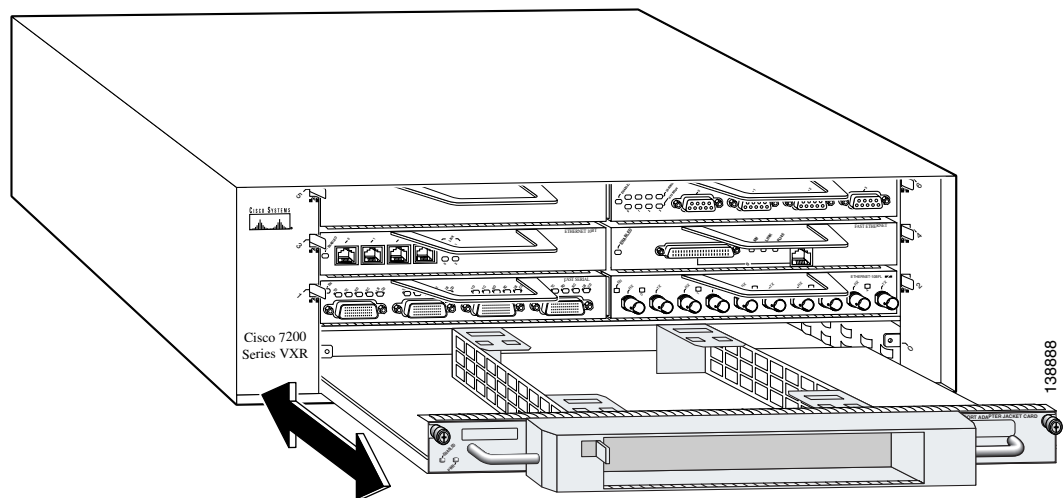

Note

Online insertion and removal (OIR) is not supported on the Port Adapter Jacket Card. OIR is supported on the port adapter. You must have the chassis powered off to install or remove the Port Adapter Jacket Card.

Step 1

Power off the router if you have not already done so. See the [“Powering Down the Router and Disconnecting Input Power”](#) section on page 14.

Figure 8 *Installing a Port Adapter Jacket Card*


Note

The port adapter may be installed in the Port Adapter Jacket Card and both installed into the router together, or the installation may be done in two steps with the Port Adapter Jacket Card being installed first, and then the port adapter.


Note

The following procedures describe the Port Adapter Jacket Card and port adapter being installed in two steps.

Step 2

Align the Port Adapter Jacket Card tray with the slot guides in the chassis.

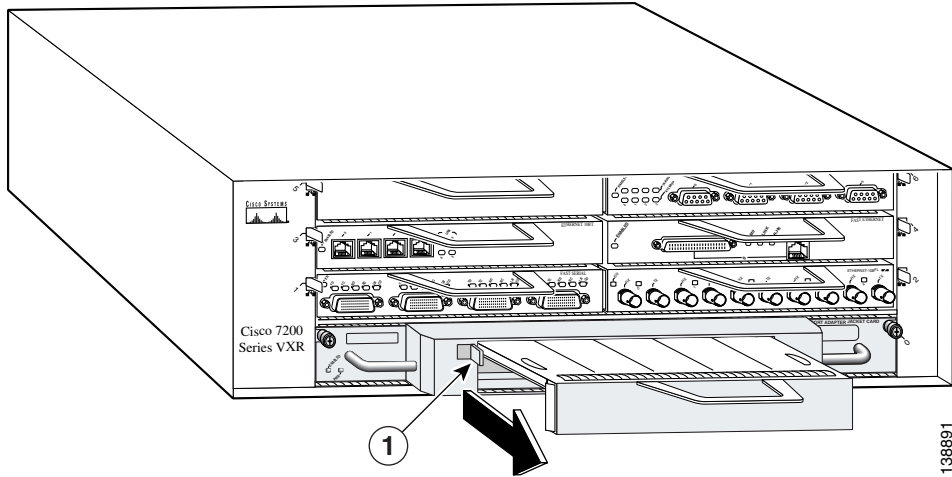
Step 3

Insert the Port Adapter Jacket Card until it is fully seated.

Step 4

Tighten the captive installation screws found on the top corners of the Port Adapter Jacket Card.

