



# Cisco 7200 Rack Density System (RDS) Installation Instructions

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Product Number: CISC07200RDS

## Document Version History

The document version history is in Table 1.

**Table 1**      *Document Version History*

Document Version	Date	Notes
78-11310-04	October, 2005	This document version adds warning statement numbers.

## Introduction

The Cisco 7200 Rack Density System (RDS) is a sheet-metal assembly used to organize Cisco 7206 VXR routers vertically into a rack. The main function of the RDS is to change the airflow from side-to-side to front-to-back. When routers are mounted horizontally in a rack, air flows sideways between the racks. Vertical mounting of routers prevents overheating in the last rack in a series of racks.

## Objectives

The purpose of this document is to explain how to perform the following procedures:

- Assemble mounting flanges on the RDS
- Install the RDS in a rack
- Mount Cisco 7206 VXR routers in the RDS



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## Related Documentation

For more information, refer to the following resource:

For hardware installation and maintenance information on the Cisco 7206 VXR routers, refer to the *Cisco 7200 VXR Installation and Configuration Guide* that shipped with your router.

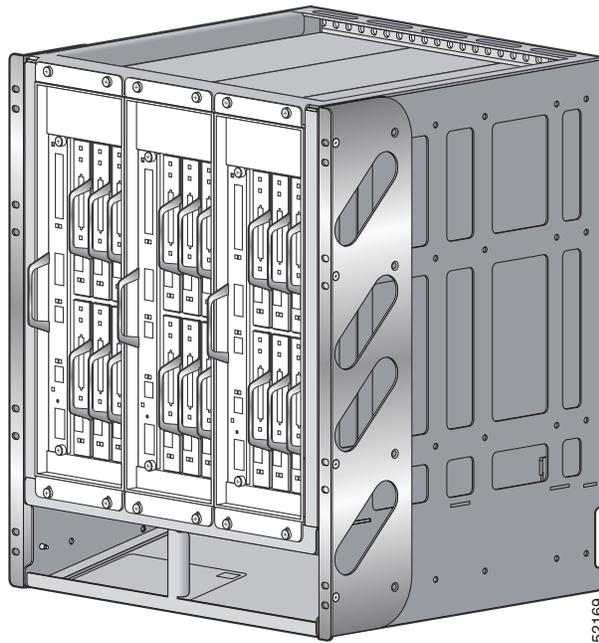
## Cisco 7200 RDS Overview

The Cisco 7200 Rack Density System (RDS) is a sheet-metal assembly designed to arrange Cisco 7206 VXR routers vertically in a rack. The RDS is suitable for most EIA or ETSI 19-inch, seven-foot high or six-foot high, four-post racks. You can purchase optional rack-mounting brackets for wider racks.

The RDS mounts in the rack in any one of eight configurations, depending on front orientation or reverse orientation. Up to three RDSs can be mounted in most typical seven foot equipment racks with at least 40 usable rack units (RUs) for EIA racks, or 69 usable RUs for ETSI racks.

Each RDS accommodates up to three Cisco 7206 VXR routers and/or filler panels, mounted vertically.

**Figure 1 Fully Populated Cisco 7200 RDS**



The Cisco 7200 RDS is available as a single field-replaceable unit (FRU) (part number CISCO7200RDS).

## Installation Steps for the Cisco 7200 RDS

For existing routers:

- Powering down and disconnecting power to the chassis
- Uninstalling the chassis from the rack
- Removing brackets from the chassis
- Installing front-mounting flanges and rear spacer on the chassis

For Cisco 7200 RDS:

- Installing mounting flanges
- Mounting the RDS in a rack
- Installing routers and/or filler panels



**Note**

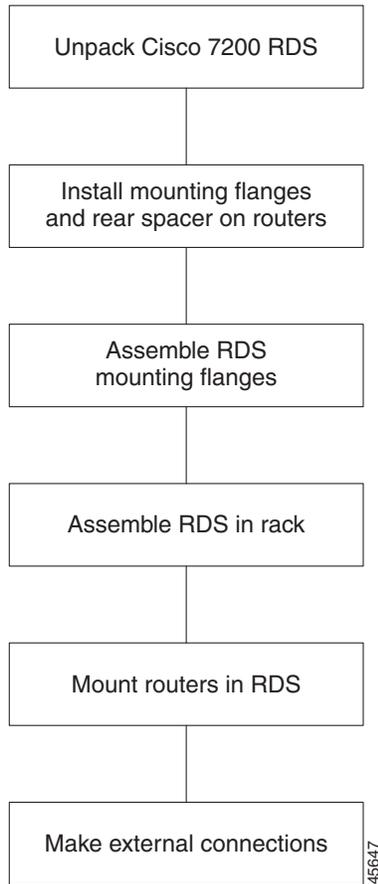
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The RDS should not be populated until it has been mounted in the rack.

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## Cisco 7200 RDS Flowchart

A flowchart of the steps to assemble the RDS, install it in a rack and mount the Cisco 7206 VXR routers in it follows.

**Figure 2**      **Installation Flowchart**

## Installation Prerequisites

This section includes the following guidelines:

- A list of parts and tools you need to assemble the RDS for installation in a rack, and prepare the Cisco 7206 VXR routers for installation in the RDS
- Safety and ESD-prevention guidelines to help you avoid injury to yourself and damage to the equipment
- Consideration before installing the Cisco 7206 VXR routers in the RDS

## Tools and Parts Required

The RDS comes with the hardware to install front-mounting flanges and a rear spacer on Cisco 7206 VXR routers, mounting flanges on the RDS, and to mount up to three Cisco 7206 VXR routers and/or filler panels. You will need the following parts and tools. If you need additional equipment, contact a service representative for ordering information.

**Parts and Tools Needed**

- A number 2 Phillips screwdriver
- A 3/16-inch flat-blade screwdriver to disconnect existing Cisco 7206 VXR routers from DC-input power before rack-mounting them in the RDS

For the RDS:

- A single RDS chassis
- Two mounting flanges for either side of the RDS to install in a rack
- Eight 100 deg #10-32 x 1/2-inch Phillips screws to secure the two mounting flanges to the RDS

For Cisco 7206 VXR routers:

- Six front-mounting flanges (two per router)
- Three rear spacers (one per router)
- Eighteen M4 x 10-mm flathead Phillips screws to secure the front-mounting flanges and rear spacer (six per router; four for the front-mounting flanges and two for the rear spacers)
- Twelve panhead #8-32 x 1/2 Phillips screws with washers attached, to secure the Cisco 7206 VXR routers and/or filler panels to the RDS

**Tools and Parts Required But Not Supplied**

- A number 2 Phillips screwdriver
- A 3/16-inch flat-blade screwdriver
- Eight screws to secure the RDS to the rack rails (four for each mounting flange); these can be the same ones used to uninstall the router from the rack in [“Uninstalling Routers from the Existing Rack” section on page 17](#).

**Optional Equipment (see your service representative for ordering):**

- Filler panels to populate unused router slots
- Optional rack-mounting brackets for 21-inch or 23-inch EIA racks

## 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 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. 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 käsittelemiseen liittyvät riskit ja tutustu onnettomuuksien yleisiin ehkäisytapoihin. 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****Figyelem FONTOS BIZTONSÁGI ELOÍRÁSOK**

Ez a figyelmeztető jel veszélyre utal. Sérülésveszélyt rejtő helyzetben van. Mielott 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 legemeskade. 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 للصدمات 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****Προειδοποίηση ΣΗΜΑΝΤΙΚΕΣ ΟΔΗΓΙΕΣ ΑΣΦΑΛΕΙΑΣ**

Αυτό το προειδοποιητικό σύμβολο σημαίνει κίνδυνο. Βρίσκεστε σε κατάσταση που μπορεί να προκαλέσει τραυματισμό. Πριν εργαστείτε σε οποιοδήποτε εξοπλισμό, να έχετε υπόψη σας τους κινδύνους που σχετίζονται με τα ηλεκτρικά κυκλώματα και να έχετε εξοικειωθεί με τις συνήθειες πρακτικές για την αποφυγή ατυχημάτων. Χρησιμοποιήστε τον αριθμό δήλωσης που παρέχεται στο τέλος κάθε προειδοποίησης, για να εντοπίσετε τη μετάφρασή της στις μεταφρασμένες προειδοποιήσεις ασφαλείας που συνοδεύουν τη συσκευή.

**ΦΥΛΑΞΤΕ ΑΥΤΕΣ ΤΙΣ ΟΔΗΓΙΕΣ****אזהרה****הוראות בטיחות חשובות**

סימן אזהרה זה מסמל סכנה. אתה נמצא במצב העלול לגרום לפציעה. לפני שתעבוד עם ציוד כלשהו, עליך להיות מודע לסכנות הכרוכות במעגלים חשמליים ולהכיר את הנהלים המקובלים למניעת תאונות. השתמש במספר ההוראה המסופק בסופה של כל אזהרה כדי לאתר את התרגום באזהרות הבטיחות המתורגמות שמצורפות להתקן.

**שמור הוראות אלה****Opomena****ВАЖНИ БЕЗБЕДНОСНИ НАПАТСТВИЈА**

Симболот за предупредување значи опасност. Се наоѓате во ситуација што може да предизвика телесни повреди. Пред да работите со опремата, бидете свесни за ризикот што постои кај електричните кола и треба да ги познавате стандардните постапки за спречување на несреќни случаи. Искористете го бројот на изјавата што се наоѓа на крајот на секое предупредување за да го најдете неговиот период во преведените безбедносни предупредувања што се испорачани со уредот.

**ЧУВАЈТЕ ГИ ОВИЕ НАПАТСТВИЈА**

**Ostrzeżenie WAŻNE INSTRUKCJE DOTYCZĄCE BEZPIECZEŃSTWA**

Ten symbol ostrzeżenia oznacza niebezpieczeństwo. Zachodzi sytuacja, która może powodować obrażenia ciała. Przed przystąpieniem do prac przy urządzeniach należy zapoznać się z zagrożeniami związanymi z układami elektrycznymi oraz ze standardowymi środkami zapobiegania wypadkom. Na końcu każdego ostrzeżenia podano numer, na podstawie którego można odszukać tłumaczenie tego ostrzeżenia w dołączonym do urządzenia dokumencie z tłumaczeniami ostrzeżeń.

**NINIEJSZE INSTRUKCJE NALEŻY ZACHOWAĆ****Upozornenie DÔLEŽITÉ BEZPEČNOSTNÉ POKYNY**

Tento varovný symbol označuje nebezpečenstvo. Nachádzate sa v situácii s nebezpečenstvom úrazu. Pred prácou na akomkoľvek vybavení si uvedomte nebezpečenstvo súvisiace s elektrickými obvodmi a oboznámte sa so štandardnými opatreniami na predchádzanie úrazom. Podľa čísla na konci každého upozornenia vyhľadajte jeho preklad v preložených bezpečnostných upozorneniach, ktoré sú priložené k zariadeniu.

