



CHAPTER 3

Removing and Installing Port Adapters

This chapter describes how to remove the PA-MC-STM-1 port adapter from supported platforms and also how to install a new or replacement port adapter. This chapter contains the following sections:

- [Handling Port Adapters, page 3-1](#)
- [Online Insertion and Removal, page 3-2](#)
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- [Port Adapter Removal and Installation, page 3-12](#)
- [Connecting a PA-MC-STM-1 Cable, page 3-23](#)

Handling Port Adapters

Each port adapter circuit board is mounted to a metal carrier and is sensitive to electrostatic discharge (ESD) damage.



Note

When a slot is not in use, a blank port adapter must fill the empty slot to allow the router or switch to conform to electromagnetic interference (EMI) emissions requirements and to allow proper airflow across the port adapters. If you plan to install a new port adapter in a slot that is not in use, you must first remove the blank port adapter.



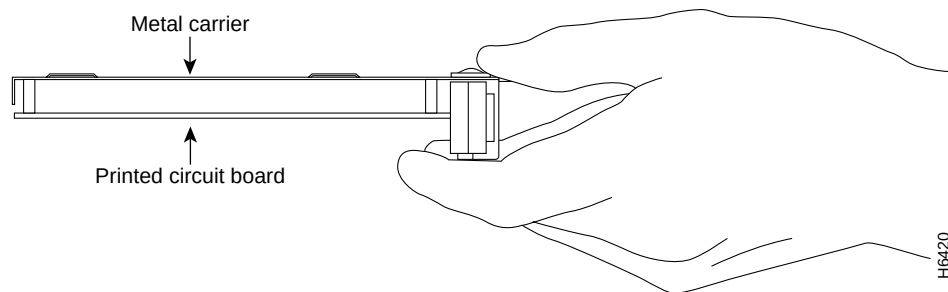
Caution

When powering off the router, wait a minimum of 30 seconds before powering it on again.



Caution

Always handle the port adapter by the carrier edges and handle; never touch the port adapter components or connector pins. (See [Figure 3-1](#).)

Figure 3-1 Handling a Port Adapter

Online Insertion and Removal

Several platforms support online insertion and removal (OIR) of port adapters; therefore, you do not have to power down routers when removing and replacing a PA-MC-STM-1 in the Cisco 7200 VXR routers, Cisco 7201 router, Cisco 7301 router, or Cisco 7401ASR router.

Although the FlexWAN module, Cisco 7304 PCI port adapter carrier card, and VIP support OIR, individual port adapters do not. To remove or replace a PA-MC-STM-1 on a FlexWAN module, Cisco 7304 PCI port adapter carrier card, or VIP you must first remove the FlexWAN module, Cisco 7304 PCI port adapter carrier card, or VIP from the router and then install or replace port adapters as required. If you want to replace a blank port adapter on the FlexWAN module, Cisco 7304 PCI port adapter carrier card, or VIP with the PA-MC-STM-1, you must first remove the FlexWAN module, Cisco 7304 PCI port adapter carrier card, or VIP from the router and then remove and replace the blank port adapter.


Note

As you disengage the port adapter from the router or switch, online insertion and removal (OIR) administratively shuts down all active interfaces in the port adapter.

OIR allows you to install and replace port adapters while the system is operating; you do not need to notify the software or reset the system power, although you should not run traffic through the port adapter you are removing while it is being removed. OIR is a method that is seamless to end users on the network, maintains all routing information, and ensures session preservation.


Note

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.


Caution

To prevent system problems, do not remove port adapters from the FlexWAN module, Cisco 7304 PCI port adapter carrier card, or VIP, and do not attempt to install other port adapters on the FlexWAN module, Cisco 7304 PCI port adapter carrier card, or VIP when the system is operating. To install or replace port adapters, first remove the FlexWAN module, Cisco 7304 PCI port adapter carrier card, or VIP from the router.


Note

Before you begin installation, read [Chapter 2, “Preparing for Installation,”](#) for a list of parts and tools required for installation.

Warnings and Cautions

Observe the following warnings and cautions when installing or removing modules:

- Do not slide a port adapter all the way into the slot until you have connected all required cables. Trying to do so disrupts normal operation of the router or switch.
- If a port adapter lever or other retaining mechanism does not move to the locked position, the port adapter is not completely seated in the midplane. Carefully pull the port adapter halfway out of the slot, reinsert it, and move the port adapter lever or other mechanism to the locked position.
- To prevent jamming the carrier between the upper and the lower edges of the port adapter slot, and to ensure that the edge connector at the rear of the port adapter mates with the connection at the rear of the port adapter slot, make certain that the carrier is positioned correctly, as shown in the cutaway illustrations in the [“Port Adapter Removal and Installation” section on page 3-12](#).

Equipment Installation Warning



Warning

Only trained and qualified personnel should be allowed to install, replace, or service this equipment. Statement 1030

Waarschuwing

Deze apparatuur mag alleen worden geïnstalleerd, vervangen of hersteld door bevoegd geschoold personeel.

Varoitus

Tämän laitteen saa asentaa, vaihtaa tai huoltaa ainoastaan koulutettu ja laitteen tunteva henkilökunta.

Attention

Il est vivement recommandé de confier l'installation, le remplacement et la maintenance de ces équipements à des personnels qualifiés et expérimentés.

Warnung

Das Installieren, Ersetzen oder Bedienen dieser Ausrüstung sollte nur geschultem, qualifiziertem Personal gestattet werden.

Avvertenza

Questo apparato può essere installato, sostituito o mantenuto unicamente da un personale competente.

Advarsel

Bare opplært og kvalifisert personell skal foreta installasjoner, utskiftninger eller service på dette utstyret.

Aviso

Apenas pessoal treinado e qualificado deve ser autorizado a instalar, substituir ou fazer a revisão deste equipamento.

¡Advertencia!

Solamente el personal calificado debe instalar, reemplazar o utilizar este equipo.

Varning!

Endast utbildad och kvalificerad personal bör få tillåtelse att installera, byta ut eller reparera denna utrustning.

Figyelem	A berendezést csak szakképzett személyek helyezhetik üzembe, cserélhetik és tarthatják karban.
Предупреждение	Установку, замену и обслуживание этого оборудования может осуществлять только специально обученный квалифицированный персонал.
警告	只有经过培训且具有资格的人员才能进行此设备的安装、更换和维修。
警告	この装置の設置、交換、保守は、訓練を受けた対応の資格のある人が行ってください。
주의	교육을 받고 자격을 갖춘 사람만 이 장비를 설치, 교체, 또는 서비스를 수행해야 합니다.
Aviso	Somente uma equipe treinada e qualificada tem permissão para instalar, substituir ou dar manutenção a este equipamento.
Advarsel	Kun uddannede personer må installere, udskifte komponenter i eller servicere dette udstyr.
تحذير	يسمح للفنيين المتخصصين فقط بتركيب المعدة أو استبدالها أو إجراء الصيانة عليها.
Upozorenje	Uređaj smije ugrađivati, mijenjati i servisirati samo za to obučeno i osposobljeno servisno osoblje.
Upozornění	Instalaci, výměnu nebo opravu tohoto zařízení smějí provádět pouze proškolené a kvalifikované osoby.
Προειδοποίηση	Η τοποθέτηση, η αντικατάσταση και η συντήρηση του εξοπλισμού επιτρέπεται να γίνονται μόνο από καταρτισμένο προσωπικό με τα κατάλληλα προσόντα.
אזהרה	רק עובדים מיומנים ומוסמכים רשאים להתקין, להחליף, או לטפל בציד זה.
Оромона	Местењето, заменувањето и сервисирањето на оваа опрема треба да му биде дозволено само на обучен и квалификуван персонал.
Ostrzeżenie	Do instalacji, wymiany i serwisowania tych urządzeń mogą być dopuszczone wyłącznie osoby wykwalifikowane i przeszkolone.
Upozornenie	Inštaláciu, výmenu alebo opravu tohto zariadenia smú vykonávať iba vyškolené a kvalifikované osoby.