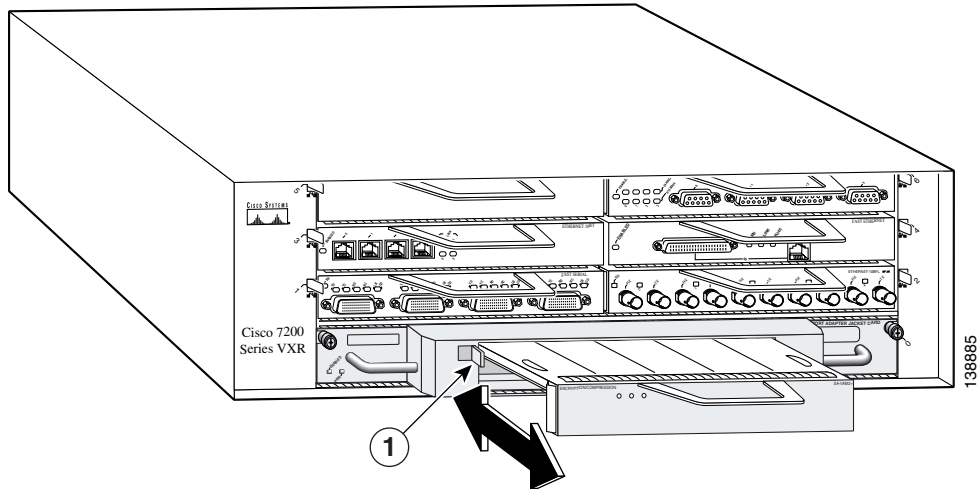
Figure 9 *Removing the Port Adapter Blank Panel*



1	Port adapter lock lever
----------	-------------------------

- Step 5** Remove any port adapter blank panel that may be in place.
- a. Move the lock lever on the top left corner of the Port Adapter Jacket Card until the port adapter blank panel releases.
 - b. Pull the port adapter blank panel from the Port Adapter Jacket Card.

Figure 10 *Installing a Port Adapter in the Port Adapter Jacket Card*



1	Port adapter lock lever
----------	-------------------------

- Step 6** Insert the port adapter into the Port Adapter Jacket Card until it is fully seated.
- Step 7** Move the port adapter lock lever to the locked position.
- Step 8** If you removed the processing engine and port adapters, replace them in a bottom-to-top order.

You have completed installing the Port Adapter Jacket Card and port adapter and are ready to connect power to the router and power on. See the [“Reconnecting Input Power and Powering Up the Router”](#) section on page 25.

Removing a Port Adapter and Port Adapter Jacket Card

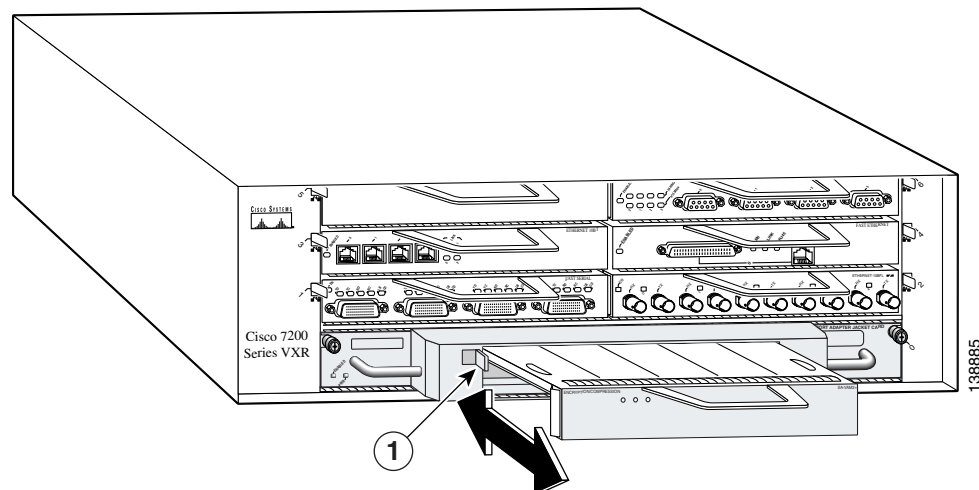


Note

Online insertion and removal (OIR) is not supported on the Port Adapter Jacket Card. OIR is supported on the port adapter.

If you are removing only the port adapter, you do not have to power down the router.