**USCHOVAJTE SI TENTO NÁVOD**


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## 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.

## RDS Lifting Guidelines

An unpopulated Cisco 7200 RDS weighs 33 pounds. A fully populated Cisco 7200 RDS with three routers weighs approximately 170 pounds. To avoid problems with lifting, you should install the RDS in a rack before mounting routers. Ensure that the rack is placed in a position where your site is properly prepared, so you avoid having to move it later to accommodate power sources and network connections.



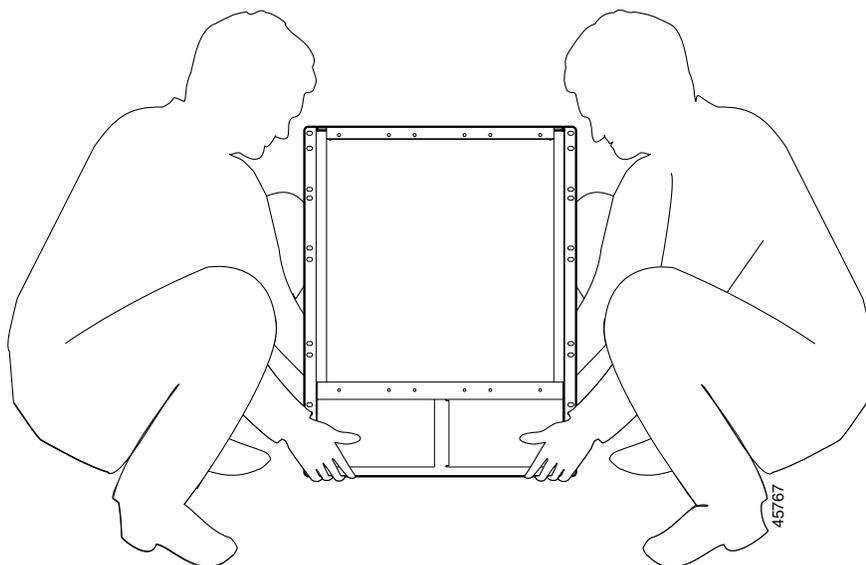
### Warning

**To prevent personal injury or damage to the RDS, never mount Cisco 7206 VXR routers in the RDS before installing it in the rack. The weight of a fully populated RDS is approximately 170 pounds and would be too heavy to lift.**

Whenever you lift the RDS or any heavy object, follow these guidelines (see [Figure 3](#)):

- Do not attempt to lift the RDS by yourself; have someone assist you.
- Ensure that your footing is solid, and balance the weight of the object between your feet.
- Lift the RDS slowly; never move suddenly or twist your body as you lift.
- Keep your back straight and lift with your legs, not your back. If you must bend down to lift the chassis, bend at the knees, not at the waist, to reduce the strain on your lower back muscles.

**Figure 3** *Lifting an Unpopulated Cisco 7200 RDS Chassis*



### Warning

**Two people are required to lift the Cisco 7200 RDS. To prevent injury, keep your back straight and lift with your legs, not your back. Lift the RDS from the bottom; grasp the underside of its exterior with both hands.**



### Warning

**To prevent personal injury or damage to the RDS, never attempt to lift or tilt the chassis using the handles on modules (such as power supplies, fans, or cards); these types of handles are not designed to support the weight of the unit. Lift the unit only by using the edges that are an integral part of the RDS, or by grasping it underneath its lower edge.**

# Cisco 7200 RDS Considerations

The Cisco 7200 RDS is suitable for most 19-inch, seven-foot high or six-foot high, four-post racks. You can purchase optional rack-mounting brackets for wider racks. Up to three RDSs can be mounted in most typical seven-foot equipment racks with at least 40 usable rack units (RUs) for EIA racks, or 69 usable RUs for ETSI racks.

Each RDS permits a maximum of three routers and/or filler panels.

Using the hardware provided with your Cisco 7200 RDS, consider the following guidelines:

- Always install the RDS in a rack *before* mounting Cisco 7206 VXR routers to avoid excessive weight and lifting problems.
- Routers mount vertically, with the left end up (the end where the fan is located), as indicated by the label and arrow on the RDS.
- When facing the front of the RDS, install routers from left to right, in slot one, then slot two, and so on.
- If you do not intend to populate all three RDS slots with routers, you can order blank panels to use as fillers. Or, you can leave the slots empty.

When planning to install the RDS in your rack, consider the following:

- Know in advance if your needs require front or rear configuration of the mounting flanges, and how much to recess the mounting flanges.
- Always install the RDSs in the lower portion of the rack to maintain a low center of gravity and prevent the rack from falling over. If you intend to install three RDSs in a rack, position the first one in the lower third of the rack.
- However, if any other equipment is to be mounted in the same rack as the RDS, it should generally be mounted in the lowest portion of the rack so as not to interfere with the operation of the RDS.
- Allow sufficient clearance around the rack for maintenance. If the rack is mobile, you can push it back near a wall or cabinet for normal operation and pull it out when necessary for maintenance (installing or moving port adapters, connecting cables, or replacing or upgrading components). Otherwise, allow 19 inches (48.3 cm) of clearance to remove router FRUs.
- If you use telco-type racks, be sure that the rack is bolted to the floor and secured. Ensure that the weight of the chassis does not make the rack unstable.



## Warning

**Always mount the RDSs from the bottom up to maintain a low center of gravity and prevent toppling of the rack.**



## Caution

To prevent overheating, install your Cisco 7206 VXR routers in a room that is properly ventilated or air-conditioned.

## Powering Down the Router and Disconnecting Input Power

If your router is already installed on a tabletop or workbench, or in a rack, you must power down the router and disconnect input power before attempting to mount it in the RDS.

The purpose of this section is to explain the following procedures:

- Powering down existing Cisco 7206 VXR routers
- Disconnecting AC-input power from the chassis
- Disconnecting DC-input power from the chassis



**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

## Powering Down the Router

To power down Cisco 7206 VXR routers, complete the following steps:



**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. Repeat this action if a second power supply is installed in the router.
- 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.

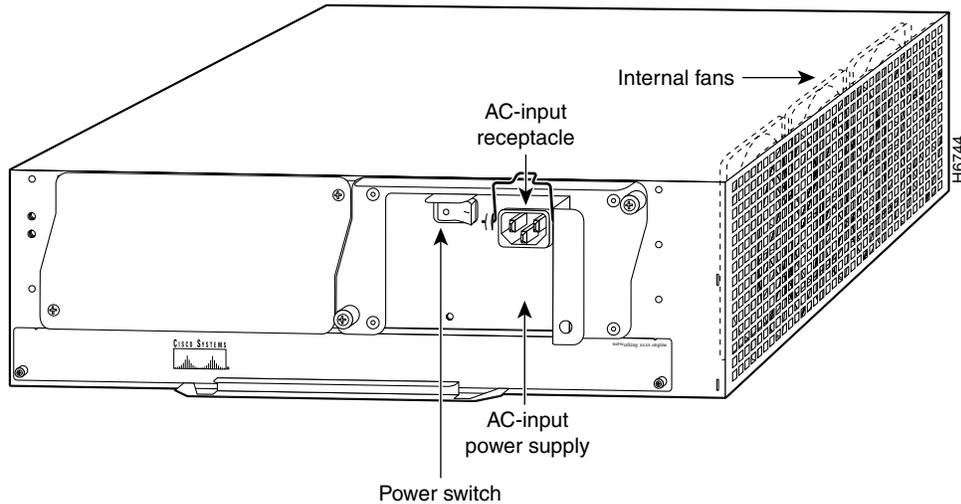
This completes the procedure for powering down Cisco 7206 VXR routers.

## Disconnecting AC-Input Power

To disconnect AC-input power to Cisco 7206 VXR routers, complete the following steps:

- Step 1** Unplug the input power cable from the power source.
- Step 2** Push up on the cable-retention clip that secures the input power cable to the router's power supply.
- Step 3** Unplug the input power cable from the power supply (see [Figure 4](#)).

**Figure 4** Cisco 7200 Series AC-Input Power Supply



**Step 4** Repeat Step 1 through Step 3 if a second power supply is installed.

This completes the procedure for disconnecting AC-input power to Cisco 7206 VXR routers.

## Disconnecting DC-Input Power

To disconnect DC-input power to Cisco 7206 VXR routers, complete the following steps:



**Warning**

**Before completing any of the following procedures, 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 42

**Step 1** Turn off the power source and disconnect the –48V and +48V leads from the power source. You can leave the ground cable connected.

**Step 2** Remove the cable tie that secures the –48V, +48V, and ground leads to the power supply faceplate. Save the cable tie.



**Note**

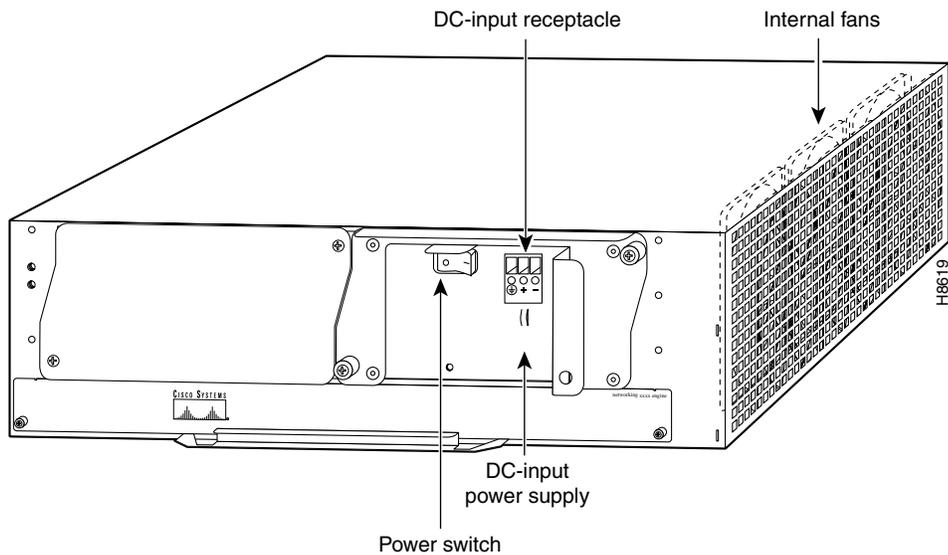
The cable tie that accompanied your DC-input power supply can be removed and replaced on the power supply without the use of a tool. If you secured the DC-input power supply leads to the power supply faceplate using a different type of cable tie, use a wire stripper to cut that cable tie from the power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

**Step 3** Using a 3/16-inch flat-blade screwdriver, loosen the screw below the +48V lead receptacle and pull the lead from the connector (see [Figure 5](#)). Repeat this step for the –48V 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 +48V (return), and red or white is used for –48V. Make certain the lead color coding you choose for the DC-input power supply matches lead color coding used at the DC power source.