Safety Cover Requirement Warning



Warning

The safety cover is an integral part of the product. Do not operate the unit without the safety cover installed. Operating the unit without the cover in place will invalidate the safety approvals and pose a risk of fire and electrical hazards. Statement 117

Waarschuwing

Het beveiligingsdeksel is een integraal onderdeel van het product. Deze eenheid niet bedienen als het beveiligingsdeksel niet geïnstalleerd is. Als het deksel niet op zijn plaats is tijdens de bediening, zal dit de veiligheidsaanbevelingen ongeldig maken en een risico op brand en elektrische gevaren vormen.

Varoitus

Suojakansi on tärkeä osa tuotetta. Yksikköä ei saa käyttää ilman suojakannta. Yksikön käyttö ilman suojakannta mitätöi turvallisuushyväksynnät ja aiheuttaa tulipalon ja sähköiskun vaaran.

Attention

Le plateau de sécurité est une partie intégrante du produit. Pour éviter tout risque de feu ou d'accident électrique, n'utilisez jamais l'unité lorsque ce plateau n'est pas installé. Les garanties de sécurité seraient annulées.

Warnung

Die Sicherheitsabdeckung ist integraler Bestandteil des Produkts. Die Einheit darf nicht ohne installierte Sicherheitsabdeckung betrieben werden. Ein Betreiben der Einheit ohne korrekt installierte Abdeckung verstößt gegen die Sicherheitsnormen und führt zu Brandgefahr sowie elektrischen Sicherheitsrisiken.

Avvertenza

Attenzione: Il pannello di sicurezza è parte integrante del prodotto. Non fate funzionare il sistema senza il pannello di sicurezza. Far funzionare il sistema senza il pannello invaliderà le certificazioni di sicurezza e può dare luogo a rischi di incendio e a cortocircuiti.

Advarsel

Dette sikkerhetsdekselet er en integral del av produktet. Enheten skal ikke brukes uten at sikkerhetsdekselet er montert. Bruk av enheten uten at sikkerhetsdekselet sitter på plass, vil ugyldiggjøre sikkerhetsgodkjenningene, og kan dessuten utgjøre fare for brann og faremomenter i forbindelse med elektrisitet.

Aviso

A cobertura de segurança é uma parte integral do produto. Não opere a unidade sem a respectiva cobertura de segurança instalada. Operar a unidade sem esta cobertura anulará as aprovações de segurança e constituirá um risco de incêndio e perigo elétrico.

¡Advertencia!

La cubierta de seguridad forma parte integral del producto. No haga funcionar este producto sin la cubierta de seguridad instalada, de lo contrario se invalidarían las aprobaciones de seguridad y se correría el riesgo de incendio o de descargas eléctricas.

Varning!

Skyddshuven är en väsentlig del av produkten. Använd inte enheten utan installerad skyddshuv. Om enheten används utan skyddshuven på plats upphävs alla säkerhetsgodkännanden och risk för brandfara och elektrisk fara föreligger.

Blank Faceplates and Cover Panels Warning



Warning

Blank faceplates and cover panels serve three important functions: they prevent exposure to hazardous voltages and currents inside the chassis; they contain electromagnetic interference (EMI) that might disrupt other equipment; and they direct the flow of cooling air through the chassis. Do not operate the system unless all cards, faceplates, front covers, and rear covers are in place.
Statement 1029

Waarschuwing

Lege vlakplaten en afdekpanelen vervullen drie belangrijke functies: ze voorkomen blootstelling aan gevaarlijke voltages en stroom binnenin het frame, ze bevatten elektromagnetische storing (EMI) hetgeen andere apparaten kan verstoren en ze leiden de stroom van koellucht door het frame. Het systeem niet bedienen tenzij alle kaarten, vlakplaten en afdekkingen aan de voor- en achterkant zich op hun plaats bevinden.

Varoitus

Tyhjillä tasolaikoilla ja suojapaneeleilla on kolme tärkeää käyttötarkoitusta: Ne suojaavat asennuspohjan sisäisille vaarallisille jännitteille ja sähkövirralle altistumiselta; ne pitävät sisälläan elektromagneettisen häiriön (EMI), joka voi häiritä muita laitteita; ja ne suuntaavat tuuletusilman asennuspohjan läpi. Järjestelmää ei saa käyttää, elleivät kaikki tasolaikat, etukannet ja takakannet ole kunnolla paikoillaan.

Attention

Ne jamais faire fonctionner le système sans que l'intégralité des cartes, des plaques métalliques et des panneaux avant et arrière ne soient fixés à leur emplacement. Ceux-ci remplissent trois fonctions essentielles : ils évitent tout risque de contact avec des tensions et des courants dangereux à l'intérieur du châssis, ils évitent toute diffusion d'interférences électromagnétiques qui pourraient perturber le fonctionnement des autres équipements, et ils canalisent le flux d'air de refroidissement dans le châssis.

Warnung

Blanke Faceplates und Abdeckungen haben drei wichtigen Funktionen: (1) Sie schützen vor gefährlichen Spannungen und Strom innerhalb des Chassis; (2) sie halten elektromagnetische Interferenzen (EMI) zurück, die andere Geräte stören könnten; (3) sie lenken den kühlenden Luftstrom durch das Chassis. Das System darf nur betrieben werden, wenn alle Karten, Faceplates, Vorder- und Rückabdeckungen an Ort und Stelle sind.

Avvertenza

Le piattaforme bianche e i pannelli di protezione hanno tre funzioni importanti: Evitano l'esposizione a voltaggi e correnti elettriche pericolose nello chassis, trattengono le interferenze elettromagnetiche (EMI) che potrebbero scombussolare altri apparati e dirigono il flusso di aria per il raffreddamento attraverso lo chassis. Non mettete in funzione il sistema se le schede, le piattaforme, i pannelli frontali e posteriori non sono in posizione.

Advarsel

Blanke ytterplater og deksler sørger for tre viktige funksjoner: de forhindrer utsettelse for farlig spenning og strøm inni kabinettet; de inneholder elektromagnetisk forstyrrelse (EMI) som kan avbryte annet utstyr, og de dirigerer luftavkjølingsstrømmen gjennom kabinettet. Betjen ikke systemet med mindre alle kort, ytterplater, frontdeksler og bakdeksler sitter på plass.

Aviso

As faces furadas e os painéis de protecção desempenham três importantes funções: previnem contra uma exposição perigosa a voltagens e correntes existentes no interior do chassis; previnem contra interferência electromagnética (EMI) que poderá danificar outro equipamento; e canalizam o fluxo do ar de refrigeração através do chassis. Não deverá operar o sistema sem que todas as placas, faces, protecções anteriores e posteriores estejam nos seus lugares.