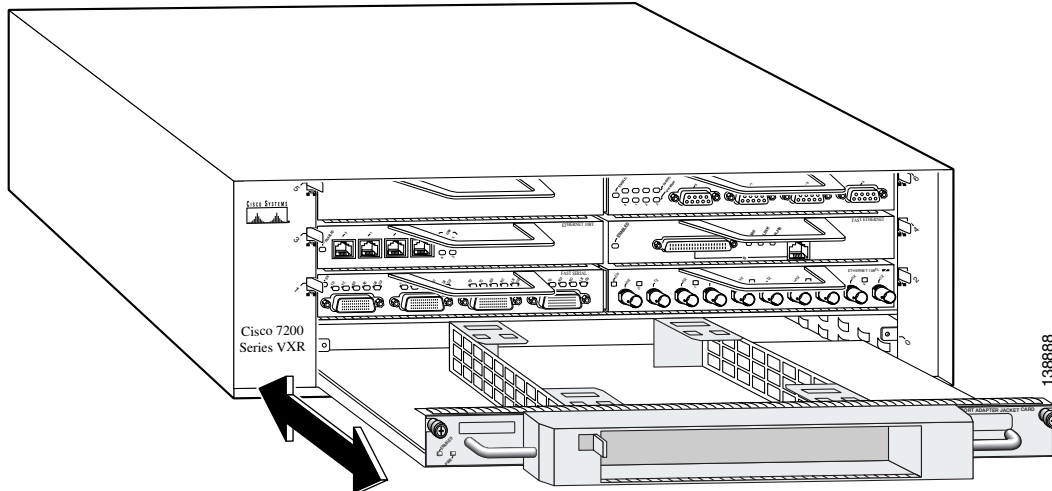
Figure 11 Removing a Port Adapter



1	Port adapter lock lever
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- Step 1** Remove the port adapter by pressing the lock lever until the port adapter releases.
- Step 2** Pull the port adapter from the Port Adapter Jacket Card.
- Step 3** If you are not planning to remove the Port Adapter Jacket Card, replace the port adapter or insert a port adapter blank panel in the Port Adapter Jacket Card to ensure proper airflow through the router.

Figure 12 Removing the Port Adapter Jacket Card



Note

If you have difficulty removing the Port Adapter Jacket Card from the lowest slot of a Cisco 7200 VXR router that is rack-mounted, first remove the port adapters and network processing engine from the chassis, and then remove the Port Adapter Jacket Card.

- Step 4** If you are removing the Port Adapter Jacket Card, loosen the captive installation screws found at the top left corners of the Port Adapter Jacket Card and, using the handles on the Port Adapter Jacket Card, pull the Port Adapter Jacket Card from the chassis.
- Step 5** Replace the Port Adapter Jacket Card with an I/O controller blank panel or another Port Adapter Jacket Card to ensure proper airflow through the router.
- Step 6** If the Port Adapter Jacket Card has been replaced, insert a port adapter or a port adapter blank panel into the Port Adapter Jacket Card to ensure proper airflow through the router.
- Step 7** Tighten the captive installation screws.
- Step 8** If you removed the processing engine or port adapters from the chassis, replace them in a bottom-to-top order.

You have finished removing the port adapter and Port Adapter Jacket Card and are ready to connect power and power on. See the [“Reconnecting Input Power and Powering Up the Router”](#) section on [page 25](#).

Reconnecting Input Power and Powering Up the Router

The following procedures explain how to reconnect input power to a Cisco 7200 VXR router, 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

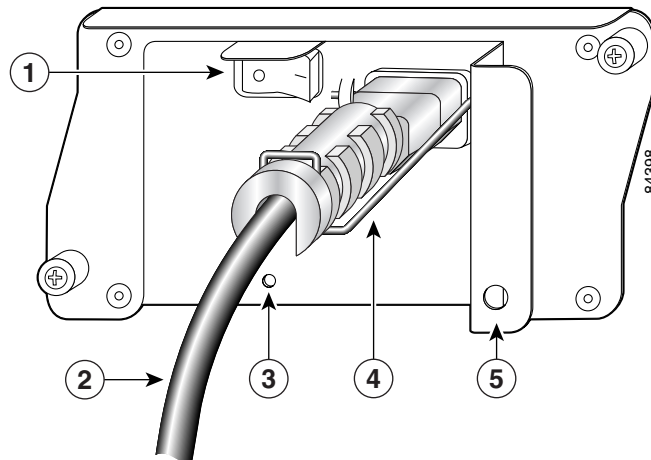
To see translations of the warnings that appear in this publication, refer to the *Regulatory Compliance and Safety Information* document that accompanied this device.