**Figure 5** Cisco 7200 Series DC-Input Power Supply



**Step 4** Repeat Step 1 through Step 3 if a second power supply is installed.

This completes the procedure for disconnecting DC-input power to the Cisco 7206 VXR routers.

## Uninstalling Routers from the Rack and Removing Brackets

If your router is already installed in a rack with rack-mounting brackets, you must first remove the rack-mounting brackets from the chassis. If you are installing new routers, proceed to the [“Installing Flanges and Spacer on the Router”](#) section on page 18.

Parts and tools required for installing the RDS are listed in the [“Tools and Parts Required”](#) section on page 4.

The purpose of this section is to explain the following procedures:

- Uninstalling routers from the existing rack
- Removing the rack-mounting brackets from the chassis

## Uninstalling Routers from the Existing Rack

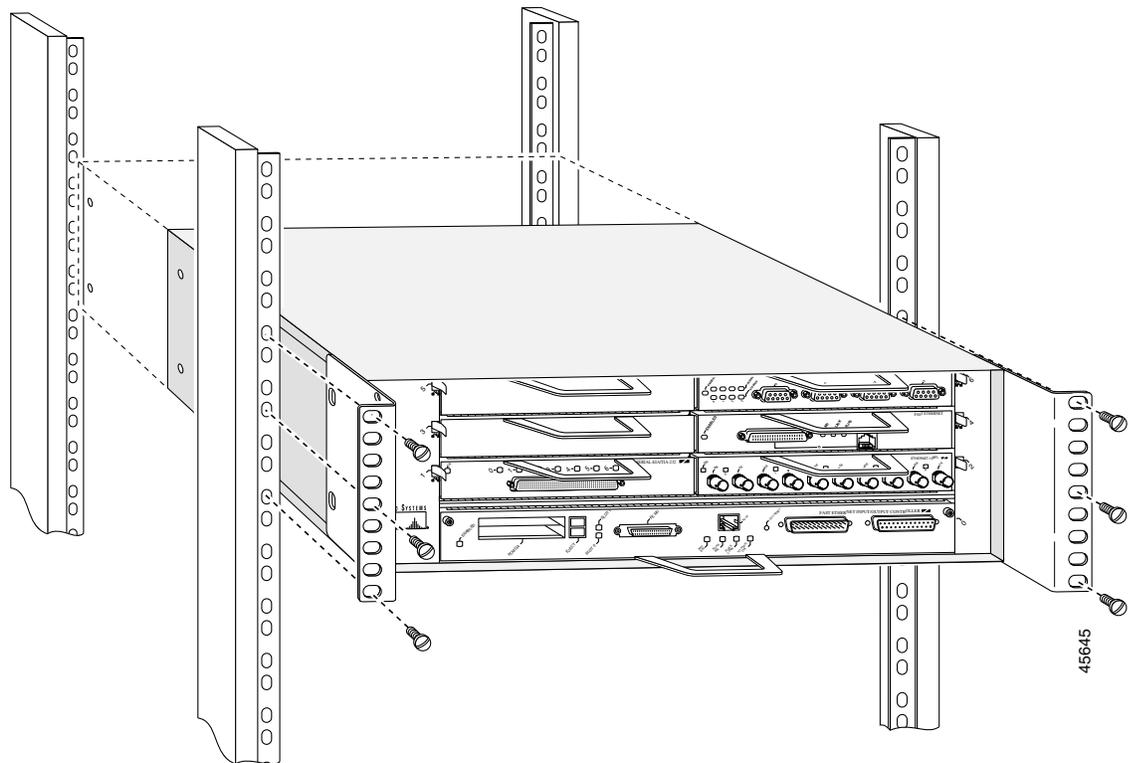
This section describes how to uninstall the router from the rack.

- Step 1** Power off the router and disconnect site power, as described in the [“Powering Down the Router and Disconnecting Input Power”](#) section on page 13.
- Step 2** Ensure that the cables are adequately marked to assist you when you reconnect the cables.
- Step 3** Remove all interface cables from the rear panel of the router.
- Step 4** Remove the screws that secure the router to the rack, one side at a time (see Figure 5). Have a second person hold the router while you remove the screws.



**Note** Keep these screws to mount the RDS in the rack, described later in the [“Mounting Routers in the RDS”](#) section on page 30.

**Figure 6** Uninstalling Routers from the Rack



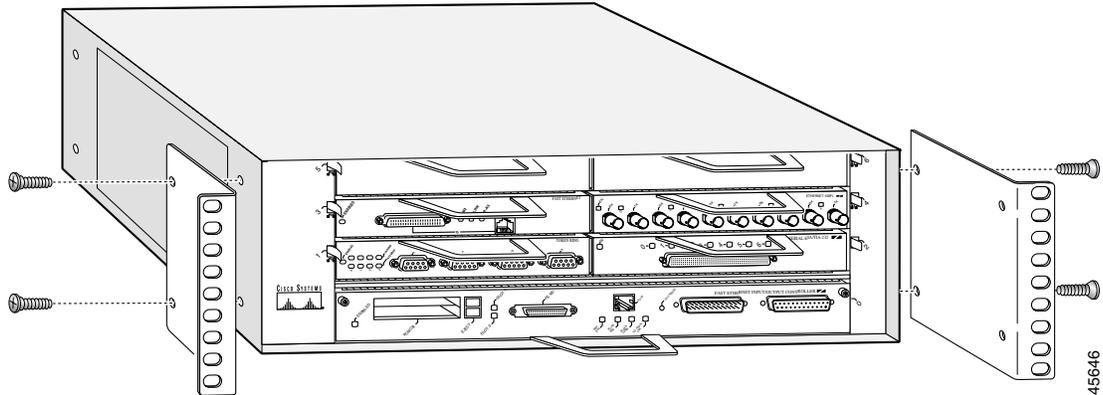
This completes the procedure for uninstalling the router from the rack.

## Removing Rack-Mounting Brackets from the Router

This section describes how to remove rack-mounting brackets from existing routers.

- Step 1** Place the router so that the front panel is facing you. If you place the router on a table, ensure that you have clear access to all sides.
- Step 2** Remove the screws securing the rack-mounting brackets to the router, one side at a time (see [Figure 7](#)). Have a second person hold the router while you remove the screws.

**Figure 7** Removing Rack-Mounting Brackets from the Router



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This completes the procedure for removing rack-mounting brackets from the router.

## Installing Flanges and Spacer on the Router

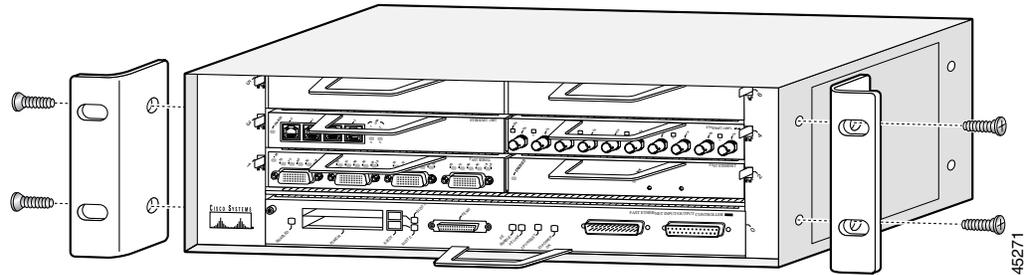
After uninstalling the router from the rack and removing the brackets, the next step is to install the new front-mounting flanges and rear spacer on the router.

### Installing Front-Mounting Flanges on the Router

To install the front-mounting flanges on the front sides of the router, complete the following steps:

- Step 1** Locate the threaded holes in the front sides of the router.
- Step 2** Thread two M4 x 10-mm flathead Phillips screws through both flanges and into the side of the router. Use a number 2 Phillips screwdriver to tighten the screws. (See [Figure 8](#).)

**Figure 8** Installing the Front-Mounting Flanges on a Cisco 7200 Series Router (Cisco 7206 VXR Shown)



**Step 3** Repeat Step 1 and Step 2 for front-mounting flanges on other routers.



**Note**

If you are installing filler panels in unpopulated slots on the RDS, proceed to the [“Assembling the Mounting Flanges on the RDS”](#) section on page 20. You do not need to install front-mounting flanges or rear spacers for the filler panels.

This completes the procedure for installing the front-mounting flanges on the router.

## Installing the Rear Spacer on the Router

After installing the front-mounting flanges on the router, you mount a rear spacer to the right rear side of the router.

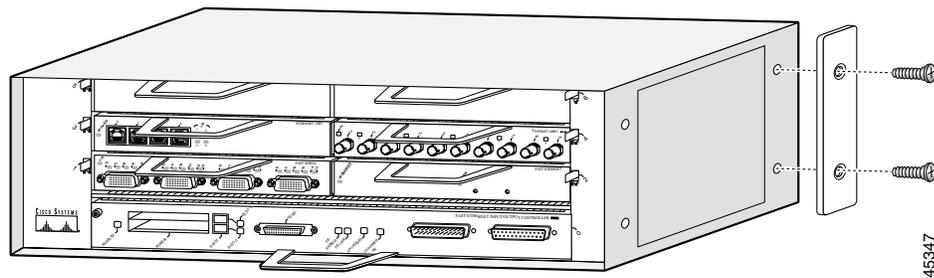
To install the rear spacer, complete the following steps:

**Step 1** Locate the threaded holes in the right rear side of the chassis.

**Step 2** Countersink two M4 x 10-mm flathead Phillips screws through the rear spacer and into the right side of the chassis. Use a number 2 Phillips screwdriver to tighten the screws. (See [Figure 9](#).)

**Step 3** Repeat Step 1 and Step 2 for the rear spacer on other routers.

**Figure 9** Installing the Rear Spacer on a Cisco 7200 Series Router (Cisco 7206VXR Shown)



This completes the rear spacer installation procedure.

## Assembling the Mounting Flanges on the RDS

In this section, you will first determine which mounting configuration is appropriate for your needs, and then assemble the mounting flanges on the RDS (see [Figure 10](#)). The RDS was designed for eight mounting configurations, four based on front orientation and four based on reverse orientation.