¡Advertencia!	Las placas frontales y los paneles de relleno cumplen tres funciones importantes: evitan la exposición a niveles peligrosos de voltaje y corriente dentro del chasis; reducen la interferencia electromagnética (EMI) que podría perturbar la operación de otros equipos y dirigen el flujo de aire de enfriamiento a través del chasis. No haga funcionar el sistema a menos que todas las tarjetas, placas frontales, cubiertas frontales y cubiertas traseras estén en su lugar.
Varning!	Tomma framplattor och skyddspaneler har tre viktiga funktioner: de förhindrar att personer utsätts för farlig spänning och ström som finns inuti chassit; de innehåller elektromagnetisk interferens (EMI) som kan störa annan utrustning; och de styr riktningen på kylflödet genom chassit. Använd inte systemet om inte alla kort, framplattor, fram- och bakskydd är på plats.
Figyelem	Az előlapok és burkolópanelek három fontos funkciót töltenek be: biztosítják a veszélyes feszültségű és áramerősségű területek érintésvédelmét; elnyelik a más berendezések működésében működési zavarokat okozó elektromágneses interferenciát (EMI); a gépházon belül terelik a hűtőlevegőt. Csak úgy működtesse a rendszert, ha minden kártya, lemez, elülső és hátulsó burkolat a helyén van.
Предупреждение	Заглушки передней панели и защитные панели выполняют три важные функции: помогают избежать поражения электротоком высокого напряжения при прикосновении к внутренним элементам, экранируют электромагнитное излучение, которое может нарушить работу другого оборудования, а также направляют охлаждающий воздушный поток внутри корпуса. Не пользуйтесь устройством со снятыми крышками, заглушками, передними и задними защитными панелями.
警告	空白面板和盖板具有三个重要的功能：它们可以防止接触到底盘内危险的电压和电流；它们将可能破坏其它设备的电磁干扰 (EMI) 封闭起来；它们可以使冷气流从底盘通过。请勿在全部卡、面板、前盖和后盖未安装完毕时操作系统。
警告	ブランクの前面プレートおよびカバー パネルは、3つの重要な役割を果たします。シャーシ内部の危険な電圧および電流に接触しないよう防御の役割を果たします。他の機器に悪影響を与えるEMI(電磁波干渉)を外に出しません。さらに、シャーシ全体に冷却用の空気を流します。カード、前面プレート、前面カバー、および背面カバーがすべて取り付けられてから、システムを稼働させてください。
주의	비어있는 전면케이스 커버와 커버 패널은 다음과 같은 세가지 중요한 역할을 합니다. 새시 내부의 위험한 전압 및 전류에 노출되는 것을 방지, 기타 장비에 영향을 끼칠 수 있는 전자파 간섭(EMI)을 포함, 냉각 공기를 새시로 유입. 모든 카드, 전면케이스 커버, 전면 및 후면 커버가 장착되어 있지 않은 경우, 시스템을 작동하지 마십시오.
Aviso	Plaquetas vazias e painéis de proteção têm três funções importantes: impedem a exposição a tensões e correntes elétricas perigosas dentro do chassi; apresentam interferência eletromagnética (EMI) que pode danificar outros equipamentos: direcionam o fluxo do ar refrigerado pelo chassi. Não opere o sistema a menos que todas as placas, plaquetas, tampas frontais e tampas traseiras estejam em seu devido lugar.
Advarsel	Blanke frontplader og sidepaneler tjener tre vigtige formål: de forhindrer udsættelse for farlig spænding og strøm inde i chassiset, de isolerer elektromagnetisk interferens (EMI), der kan forstyrre andet udstyr, og de leder en strøm af kølig luft gennem chassiset. Betjen ikke systemet medmindre alle kort, frontplader, sidepaneler og bagpaneler er på plads.

تحذير تؤدي كل من الواجهات الخارجية ولوحات التغطية ثلاث وظائف هامة: الحيلولة دون التعرض للجهد الكهربائي الخطير والتيارات الموجودة في الهيكل المعدني، حيث يحتوي كلا منهما على واجهة كهرومغناطيسية () والتي قد تعيق عمل الأجهزة الأخرى كما يقوم بتوجيه تيار التبريد داخل الهيكل المعدني. لا تحاول تشغيل النظام إلا إذا كانت كافة البطاقات والواجهات والأغطية الأمامية والخلفية موضوعة في مكانها.

Upozorenje Prazna prednja ploča i pokrovne ploče imaju tri važne funkcije: sprječavaju izlaganje opasnome visokom naponu i struji unutar kućišta, proizvode elektromagnetnu interferenciju koja može ometati rad ostalih uređaja, te usmjeravaju protok rashladnog zraka kroz kućište. Sustav nemojte koristiti ako sve kartice, te prednje, pokrovne i stražnje ploče nisu pravilno ugrađene.

Upozornění Prázdné líčové desky a krycí panely mají tři důležité funkce: zabraňují odkrytí nebezpečného napětí a proudu uvnitř skříně; obsahují elektromagnetické rušení, které může rušit jiná zařízení; směřují proud chladicího vzduchu skříní. Nepoužívejte systém, pokud nejsou všechny karty, líčové desky, přední kryty a zadní kryty na svém místě.

Προειδοποίηση Οι κενές προσόψεις και τα κενά πλαίσια καλύμματος χρησιμεύουν για τρεις σημαντικές λειτουργίες: Αποκλείουν την έκθεση σε επικίνδυνες τάσεις και ρεύματα στο εσωτερικό του σασί, περικλείουν τις ηλεκτρομαγνητικές παρεμβολές (EMI) που ενδέχεται να προκαλέσουν προβλήματα σε άλλο εξοπλισμό και κατευθύνουν τη ροή του αέρα ψύξης μέσα στο σασί. Μην θέτετε το σύστημα σε λειτουργία αν δεν βρίσκονται στη θέση τους όλες οι κάρτες, οι μπροστινές πλάκες, οι προσόψεις και οι πλάτες.

אזהרה לוחות כיסוי ריקים ולוחות כיסוי משמשים לשלוש פונקציות חשובות: הם מונעים חשיפה למתחים מסוכנים ולזרם בתוך התושבת; הם מכילים הפרעות אלקטרומגנטיות (EMI) העלולות לשבש ציוד אחר; והם מכוונים את זרימת האוויר המצנן דרך התושבת. אל תפעיל את המערכת אלא אם כל הכרטיסים, לוחות הכיסוי, הלוחות הקדמיים והכיסויים האחוריים נמצאים במקומם.

Opomena Празните предни плочи и плочите за покривање служат за три важни функции: го спречуваат изложувањето на ризични напони и струи во куќиштето; содржат електромагнетни интерференции (EMI) што можат да попречуваат друга опрема; и го насочуваат протокот на воздухот за разладување низ куќиштето. Не работете со системот ако сите картички, предни плочи, предни капац и задни капац не се на своите места.