Reconnecting AC-Input Power

To reconnect AC-input power to a Cisco 7200 VXR router, 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. (See [Figure 13](#).)
- 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.

Figure 13 Connecting AC-Input Power to a Cisco 7200 VXR Router



1	Power switch	4	Power cable-retention clip
2	Power cord	5	Handle with hole for cable tie
3	PWR OK LED		

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



Note For Cisco 7200 VXR routers, each AC-input power supply operating at 120 VAC requires a minimum of 5A service.

We recommend powering Cisco 7200 VXR routers from a 120 VAC, 15A receptacle United States (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 a Cisco 7200 VXR router. Proceed to the [“Powering Up the Router”](#) section on page 28.

Reconnecting DC-Input Power



Note

The color-coding of the DC-input power supply leads depends on the color-coding of the DC power source at your site. Typically, green or green/yellow is used for ground, black is used for +V (return), and red or white is used for -V. Make certain the lead color-coding you choose for the DC-input power supply matches the lead color-coding used at the DC power source.



Warning

Before completing any of the following steps, and to prevent short-circuit or shock hazards, ensure that power is removed from the DC circuit. To ensure that all power is off, locate the circuit breaker on the panel board that services the DC circuit, switch the circuit breaker to the off position, and tape the switch handle of the circuit breaker in the off position. Statement 322

To see translations of the warnings that appear in this publication, refer to the *Regulatory Compliance and Safety Information* document that accompanied this device.



Warning

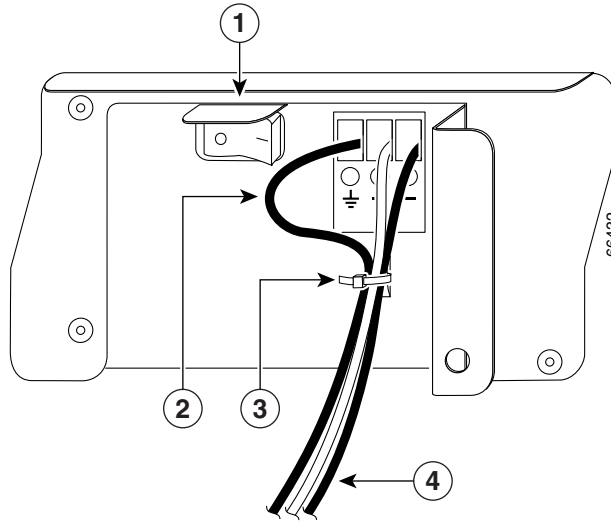
When installing the unit, the ground connection must always be made first and disconnected last. Statement 42

To see translations of the warnings that appear in this publication, refer to the *Regulatory Compliance and Safety Information* document that accompanied this device.

To reconnect DC-input power to a Cisco 7200 VXR router, complete the following steps:

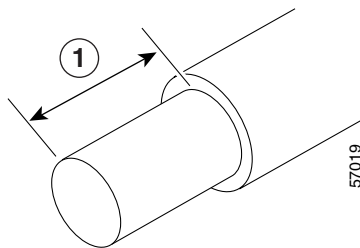
Step 1 Ensure that the -V and +V leads are disconnected from the power source.

Step 2 At the rear of the router, check that the power switch on the power supply is in the Off (O) position. (See [Figure 14.](#))

Figure 14 Connecting DC-Input Power to a Cisco 7200 VXR Router

1	Power switch	3	Cable tie
2	Ground lead service loop	4	DC power leads

Step 3 If necessary, use a wire stripper to strip approximately 0.55 inch (14 mm) from the $-V$, $+V$, and ground leads. (See [Figure 15](#).)

Figure 15 Stripping the DC-Input Leads

1	0.55 in. (14 mm)		
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Step 4 Attach the ground lead. Insert the stripped end of the ground lead all the way into the ground lead receptacle on the DC-input power supply, and tighten the receptacle screw using a 3/16-inch flat-blade screwdriver. (See [Figure 14](#).)