The four front-mounting configurations are (see [Figure 11](#)):

- Flush front mount
- 1-3/4-inch recessed front mount
- 3-1/2-inch recessed front mount
- Center front mount

The four reverse mounting configurations are (see [Figure 12](#)):

- Reverse flush mount
- 1-3/4-inch recessed reverse mount
- 3-1/2-inch recessed reverse mount
- Center reverse mount

You must install both mounting flanges before mounting the RDS in the rack. To install the mounting flanges on the RDS, complete the following steps according to the orientation of the RDS.



**Warning**

**To prevent personal injury or damage to the chassis, never attempt to lift or tilt the chassis using the handles on modules (such as power supplies, fans, or cards); these types of handles are not designed to support the weight of the unit. Lift the unit only by using handles that are an integral part of the chassis, or by grasping the chassis.** Statement 163



**Warning**

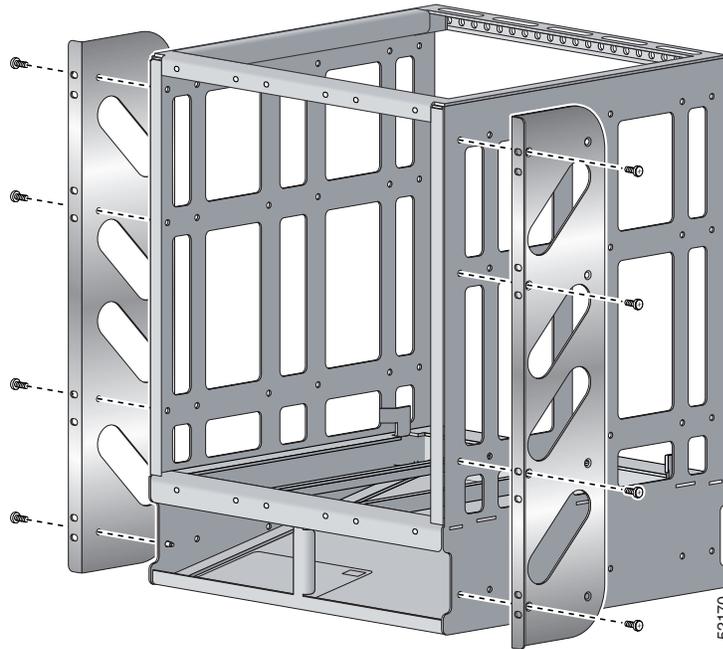
**Two people are required to lift the Cisco 7200 RDS. One person should support the RDS in the rack while the second person installs the screws. To prevent injury, keep your back straight and lift with your legs, not your back.**



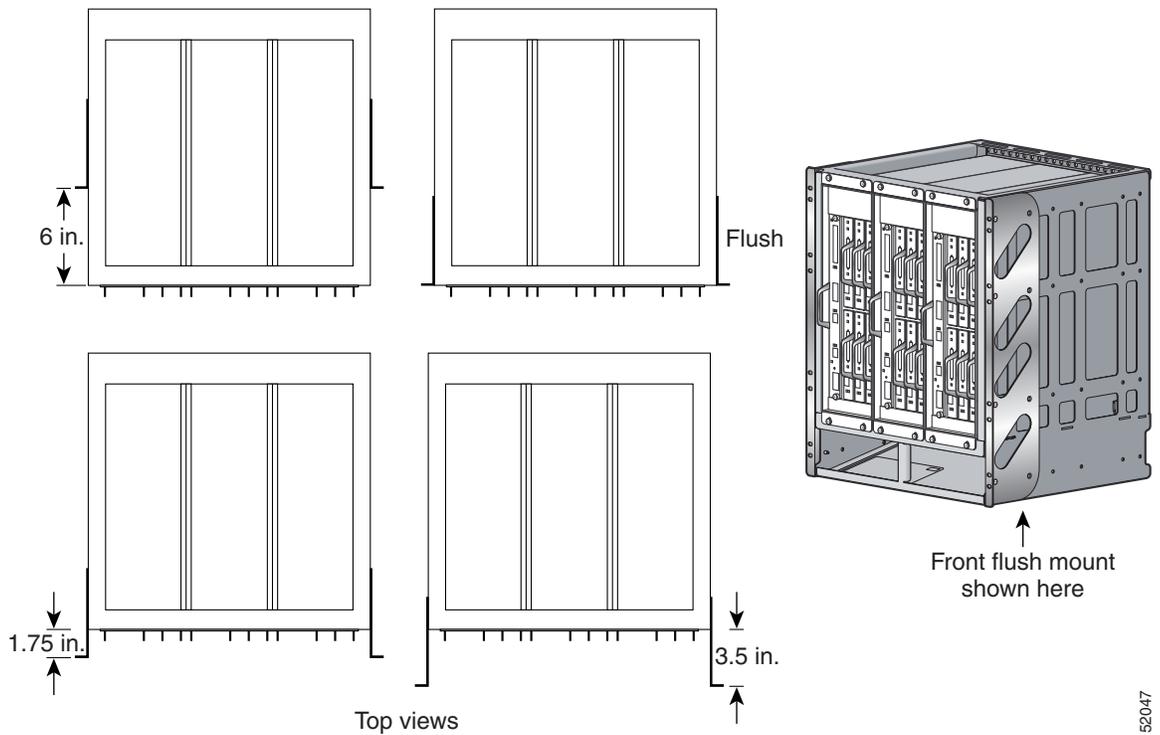
**Warning**

**To prevent the rack from tipping when installing the router in telco-type racks, ensure that the rack is bolted to the floor and, if necessary, anchored with appropriate fixtures.**

**Figure 10** *Assembling the Mounting Flanges on the RDS*



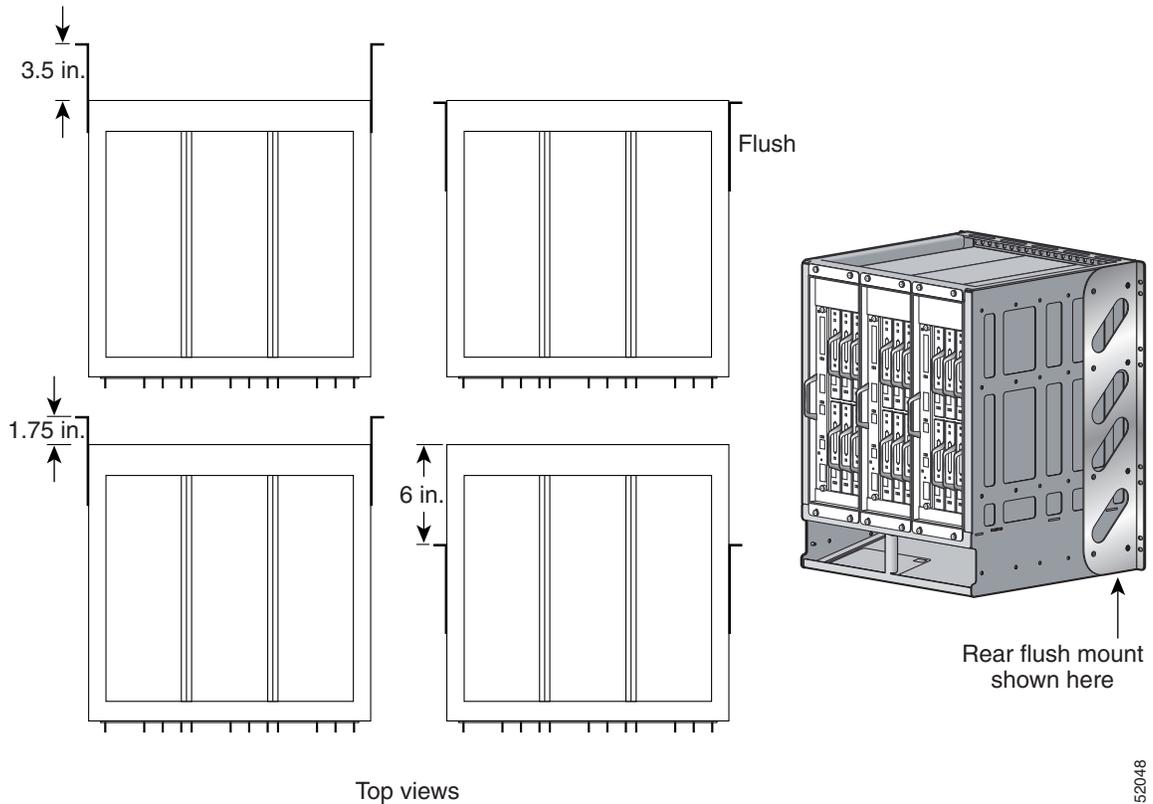
**Figure 11** *Four Front-Mounting Configurations*



**Note**

The four reverse-mounting configurations are shown in [Figure 12](#). The mounting configurations are shown in greater detail in [Figure 13](#) through [Figure 20](#).

**Figure 12** Four Reverse-Mounting Configurations



## Front Mounting Assembly

To install the mounting flanges for reverse orientation, proceed to the [“Reverse Mounting Assembly”](#) section on page 25.

**Note**

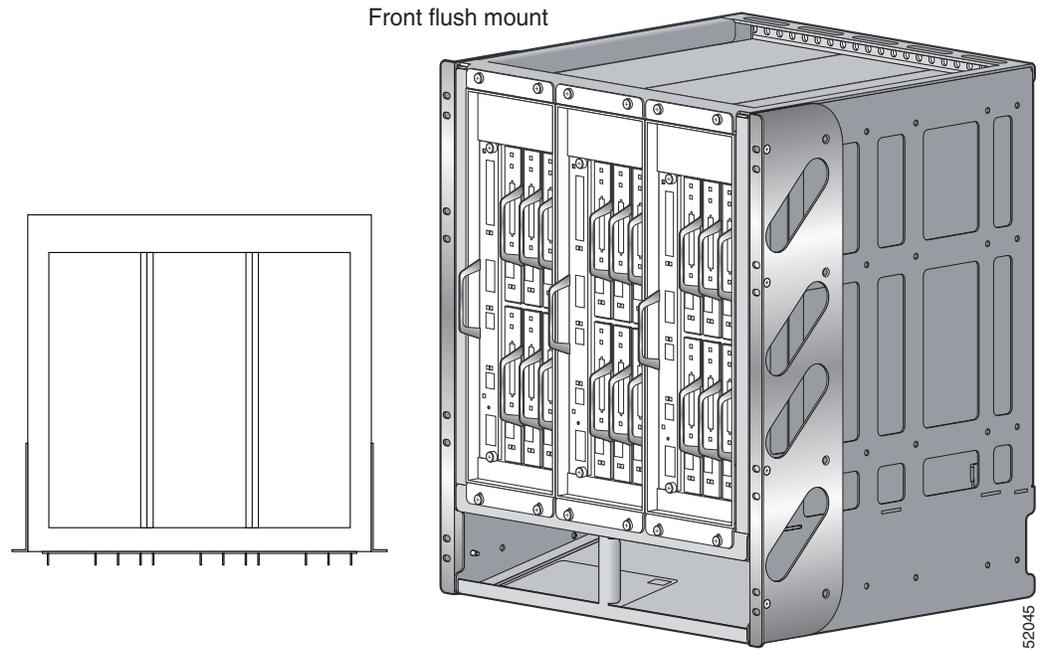
The Cisco 7206 VXR routers shown in [Figure 13](#), through [Figure 20](#), are intended for reference only. They will not be installed until [“Mounting Routers in the RDS”](#) section on page 30.