Ostrzeżenie Zaślepki i panele osłonowe pełnią trzy ważne funkcje: zapobiegają kontaktowi użytkownika z niebezpiecznymi napięciami i prądami występującymi wewnątrz obudowy; pochłaniają zakłócenia elektromagnetyczne, które mogłyby negatywnie wpływać na działanie innych urządzeń; kierują przepływem powietrza chłodzącego wewnątrz obudowy. System można eksploatować wyłącznie wtedy, gdy zamontowane są wszystkie karty, zaślepki oraz przednie i tylne osłony.

Upozornenie Prázdné líčové dosky a krycie panely majú tri dôležité funkcie: zabraňujú odkrytiu nebezpečného napätia a prúdu vnútri skrine; obsahujú elektromagnetické rušenie, ktoré môže rušiť iné zariadenia; smerujú prúd chladiaceho vzduchu cez skriňu. Nepoužívajte systém, pokiaľ nie sú všetky karty, líčové dosky, predné kryty a zadné kryty na svojom mieste.

Jewelry Removal Warning



Warning

Before working on equipment that is connected to power lines, remove jewelry (including rings, necklaces, and watches). Metal objects will heat up when connected to power and ground and can cause serious burns or weld the metal object to the terminals. Statement 43

Waarschuwing

Alvorens aan apparatuur te werken die met elektrische leidingen is verbonden, sieraden (inclusief ringen, kettingen en horloges) verwijderen. Metalen voorwerpen worden warm wanneer ze met stroom en aarde zijn verbonden, en kunnen ernstige brandwonden veroorzaken of het metalen voorwerp aan de aansluitklemmen lassen.

Varoitus

Ennen kuin työskentelet voimavirtajohtoihin kytkettyjen laitteiden parissa, ota pois kaikki korut (sormukset, kaulakorut ja kellot mukaan lukien). Metalliesineet kuumenevat, kun ne ovat yhteydessä sähkövirran ja maan kanssa, ja ne voivat aiheuttaa vakavia palovammoja tai hitsata metalliesineet kiinni liitäntänapoihin.

Attention

Avant d'accéder à cet équipement connecté aux lignes électriques, ôter tout bijou (anneaux, colliers et montres compris). Lorsqu'ils sont branchés à l'alimentation et reliés à la terre, les objets métalliques chauffent, ce qui peut provoquer des blessures graves ou souder l'objet métallique aux bornes.

Warnung

Vor der Arbeit an Geräten, die an das Netz angeschlossen sind, jeglichen Schmuck (einschließlich Ringe, Ketten und Uhren) abnehmen. Metallgegenstände erhitzen sich, wenn sie an das Netz und die Erde angeschlossen werden, und können schwere Verbrennungen verursachen oder an die Anschlußklemmen angeschweißt werden.

Avvertenza

Prima di intervenire su apparecchiature collegate alle linee di alimentazione, togliersi qualsiasi monile (inclusi anelli, collane, braccialetti ed orologi). Gli oggetti metallici si riscaldano quando sono collegati tra punti di alimentazione e massa: possono causare ustioni gravi oppure il metallo può saldarsi ai terminali.

Advarsel

Fjern alle smykker (inkludert ringer, halskjeder og klokker) før du skal arbeide på utstyr som er koblet til kraftledninger. Metallgjenstander som er koblet til kraftledninger og jord blir svært varme og kan forårsake alvorlige brannskader eller smelte fast til polene.

Aviso

Antes de trabalhar em equipamento que esteja ligado a linhas de corrente, retire todas as jóias que estiver a usar (incluindo anéis, fios e relógios). Os objectos metálicos aquecerão em contacto com a corrente e em contacto com a ligação à terra, podendo causar queimaduras graves ou ficarem soldados aos terminais.

¡Advertencia!

Antes de operar sobre equipos conectados a líneas de alimentación, quitarse las joyas (incluidos anillos, collares y relojes). Los objetos de metal se calientan cuando se conectan a la alimentación y a tierra, lo que puede ocasionar quemaduras graves o que los objetos metálicos queden soldados a los bornes.

Varning!

Tag av alla smycken (inklusive ringar, halsband och armbandsur) innan du arbetar på utrustning som är kopplad till kraftledningar. Metallobjekt hettas upp när de kopplas ihop med ström och jord och kan förorsaka allvarliga brannskador; metallobjekt kan också sammansvetsas med kontakterna.

Figyelem	Mielőtt hálózati feszültséghez csatlakozó készülékkel kezd el dolgozni, vegye le magáról az ékszereket (például gyűrűt, nyakláncot, órát). A fém tárgyak felmelegszenek, ha hálózati feszültséghez és földhöz érnek, és súlyos égési sérülést okozhatnak, illetve a fém tárgyak hozzáforrhatnak a csatlakozókhoz.
Предупреждение	Прежде чем использовать оборудование, подключенное к электросети, снимите все украшения (включая кольца, ожерелья и часы). Металлические части нагреваются при соединении с источником питания и землей, что может привести к серьезным ожогам или привариванию металлических объектов к клеммам.
警告	在操作与电源线连接的设备以前，请取下首饰（包括戒指、项链和手表）。连接电源和接地后，金属物品会升温，可能导致严重灼伤，也可能使金属物品熔接在线端。
警告	電源に接続されている装置を取り扱う際は、事前に、指輪、ネックレス、腕時計などの装身具をはずしてください。金属のオブジェクトが電源とアースと接触すると、金属が過熱して大やけどをしたり、また金属類が端子に焼き付くことがあります。

Wrist Strap and Midplane Contact Warning



Warning

During this procedure, wear grounding wrist straps to avoid ESD damage to the card. Do not directly touch the midplane with your hand or any metal tool, or you could shock yourself. Statement 181

Waarschuwing

Draag tijdens deze procedure aardingspolsbanden om te vermijden dat de kaart beschadigd wordt door elektrostatische ontlading. Raak het middenbord niet rechtstreeks aan met uw hand of met een metalen werktuig, omdat u anders een elektrische schok zou kunnen oplopen.

Varoitus

Käytä tämän toimenpiteen aikana maadoitettuja rannesuojia estääksesi sähköstaattisen purkauksen aiheuttaman kortin vaurioitumisen. Älä kosketa piirikorttia suoraan kädelläsi tai metallisella työkalulla sähköiskuvaaran vuoksi.

Attention

Lors de cette procédure, il vivement recommandé de porter des bracelets antistatiques pour éviter que des décharges électriques n'endommagent la carte. En outre, pour éviter tout risque de choc électrique, ne touchez jamais le fond de panier central directement avec la main ou avec un outil métallique.

Warnung

Vermeidung einer Beschädigung der Karte durch elektrostatische Entladung während dieses Verfahrens ein Erdungsband am Handgelenk tragen. Bei Berührung der Midplane-Karte mit der Hand oder einem metallenen Werkzeug besteht Elektroschockgefahr.

Avvertenza

Durante questa procedura, indossare bracciali antistatici per evitare danni alla scheda causati da un'eventuale scarica elettrostatica. Non toccare direttamente il midplane delle connessioni, né con le mani né con un qualsiasi utensile metallico, perché esiste il pericolo di folgorazione.