Step 5 Insert the stripped end of the $+V$ lead all the way into the $+V$ lead receptacle and tighten the receptacle screw using the 3/16-inch flat-blade screwdriver. Repeat Step 5 for the $-V$ lead.



Note Make sure that the entire stripped end of each lead is inserted all the way into its receptacle. If any exposed wire at the stripped end of a lead is visible after you insert the lead into its receptacle, remove the lead from the receptacle, use the wire stripper to cut the stripped end of the lead, and repeat [Step 3](#) through [Step 5](#).

Step 6 After tightening the receptacle screw for the ground, +V, and –V DC-input leads, secure the leads to the power supply faceplate. Use the cable tie you saved earlier to secure the three leads.



Note For Cisco 7200 VXR routers, when securing the ground, +V, and –V DC-input leads to the power supply faceplate, leave a small service loop in the ground lead to ensure that it is the last lead to disconnect from the power supply if a great deal of strain is placed on all three leads. (See [Figure 14](#).)

Step 7 Connect the ground, +V, and –V leads to the power source.



Note For Cisco 7200 VXR routers, each DC-input power supply operating at –48 VDC in North America requires a minimum of 13A service. Each DC-input power supply operating at –60 VDC in the European Union requires a minimum of 8A service.



Warning

This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that a listed and certified fuse or circuit breaker, 35A minimum 60 VDC, is used on all current-carrying conductors.

To see translations of the warnings that appear in this publication, refer to the *Regulatory Compliance and Safety Information* document that accompanied this device.

Step 8 Repeat Step 1 through Step 7 if a second power supply is installed.

This completes the steps for reconnecting DC-input power to a Cisco 7200 VXR router.

Powering Up the Router

To power up a Cisco 7200 VXR router that has an installed AC-input or DC-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 or cable-retention clip is in the locked position.
- The network processing engine or network services engine and the Port Adapter Jacket Card are inserted in their respective slots, and their captive installation screws are tightened.
- All network interface cables are connected to the port adapters.
- If present, a flash memory card is properly installed in its PC card slot.
- Each AC-input power cable is connected and secured with the cable-retention clip (AC-input power supplies only).
- Each DC lead is connected and secured to the power supply faceplate with a cable tie (DC-input power supplies only).
- Each DC lead is connected and secured to the power source (DC-input power supplies only).

- Ensure that the tape (that you applied earlier) is removed from the circuit breaker switch handle, and power is restored by moving the circuit breaker handle to the On position (DC-input power supplies only).
 - 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 yellow OK LED on the power supply comes on.
- Step 3** Listen for the fans; you should immediately hear them operating.
- Step 4** During the boot process, observe the system LEDs. The LEDs on most of the port adapters go on and off in irregular sequence. Some may come on, go out, and come on again for a short time.
- Step 5** Observe the initialization process. When the system boot is complete (a few seconds), the network processing 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 comes on when initialization is completed, and the console screen displays a script and system banner similar to the following display:
- ```
Cisco Internetwork Operating System Software
IOS (tm) 7200 Software (C7200-J-M), Version 11.1(9) [kpfjrgiu 100]
Copyright (c) 1986-1996 by cisco Systems, Inc.
Compiled Sun 21-Apr-96 04:10 by
```
- Step 6** Check the Port Adapter Jacket Card to see that the PWR LED and ENABLE LEDs are on.

---

This completes the procedures for connecting input power and powering up the router.

## Related Documentation

Your Cisco 7200 VXR router and the Cisco IOS software running on it contain extensive features and functionality, which are documented in the following resources:

- [Cisco 7200 Series Routers Documentation Roadmap](#) for a list of all Cisco 7200 series routers documentation and troubleshooting tools and information.
- [Cisco 7200 Series Routers Port Adapter Documentation Roadmap](#) for a list of all Cisco 7200 series routers-supported port adapter documentation.
- [Cisco 7200 Series Routers Troubleshooting Documentation Roadmap](#) for links to troubleshooting tools, utilities, and Tech Notes.

## Obtaining Documentation, Obtaining Support, and Security Guidelines

For information on obtaining documentation, obtaining support, providing documentation feedback, security guidelines, and also recommended aliases and general Cisco documents, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised technical documentation at: <http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>.

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This document is to be used in conjunction with the documents listed in the [“Related Documentation”](#) section.

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