To install the mounting flanges for front orientation, complete the following steps:

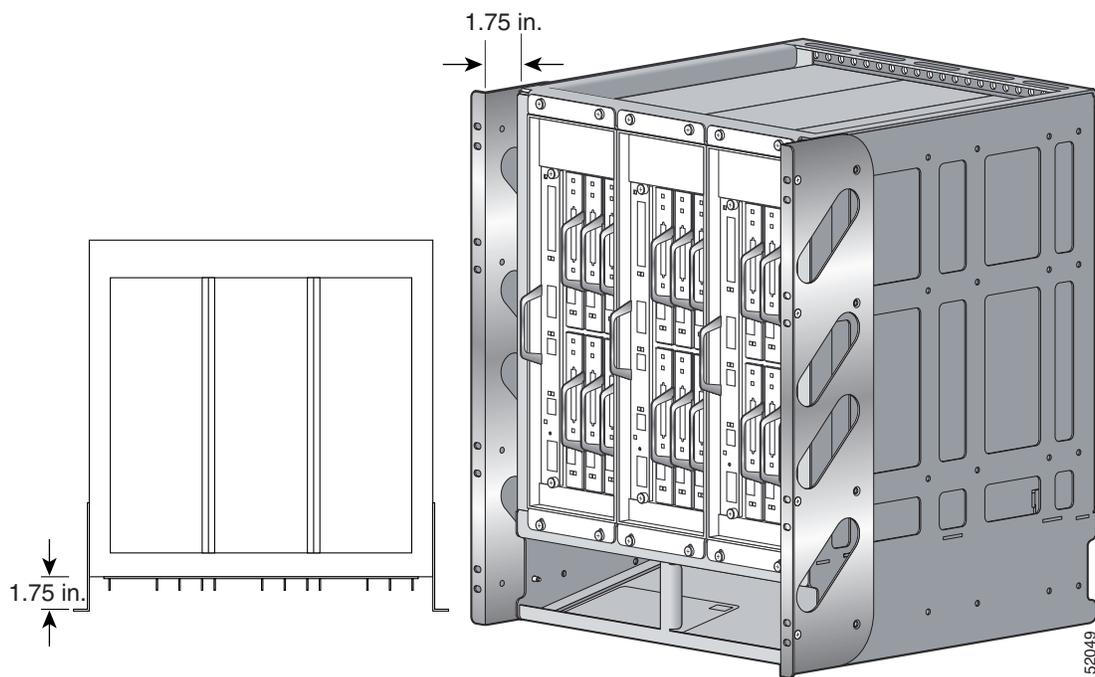
- Step 1** Place the RDS on a table with the front side facing you.
- Step 2** Locate the threaded holes in the front sides of the chassis. Based on your configuration, locate the threaded holes so the mounting flanges will be flush, or recessed 1-3/4 inches, 3-1/2 inches, or 6-inches (center mount) from the front of the chassis. (See [Figure 13](#), [Figure 14](#), [Figure 15](#) and [Figure 16](#)).
- Step 3** Align the first mounting flange to the threaded holes in the right front side of the chassis.

- Step 4** Thread six 100 deg #10-32 x 1/2 Phillips screws through the flanges into the side of the chassis and use a number 2 Phillips screwdriver to tighten the screws.
- Step 5** Repeat Step 2 through Step 4 to mount the second flange on the left side of the RDS.

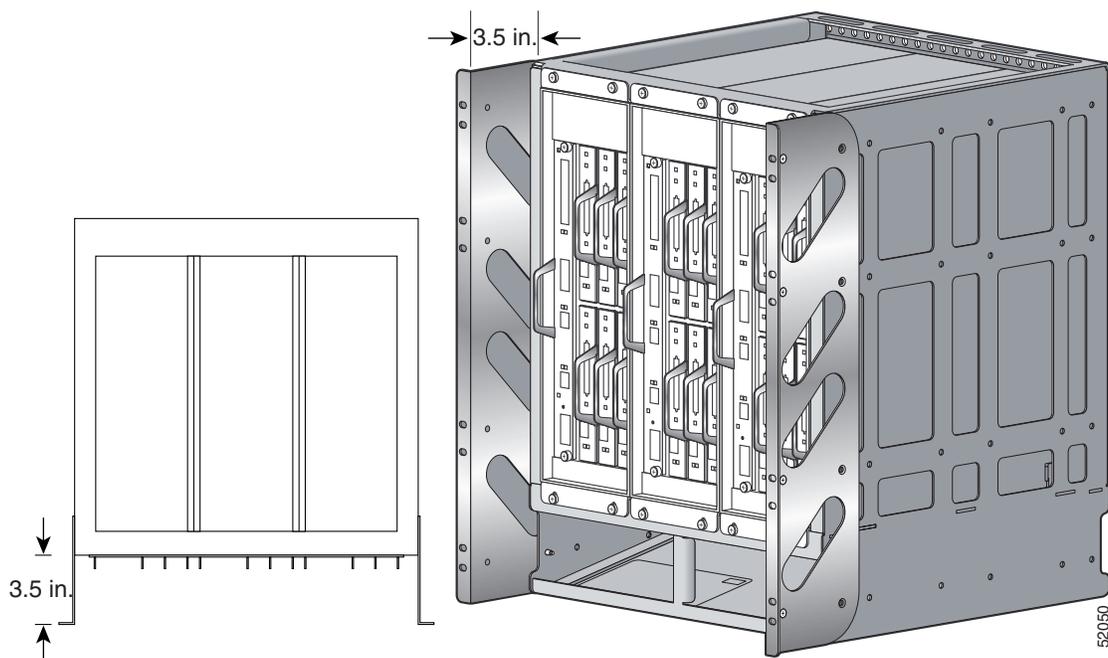
**Figure 13** Front Mounting, Flush (Note: The Cisco 7206 VXR routers will be installed later.)



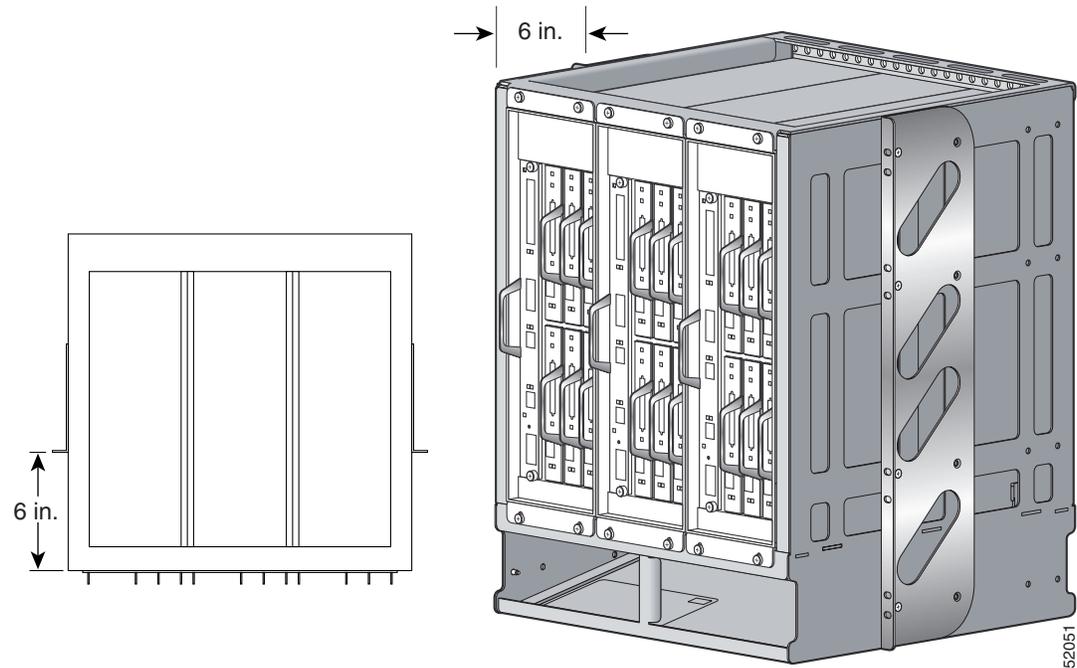
**Figure 14** *Front Mounting, Recessed 1-3/4 Inch (Note: The Cisco 7206 VXR routers will be installed later.)*



**Figure 15** *Front Mounting, Recessed 3-1/2 Inch (Note: The Cisco 7206 VXR routers will be installed later.)*



**Figure 16** *Front Mounting, Recessed 6 Inches (Note: The Cisco 7206 VXR routers will be installed later.)*



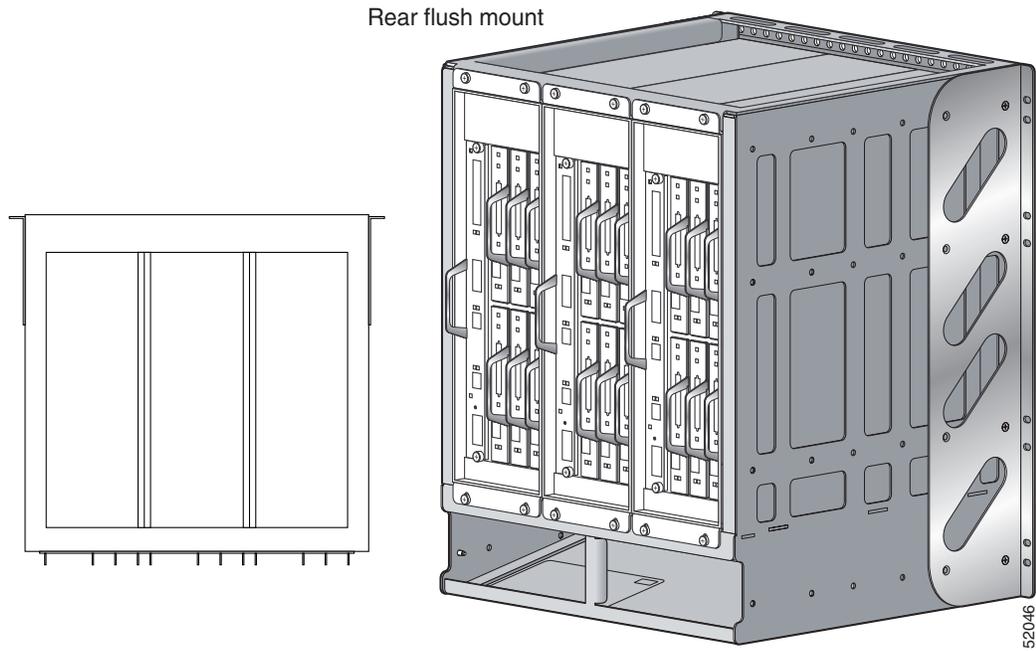
This completes the procedure for installing the mounting flanges for front orientation.