Advarsel	Bruk jordingsarmbånd under prosedyren for å unngå ESD-skader på kortet. Unngå direkte berøring av mellomplanet med hånden eller metallverktøy, slik at du ikke får elektrisk støt.
Aviso	Durante este procedimento, e para evitar danos por descarga electrostática causados à placa, usar fitas de ligação à terra para os pulsos. Para evitar o risco de choque eléctrico, não tocar directamente na parte central com a mão ou com qualquer ferramenta metálica.
¡Advertencia!	Durante este procedimiento usar tiras conectadas a tierra en las muñecas para evitar daños en la tarjeta causados por descargas electrostáticas. No tocar el plano mediano con las manos ni con ninguna herramienta metálica, ya que podría producir un choque eléctrico.
Varning!	Använd jordade armbandsremmar under denna procedur för att förhindra elektrostatisk skada på kortet. Rör ej vid kortets mittdel med handen eller metallverktyg då detta kan orsaka elektrisk stöt.
Figyelem	Az elektromos kisülés okozta meghibásodás elkerülése érdekében az eljárás során viseljen földelő csuklópántot. Se kézzel, se fém eszközzel ne érjen hozzá a készülék középső lapjához, mert különben áramütést szenvedhet.
Предупреждение	Во время выполнения этой процедуры надевайте браслет с заземлением, чтобы избежать повреждения платы электростатическим разрядом. Не прикасайтесь к средней плате непосредственно рукой или каким-либо металлическим инструментом - это может привести к поражению электрическим током.
警告	进行本工序时, 请使用可直接接地的静电消除腕带, 以避免静电 (ESD) 对电路板造成损害。请不要用您的手或任何金属工具直接接触中间背板, 以防触电。
警告	この手順を実行する間、カードの ESD 損傷を防止するために、アース用リスト ストラップを腕に取り付けてください。手または金属製のツールで直接ミッドプレーンに触らないでください。触ると感電する危険があります。
주의	이 작업을 하는 동안, 카드에 정전기로 인한 충격을 주지 않으려면 접지된 손목 띠를 착용하십시오. 중앙면을 손이나 금속 도구를 사용하며 만지지 마십시오. 감전될 수 있습니다.
Aviso	Durante esse procedimento, use pulseiras antiestáticas aterradas para evitar danos de descarga eletrostática (ESD) à placa. Não toque no painel auxiliar diretamente com a mão ou com qualquer ferramenta metálica ou você correrá o risco de receber um choque elétrico.
Advarsel	Under denne procedure skal du bære håndledsbånd med jordforbindelse for at undgå at udsætte kortet for statisk elektricitet. Undgå at berøre midterpladen direkte med hånden eller med et stykke metalværktøj, da der er risiko for stød.
تحذير	أثناء هذا الإجراء، الرجاء ارتداء أطواق حامية للرسغ لتجنب إلحاق ضرر بالبطاقة. لا تلمس الجزء الأوسط بيديك مباشرة أو بأي أداة معدنية وإلا قد تصاب بصدمة كهربائية.
Upozorenje	Za vrijeme obavljanja ovog postupka, nosite remen za uzemljenje na zapešću kako ne bi došlo do električnog udara pri dodiru s karticom. Nemojte izravno dodirivati srednju ploču rukama niti metalnim alatom, jer bi to moglo prouzročiti električni udar.

Upozornění	Během této operace používejte uzemňovací řemínky na zápěstí. Zabráníte tak poškození karty elektrickým statickým nábojem. Nedotýkejte se střední desky rukou ani žádným kovovým nástrojem. Mohli byste si způsobit poranění elektrickým proudem.
Προειδοποίηση	Κατά τη διάρκεια αυτής της διαδικασίας, να φοράτε βραχιόλια γείωσης για να αποφύγετε την πρόκληση ηλεκτροστατικής βλάβης στην κάρτα. Μην αγγίζετε απευθείας τη μεσαία πλάκα συνδέσεων με το χέρι σας ή με οποιοδήποτε μεταλλικό εργαλείο, αλλιώς κινδυνεύετε από ηλεκτροπληξία.
אזהרה	במהלך הליך זה, השתמש ברצועות יד להארכה על מנת למנוע נזק לכרטיס העלול להיגרם מפריקה אלקטרוסטטית. אל תיגע ישירות בלוח האמצעי עם היד או עם כלי מתכתי כלשהו, אחרת אתה עלול להתחשמל.
Opomena	На задната плоча има напон кога системот работи. За да го намалите ризикот од електричен удар, не допирајте ги лежиштата на напојувањето и површините на задната плоча.
Ostrzeżenie	W trakcie tej operacji należy mieć na sobie bransoletki uziemiające, aby uniknąć uszkodzenia karty w wyniku wyładowań elektrostatycznych. Nie należy dotykać płyty magistrali pośredniej bezpośrednio rękami ani metalowymi narzędziami — grozi to porażeniem elektrycznym.
Upozornenie	Počas tejto operácie používajte uzemňovacie remienky na zápästie. Zabráňte tým poškodeniu karty statickým elektrickým nábojom. Nedotýkajte sa stredovej dosky rukou ani žiadnym kovovým nástrojom. Mohli by ste sa poraniť elektrickým prúdom.

Port Adapter Removal and Installation

In this section, the illustrations that follow give step-by-step instructions on how to remove and install port adapters. Although the procedures may refer to a particular type of port adapter, the steps are the same for installing and removing all types of port adapters. This section contains the following illustrations:

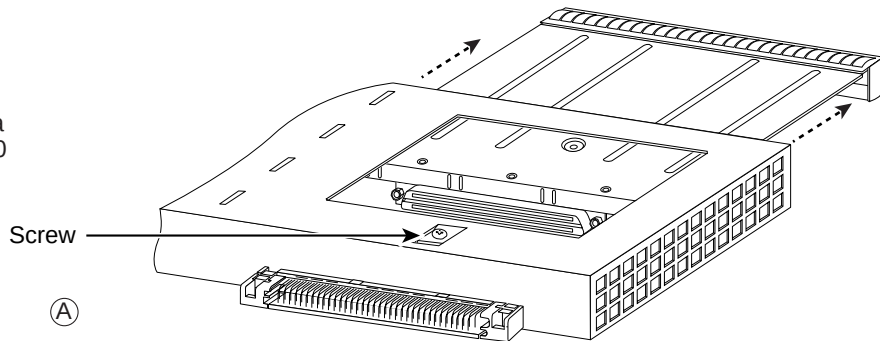
- [Catalyst 6000 Family Switches and Cisco 7600 Series Internet Routers with FlexWAN Module—Removing and Installing a Port Adapter, page 3-13](#)
- [Cisco 7200 VXR Routers—Removing and Installing a Port Adapter, page 3-14](#)
- [Cisco 7200 VXR Routers—Removing and Installing a Port Adapter in a Port Adapter Jacket Card, page 3-15](#)
- [Cisco 7201 Router—Removing and Installing a Port Adapter, page 3-17](#)
- [Cisco 7301 Router—Removing and Installing a Port Adapter, page 3-18](#)
- [Cisco 7304 PCI Port Adapter Carrier Card—Removing and Installing a Port Adapter, page 3-19](#)
- [Cisco 7401ASR Router—Removing and Installing a Port Adapter, page 3-21](#)
- [Cisco 7500 Series Routers with VIP—Removing and Installing a Port Adapter, page 3-22](#)

Catalyst 6000 Family Switches and Cisco 7600 Series Internet Routers with FlexWAN Module—Removing and Installing a Port Adapter

Note: You must first remove the Catalyst 6000 FlexWAN module from the chassis before removing a port adapter from the Catalyst 6000 FlexWAN module.

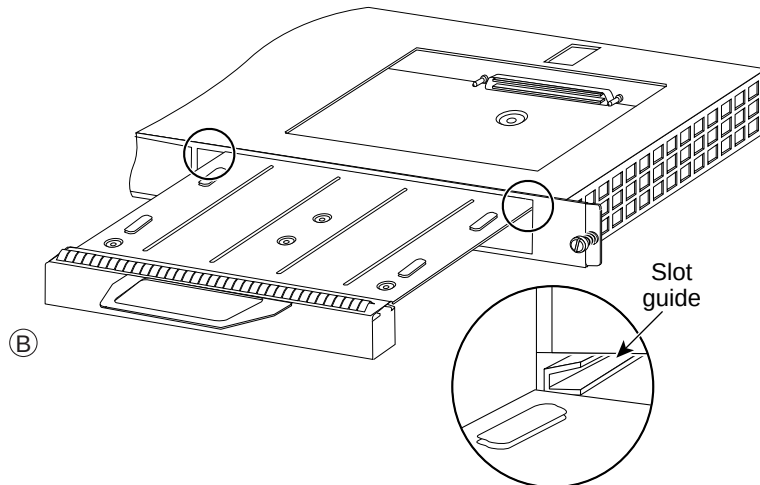
Step 1

To remove the port adapter, remove the screw that secures the port adapter (or blank port adapter). (See A.)



Step 2

With the screw removed, grasp the handle on the front of the port adapter (or blank port adapter) and carefully pull it out of its bay, away from the edge connector at the rear of the bay. (See A.)



Step 3

To install the port adapter, carefully align the port adapter carrier between the upper and the lower edges of the port adapter bay. (See B.)

Step 4

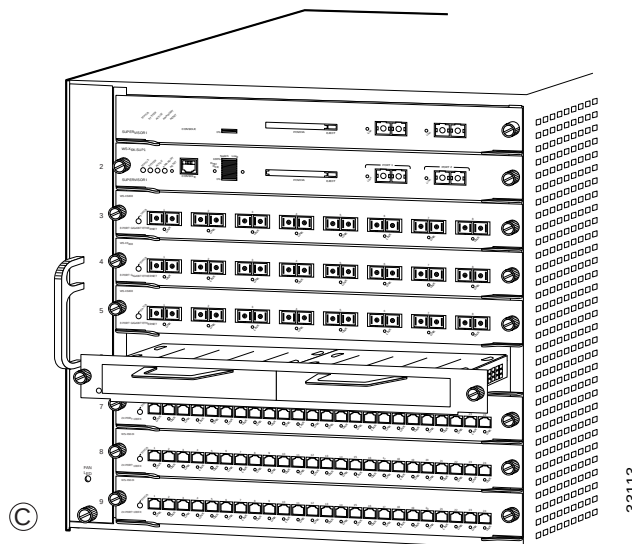
Carefully slide the new port adapter into the port adapter bay until the connector on the port adapter is completely seated in the connector at the rear of the port adapter slot. (See B.)

Step 5

Install the screw in the rear of the port adapter bay. Do not overtighten the screw. (See A.)

Step 6

Reinstall the Catalyst 6000 FlexWAN module in the chassis, and tighten the captive installation screw on each side of the Catalyst 6000 FlexWAN module faceplate. (See C.)



Cisco 7200 VXR Routers—Removing and Installing a Port Adapter

Step 1

To remove the port adapter, place the port adapter lever in the unlocked position. (See A.) The port adapter lever remains in the unlocked position.

Step 2

Grasp the handle of the port adapter and pull the port adapter from the router, about halfway out of its slot. If you are removing a blank port adapter, pull the blank port adapter completely out of the chassis slot.

Step 3

With the port adapter halfway out of the slot, disconnect all cables from the port adapter. After disconnecting the cables, pull the port adapter from its chassis slot.

Step 4

To insert the port adapter, carefully align the port adapter carrier between the upper and the lower edges of the port adapter slot. (See B.)

Step 5

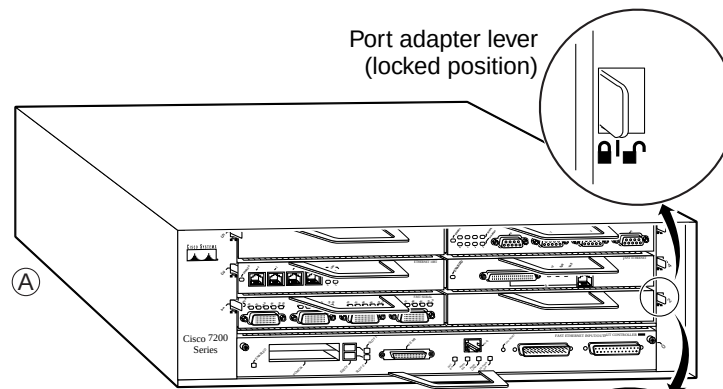
Carefully slide the new port adapter halfway into the port adapter slot. (See B.)

Step 6

With the port adapter halfway into the slot, connect all required cables to the port adapter. After connecting all required cables, carefully slide the port adapter all the way into the slot until the port adapter is seated in the router midplane.

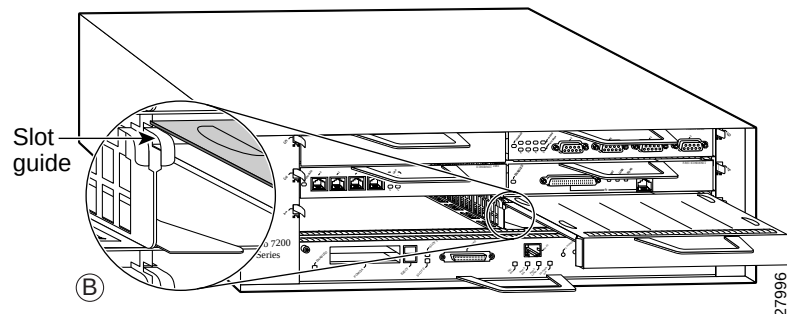
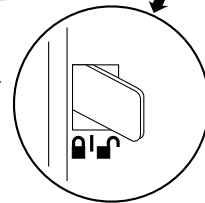
Step 7

After the port adapter is properly seated, lock the port adapter lever. (See A.)



Note: This adapter removal applies to any port or service adapter.

Port adapter lever (unlocked position)



Cisco 7200 VXR Routers—Removing and Installing a Port Adapter in a Port Adapter Jacket Card

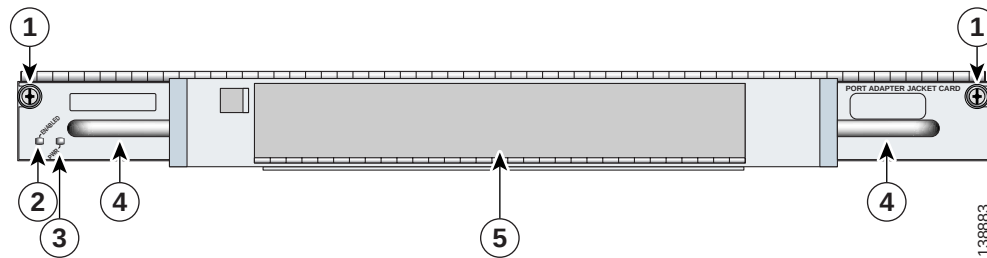
The Port Adapter Jacket Card is used in the I/O controller slot of a Cisco 7200 VXR router with either an NPE-G1 or NPE-G2 installed, and allows a port adapter to be installed in it. Both the NPE-G1 and NPE-G2 incorporate I/O controller functionality, so that with either network processing engine the I/O controller slot is available. The NPE-G1 and NPE-G2 have 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.