## Reverse Mounting Assembly

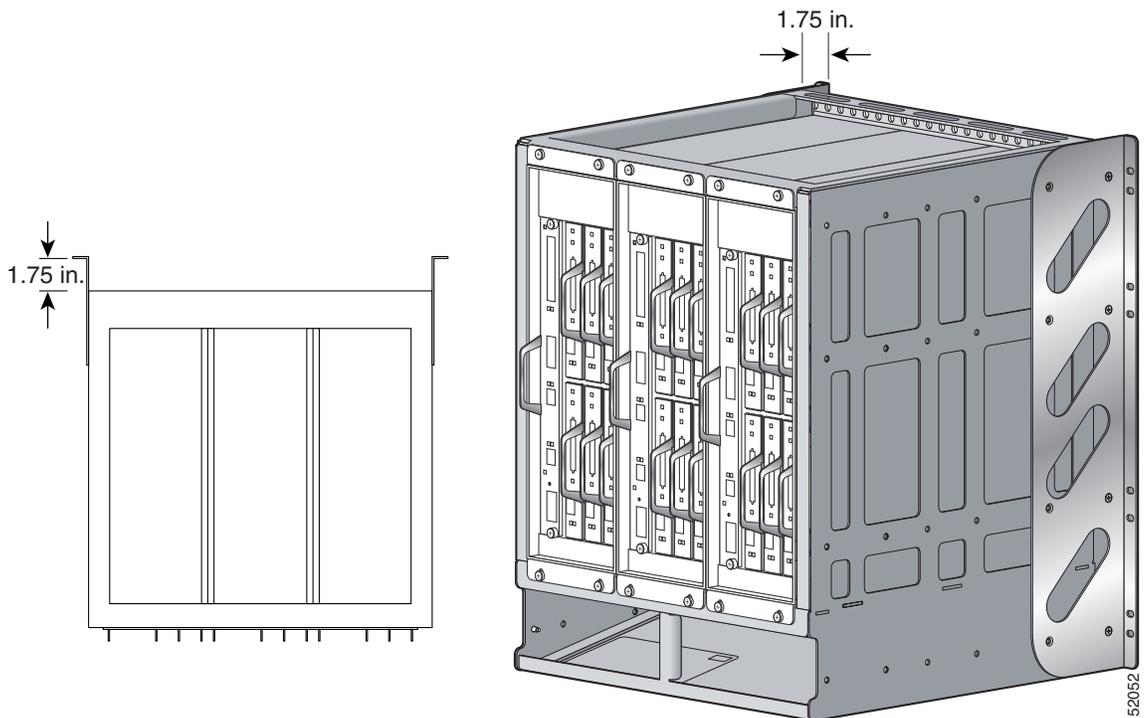
To install the mounting flanges for reverse mounting, complete the following steps:

- 
- Step 1** Place the RDS on a table with the back side facing you.
  - Step 2** Locate the threaded holes in the back sides of the chassis. Based on your configuration, locate the threaded holes so the mounting flanges will be flush, or recessed 1-3/4 inches, 3-1/2 inches, or 6 inches (center mount) from the back of the chassis. (See [Figure 17](#), [Figure 18](#), [Figure 19](#), and [Figure 20](#).)
  - Step 3** Align the first mounting flange to the threaded holes in the right rear side of the chassis.  
If you want the front of the chassis recessed in the rack, align the mounting flange according to the amount of the recession.
  - Step 4** Thread four 100 deg #10-32 x 1/2 Phillips screws through the flange into the side of the chassis and use a number 2 Phillips screwdriver to tighten the screws.
  - Step 5** Repeat Step 2 through Step 4 to mount the second flange on the other side of the RDS.

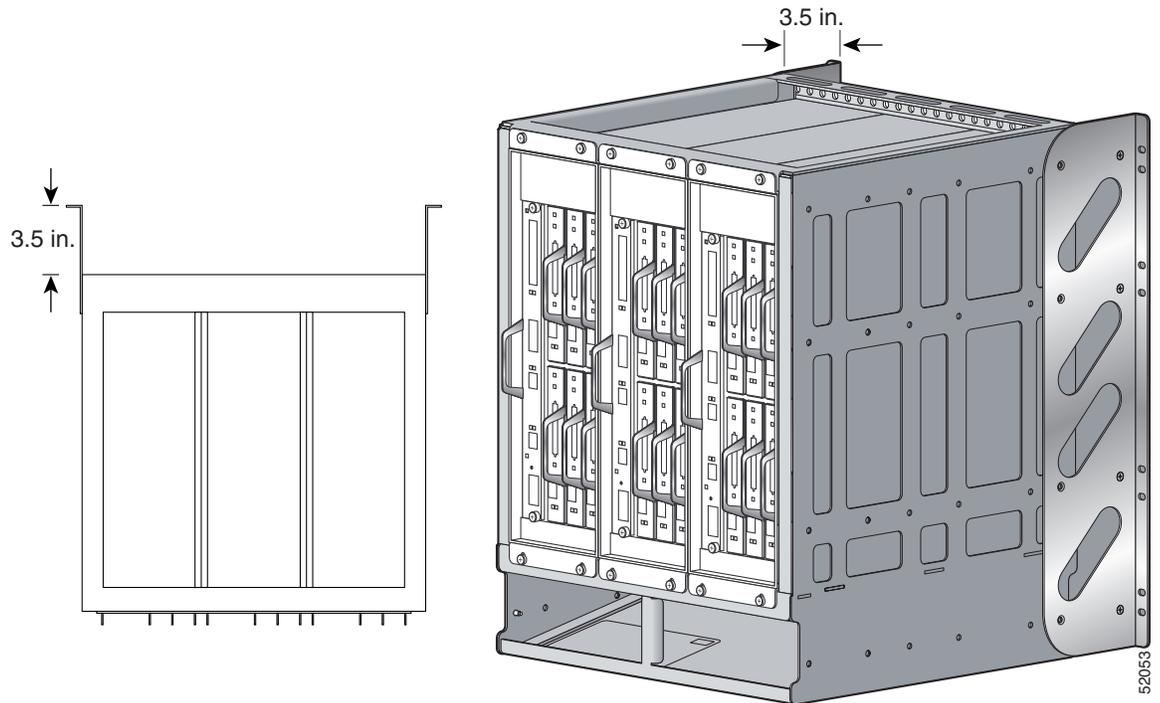
**Figure 17** Reverse Mounting, Flush (Note: The Cisco 7206 VXR routers will be installed later.)



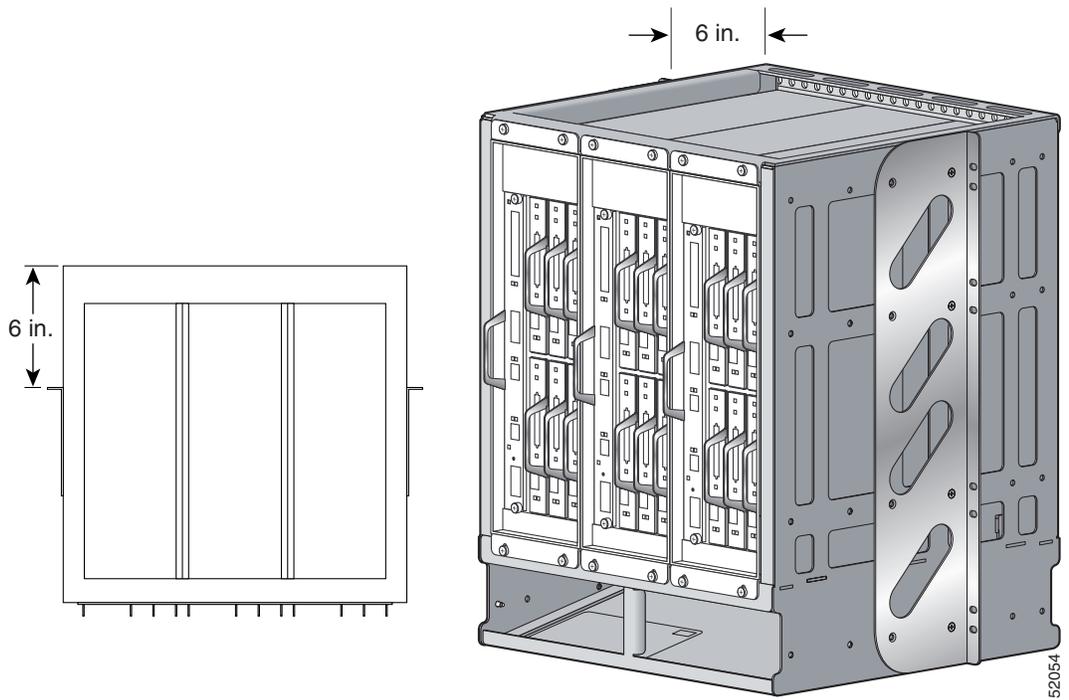
**Figure 18** Reverse Mounting, Recessed 1-3/4 Inches (Note: The Cisco 7206 VXR routers will be installed later.)



**Figure 19** Reverse Mounting, Recessed 3-1/2 Inches (Note: The Cisco 7206 VXR routers will be installed later.)



**Figure 20** *Reverse Mounting, Recessed 6 Inches (Note: The Cisco 7206 VXR routers will be installed later.)*



This completes the procedure for installing the mounting flanges for reverse orientation.

## Installing the RDS in the Rack

The next step in the installation process is mounting the RDS in a rack. Hardware is not included for this step; however, if you are using Cisco 7206 VXR routers that were previously installed in a rack, you can use that same hardware.

Some equipment racks provide a power strip along the length of one of the mounting strips. If your rack has a power strip, consider the position of the strip when planning the location of the RDS. If the power strip impairs a reverse-mounting installation, remove the power strip before installing the RDS in the rack, and then replace it after the RDS is installed.