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.

Figure 3-2 Port Adapter Jacket Card Faceplate

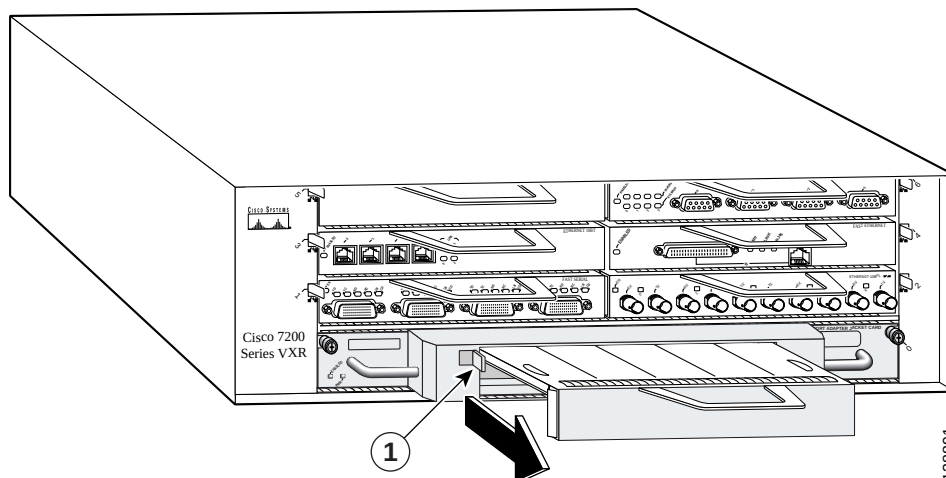


1	Captive installation screw	4	Handle
2	ENABLE LED	5	Port adapter slot
3	PWR (power) LED		

Table 3-1 Port Adapter Jacket Card LEDs

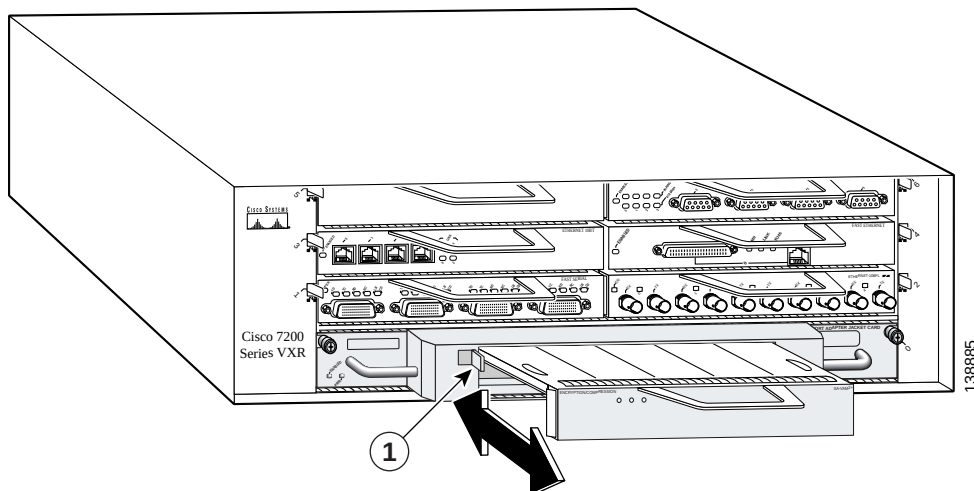
LED	Color	Indicates
ENABLE	Green	Port Adapter Jacket Card is enabled for operation.
	Off	Port Adapter Jacket Card is not enabled for operation.
PWR (power)	Green	Port Adapter Jacket Card is receiving power.
	Off	Port Adapter Jacket Card is not receiving power.

Use the following information to install a port adapter into an installed Port Adapter Jacket Card. For information on installing the Port Adapter Jacket Card into a Cisco 7200 VXR router, see the *Port Adapter Jacket Card Installation Guide*.

Figure 3-3 *Removing the Port Adapter Blank Panel*

1	Port adapter lock lever	
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- Step 1** 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 3-4 *Installing a Port Adapter in the Port Adapter Jacket Card*

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

- Step 2** Insert the port adapter into the Port Adapter Jacket Card until it is fully seated.
- Step 3** Move the port adapter lock lever to the locked position.

Cisco 7201 Router—Removing and Installing a Port Adapter

Step 1

Use an ESD wrist strap to ground yourself to the router.

Step 2

To remove the port adapter, place the port adapter lever in the unlocked position. The port adapter lever remains in the unlocked position.

Step 3

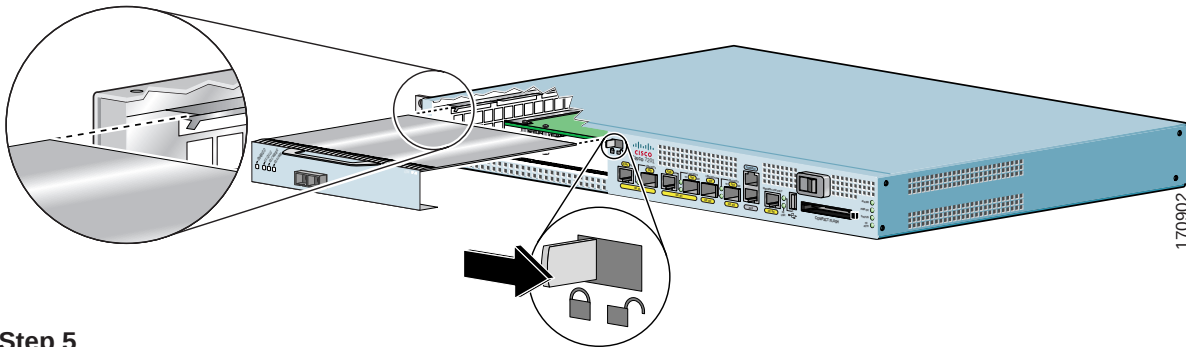
Grasp the handle of the port adapter and pull the port adapter about halfway out of its slot. If you are removing a blank port adapter, pull the blank port adapter completely out of the chassis slot.

Step 4

With the port adapter halfway out of the slot, disconnect all cables from the port adapter. After disconnecting the cables, pull the port adapter from the chassis slot.

Caution

The port adapter must slide into the slot guides close to the chassis lid. Do not allow the port adapter components to come in contact with the system board or the port adapter could be damaged.



Step 5

To insert the port adapter, carefully align the port adapter carrier in the slot guides. Slide the new port adapter halfway into the chassis.

Step 6

Connect all the required cables to the port adapter. After connecting all required cables, carefully slide the port adapter all the way into the slot until the port adapter is seated in the midplane.