### Warning

**Two people are required to lift the Cisco 7200 RDS. One person should support the RDS in the rack while the second person installs the screws. To prevent injury, keep your back straight and lift with your legs, not your back.**

Before you mount the RDS in the rack, determine how many RDSs you will be installing, and consider any other equipment you intend to place in the rack. Install the first and any subsequent RDSs as close to the bottom of the rack as possible to maintain a low center of gravity and avoid tipping the rack.

**Note**

---

We recommend that you allow a minimum of 2 inches (5.08 cm) of vertical clearance between the top of the RDS and any equipment directly above it. This does not apply to an RDS with an RDS above it. This minimum clearance also applies to the top of the RDS and a rack that is closed at the top.

---

**Warning**

---

**To maintain a low center of gravity, ensure that the first RDS is installed near the bottom of the rack.**

---

Complete the following steps to install the RDS in a rack:

- 
- Step 1** Make sure that your path to the rack is unobstructed. If the rack is on wheels, ensure that the brakes are engaged or that the rack is otherwise stabilized.
  - Step 2** Position the RDS so that the mounting end is closest to you. With two people, lift the chassis and move it to the rack. To prevent injury, avoid sudden twists or moves.
  - Step 3** Slide the chassis into the rack, pushing it back until the flanges (installed at the front, rear, or center of the RDS) meet the mounting strips or posts on each side of the equipment rack.
  - Step 4** While keeping the flanges flush against the posts or mounting strips, position the chassis so the holes in the flanges are aligned with those in the mounting strips. (See [Figure 21](#)).
  - Step 5** Using screws that you saved from uninstalling the routers from the existing rack (see the [“Uninstalling Routers from the Existing Rack”](#) section on page 17), insert eight screws (four on each side) through the flanges and into the mounting strip. Use the appropriate screwdriver for your hardware to tighten all the screws.

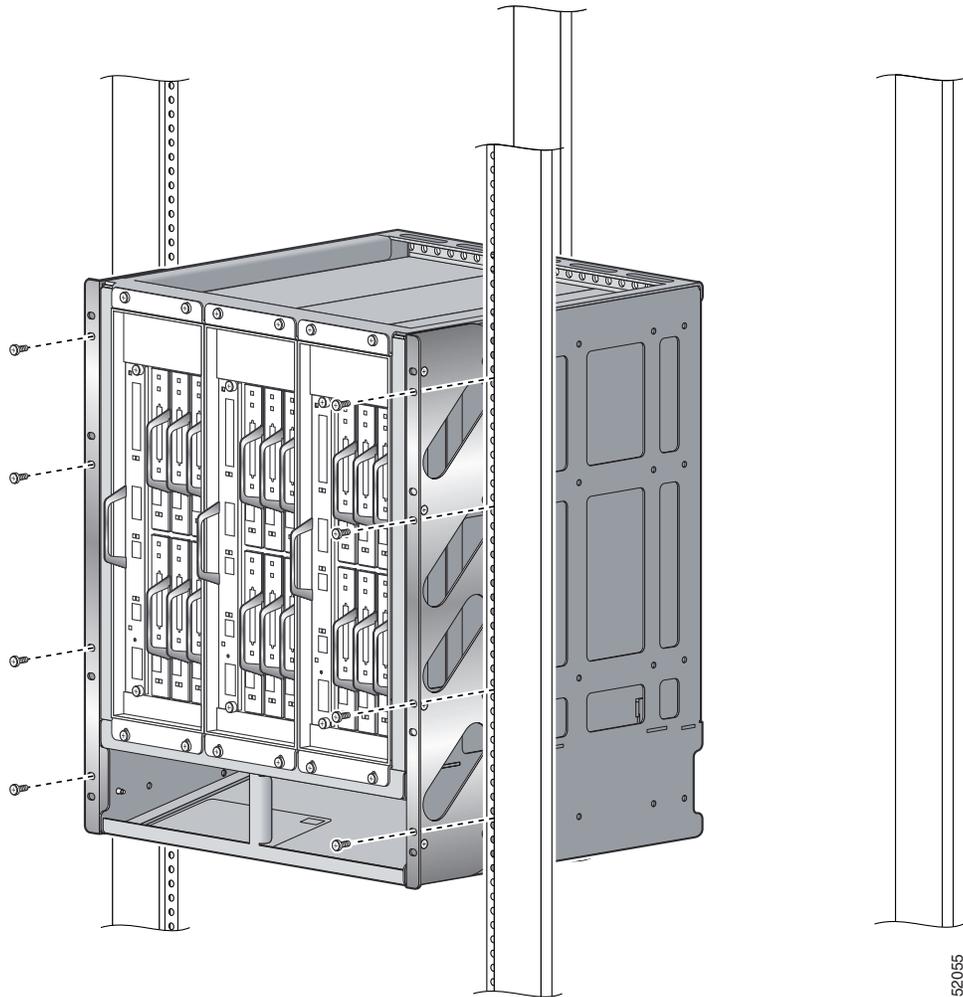
**Note**

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Because the brackets support the weight of the entire chassis, be sure to install all eight screws to fasten the RDS to the rack.

---

**Figure 21** *Installing the RDS in a Four-Post Rack (Note: The Cisco 7206 VXR routers will be installed later.)*



This completes the procedure for installing the RDS in the rack.

## Mounting Routers in the RDS

The next step in the procedure is to mount the Cisco 7206 VXR routers in the RDS. The routers mount vertically, attaching to the top and bottom front mounting strips of the RDS. Using the twelve panhead #8-32 x 1/2 Phillips screws with washers attached (four per router), mount the router by securing two of the screws to the upper mounting strip and two to the lower mounting strip of the RDS. Be sure to install the router with the correct side facing up, as indicated by the up arrow on the RDS. When facing the RDS, mount the first router in the left position. Subsequent routers can be mounted in the center and right positions (slot 2 and slot 3 of the RDS). Because the mounting strips support the weight of the entire router, be sure to use all four panhead #8-32 x 1/2 Phillips screws with washers attached, to fasten the router to the RDS.

**Warning**

To prevent injury, review the safety precautions in the [“Safety Guidelines”](#) section on page 6 before installing the router in a rack.

**Caution**

Do not block airflow into the baffle or out of the top of the RDS so as not to disrupt the functioning of the routers.

**Note**

You can fill unpopulated slots in the RDS with filler panels. Refer to the [“Mounting Filler Panels in the RDS”](#) section on page 32 for more details.

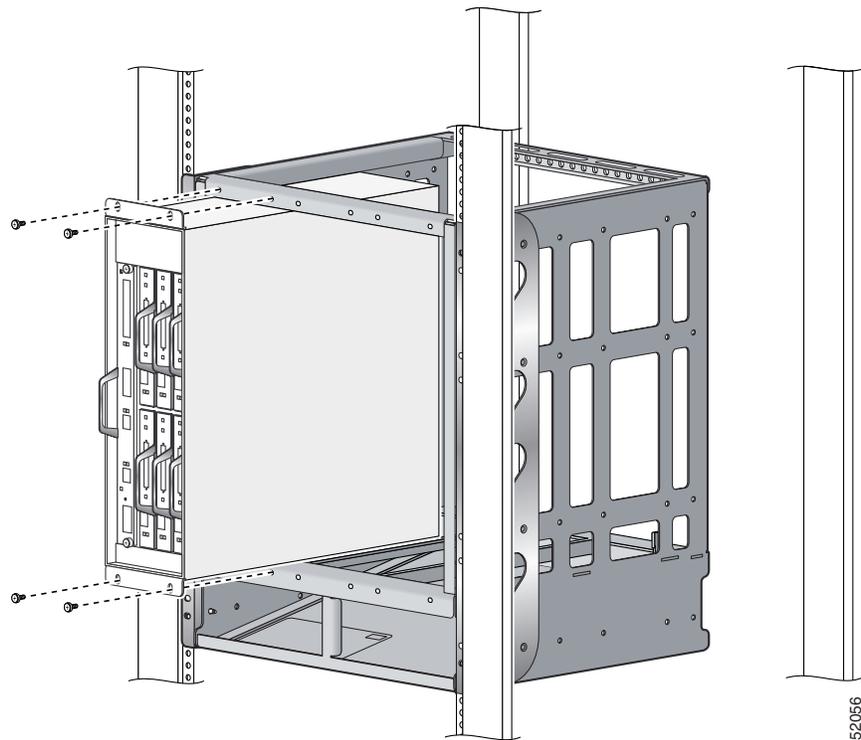
**Warning**

To prevent personal injury or damage to the chassis, never attempt to lift or tilt the chassis using the handles on modules (such as power supplies, fans, or cards); these types of handles are not designed to support the weight of the unit. Lift the unit only by using handles that are an integral part of the chassis, or by grasping it underneath its lower edge.

Complete the following steps to mount a router in the RDS:

- Step 1** Ensure that all captive screws on the network processing engine, the I/O controller, and each power supply are tightened and the port adapter levers are in the locked position.
- Step 2** Position the chassis so that the mounting end is closest to you and move it to the rack. To prevent injury, avoid sudden twists or moves. Note that the routers mount vertically, with the fan towards the top.
- Step 3** Line up the chassis with the RDS in slot one (the position at the extreme left). Slide the chassis into the RDS, and push it back until the front-mounting flanges of the router are flush with the front of the RDS. Subsequent routers will be installed in slot two and slot three of the RDS.
- Step 4** While keeping the router flush against the RDS, position it so that the holes in the router’s front-mounting flanges are aligned with the front of the RDS.
- Step 5** Insert all four panhead #8-32 x 1/2 Phillips screws with washers attached (two at the top and two at the bottom) through the brackets and into the RDS mounting rail. (Use the top and bottom bracket holes, as shown in [Figure 22](#).) Using a number 2 Phillips screwdriver, tighten all the screws.
- Step 6** Repeat Step 3 through Step 5 if a second or third router is to be installed.

**Figure 22** *Mounting a Cisco 7206 VXR router in the RDS*



This completes the procedure for mounting the routers in the RDS.

## Mounting Filler Panels in the RDS

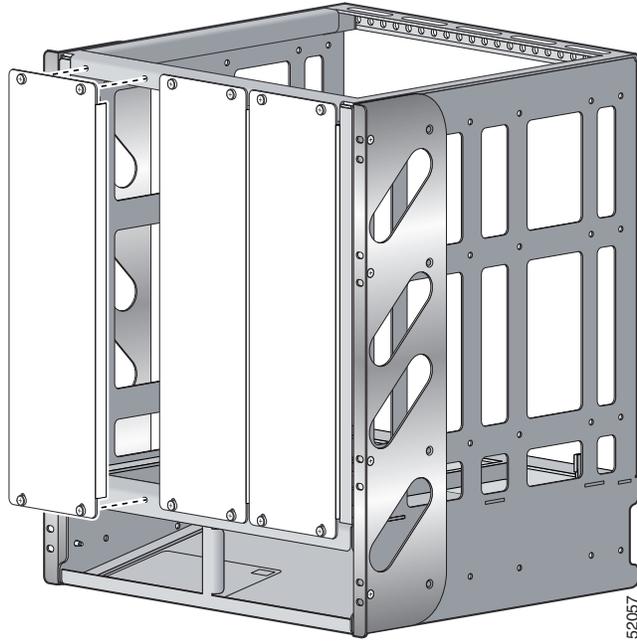
In this step, you will install a filler panel in a blank slot of the RDS. Installation of filler panels in unpopulated slots is not required. Contact a service representative to order a filler panel (part number MAS-72RDS-KBLANK). If you decide to leave the blank slots empty, proceed to the [“Reconnecting Input Power and Powering Up the Router”](#) section on page 33.

Complete the following steps to mount filler panels in the RDS:

- Step 1** Position the filler panel so that the front end is closest to you and move it to the rack.
- Step 2** Line up the filler panel with the RDS in the blank slot. Slide the panel into the RDS, and push it back until the panel is flush with the front of the RDS.
- Step 3** While keeping the panel flush against the RDS, position it so that the holes at the top and bottom are aligned with the front of the RDS.
- Step 4** Insert all four panhead #8-32 x 1/2 Phillips screws with washers attached (two at the top and two at the bottom) through the panel and into the RDS mounting rail. Using a number 2 Phillips screwdriver, tighten all the screws. See [Figure 23](#).

**Step 5** Repeat Step 3 to Step 5 if a second filler panel is to be installed.

**Figure 23** *Mounting Filler Panels in the RDS*



This completes the procedure for mounting filler panels in the RDS.

## Reconnecting Input Power and Powering Up the Router

The following procedures explain how to reconnect AC-input and DC-input power to Cisco 7206 VXR routers, power up the router, and verify a successful system boot.



**Warning**

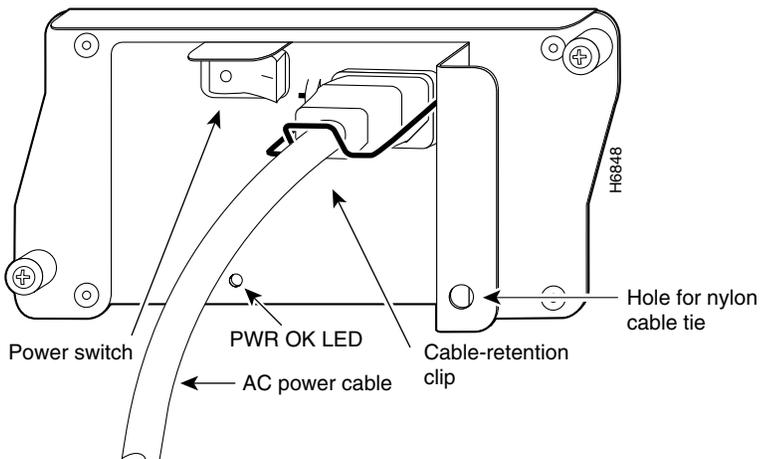
**Read the installation instructions before you connect the system to its power source.** Statement 10

### Reconnecting AC-Input Power

To reconnect AC-input power to a Cisco 7206 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.
- 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 24](#).)

**Figure 24** Connecting AC-Input Power to Cisco 7206 VXR routers



**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 the Cisco 7206 VXR routers from a 15A receptacle 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 7206 VXR router.

## Reconnecting DC-Input Power

To reconnect DC-input power to Cisco 7206 VXR routers, complete the following steps:



**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. Make certain the lead color coding you choose for the DC-input power supply matches lead color coding used at the DC power source.



**Warning**

**Before completing any of the following procedures, 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

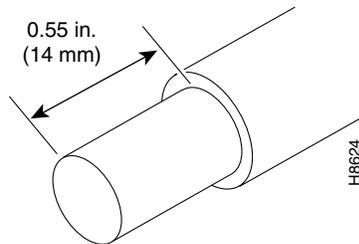


**Warning**

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

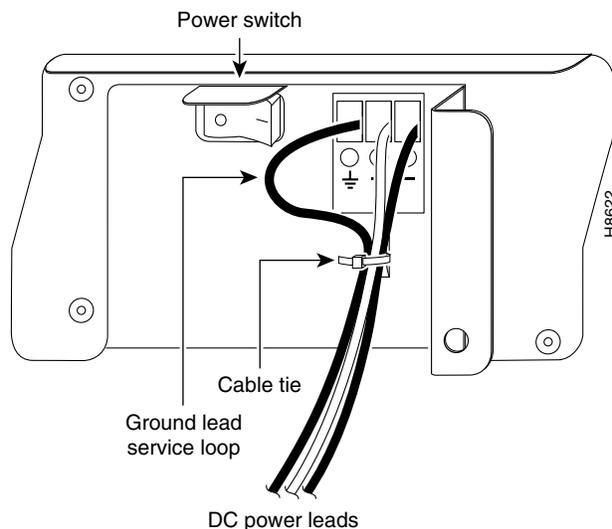
- Step 1** Ensure that no current is flowing through the DC power supply leads. To ensure that all power is off, locate the circuit breaker on the panel board that services the DC circuit, switch the circuit breaker to the OFF position, and tape the switch handle of the circuit breaker in the OFF position.
- Step 2** If necessary, use a wire stripper to strip approximately 0.55 inch (14 mm) from the  $-V$ ,  $+V$ , and ground leads. (See [Figure 25](#).)

**Figure 25** Stripping the DC-Input Leads



- Step 3** At the rear of the router, check that the power switch on the power supply is in the Off (O) position.
- Step 4** 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 26](#).)

**Figure 26** Connecting DC-Input Power



- Step 5** Insert the stripped end of the  $+48V$  lead all the way into the  $+48V$  lead receptacle and tighten the receptacle screw using the 3/16-inch flat-blade screwdriver. Repeat Step 5 for the  $-48V$  lead.



**Note** Make sure 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 inserting 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 2 through Step 5.

**Note**

Each DC-input power supply operating at –24 VDC in North America requires a minimum of 19A service. 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 Community requires a minimum of 8A service.

The preceding values are absolute maximum values. Typical system configurations use substantially less. To obtain typical values for your configuration, contact your Cisco sales representative.

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. Site wiring and circuit breakers need to be sized to accommodate the maximum values for safety reasons.

**Step 6** Repeat Step 1 through Step 7 if a second power supply is installed.

**Step 7** Switch the circuit breaker to the ON position.

This completes the steps for reconnecting DC-input power to Cisco 7206 VXR routers.

## Powering Up the Router

To power up Cisco 7206 VXR routers that have an installed AC-input or DC-input power supply, complete the following steps:

**Caution**

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

**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 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.
- Each DC lead is connected and secured to the power supply faceplate with a cable tie.
- Each DC lead is connected and secured to the power source.
- For installed DC-input power supplies, ensure 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.
- 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 lights up.

**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 off, 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 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) [kpfjrgiu 100]
Copyright (c) 1986-1996 by cisco Systems, Inc.
Compiled Sun 21-Apr-96 04:10 by
```

---

This completes the procedures for powering up the router.

## Obtaining Documentation

The following sections explain how to obtain documentation from Cisco Systems.

### World Wide Web

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

<http://www.cisco.com>

Translated documentation is available at the following URL:

[http://www.cisco.com/public/countries\\_languages.shtml](http://www.cisco.com/public/countries_languages.shtml)

### Documentation CD-ROM

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

## Ordering Documentation

Cisco documentation is available in the following ways:

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

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San Jose, CA 95134-9883

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## Obtaining Technical Assistance

Cisco provides Cisco.com as a starting point for all technical assistance. Customers and partners can obtain documentation, troubleshooting tips, and sample configurations from online tools by using the Cisco Technical Assistance Center (TAC) Web Site. Cisco.com registered users have complete access to the technical support resources on the Cisco TAC Web Site.

## Cisco.com

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- Streamline business processes and improve productivity
- Resolve technical issues with online support

- Download and test software packages
- Order Cisco learning materials and merchandise
- Register for online skill assessment, training, and certification programs

You can self-register on Cisco.com to obtain customized information and service. To access Cisco.com, go to the following URL:

<http://www.cisco.com>

## Technical Assistance Center

The Cisco TAC is available to all customers who need technical assistance with a Cisco product, technology, or solution. Two types of support are available through the Cisco TAC: the Cisco TAC Web Site and the Cisco TAC Escalation Center.

Inquiries to Cisco TAC are categorized according to the urgency of the issue:

- Priority level 4 (P4)—You need information or assistance concerning Cisco product capabilities, product installation, or basic product configuration.
- Priority level 3 (P3)—Your network performance is degraded. Network functionality is noticeably impaired, but most business operations continue.
- Priority level 2 (P2)—Your production network is severely degraded, affecting significant aspects of business operations. No workaround is available.
- Priority level 1 (P1)—Your production network is down, and a critical impact to business operations will occur if service is not restored quickly. No workaround is available.

Which Cisco TAC resource you choose is based on the priority of the problem and the conditions of service contracts, when applicable.

### Cisco TAC Web Site

The Cisco TAC Web Site allows you to resolve P3 and P4 issues yourself, saving both cost and time. The site provides around-the-clock access to online tools, knowledge bases, and software. To access the Cisco TAC Web Site, go to the following URL:

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

All customers, partners, and resellers who have a valid Cisco services contract have complete access to the technical support resources on the Cisco TAC Web Site. The Cisco TAC Web Site requires a Cisco.com login ID and password. If you have a valid service contract but do not have a login ID or password, go to the following URL to register:

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

If you cannot resolve your technical issues by using the Cisco TAC Web Site, and you are a Cisco.com registered user, you can open a case online by using the TAC Case Open tool at the following URL:

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

If you have Internet access, it is recommended that you open P3 and P4 cases through the Cisco TAC Web Site.

## Cisco TAC Escalation Center

The Cisco TAC Escalation Center addresses issues that are classified as priority level 1 or priority level 2; these classifications are assigned when severe network degradation significantly impacts business operations. When you contact the TAC Escalation Center with a P1 or P2 problem, a Cisco TAC engineer will automatically open a case.

To obtain a directory of toll-free Cisco TAC telephone numbers for your country, go to the following URL:

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

Before calling, please check with your network operations center to determine the level of Cisco support services to which your company is entitled; for example, SMARTnet, SMARTnet Onsite, or Network Supported Accounts (NSA). In addition, please have available your service agreement number and your product serial number.

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