Step 7

After the port adapter is properly seated, lock the port adapter lever.

Cisco 7301 Router—Removing and Installing a Port Adapter

Step 1

Use an ESD wrist strap to ground yourself to the router.

Step 2

To remove a port adapter, use a Phillips screwdriver to turn the screw holding the port adapter latch. The screw should be loose enough to allow the latch to rotate to an unlocked position. (See A.) The latch can rotate 360°.

Step 3

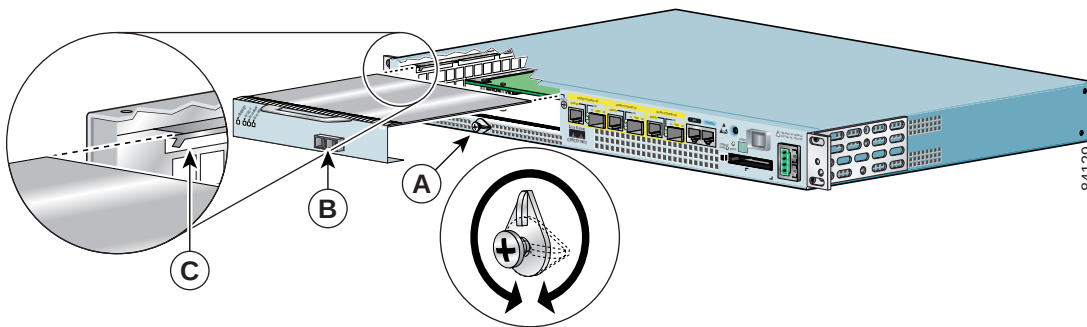
Grasp the handle and pull the port adapter from the router, about halfway out of its slot. (See B.) If you are removing a blank port adapter, pull the blank port adapter completely out of the chassis slot.

Step 4

With the port adapter halfway out of the slot, disconnect all cables from the port adapter. After disconnecting the cables, pull the port adapter from its chassis slot.

Caution

The port adapter must slide into the slot guides close to the chassis lid. (See C.) Do not allow the port adapter components to come in contact with the system board or the port adapter could be damaged.



Step 5

To insert the port adapter, carefully align the port adapter carrier in the slot guides. (See C.) Slide the new port adapter halfway into the chassis.

Step 6

Connect all required cables to the port adapter. After connecting all required cables, carefully slide the port adapter all the way into the slot until the port adapter is seated in the midplane.

Step 7

After the port adapter is properly seated, turn and secure the port adapter latch in the upright, locked position. (See A.) Tighten the screw to ensure the port adapter remains firmly in place.

Cisco 7304 PCI Port Adapter Carrier Card—Removing and Installing a Port Adapter

You can install one single-width port adapter in a Cisco 7304 PCI Port Adapter Carrier Card. This section provides step-by-step instructions for removing and installing a port adapter in a Cisco 7304 PCI Port Adapter Carrier Card.

**Caution**

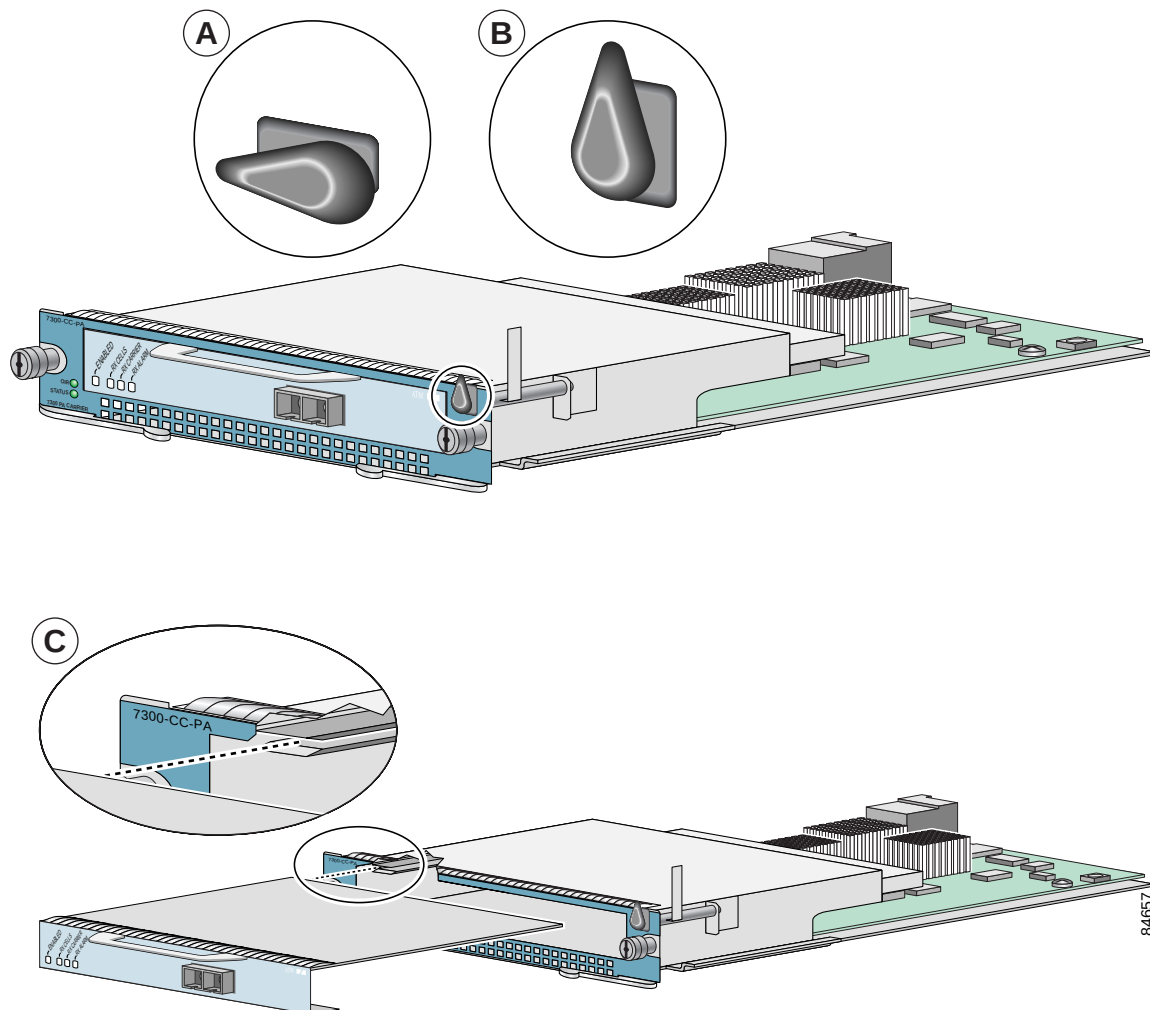
When performing the following procedures, wear a grounding wrist strap to avoid ESD damage to the Cisco 7304 PCI Port Adapter Carrier Card. Some platforms have an ESD connector for attaching the wrist strap.

To remove and install a port adapter in a Cisco 7304 PCI Port Adapter Carrier Card, refer to [Figure 3-5](#) and do the following:

-
- Step 1** If the Cisco 7304 PCI Port Adapter Carrier Card is still in the router, you must remove the Cisco 7304 PCI Port Adapter Carrier Card before removing a port adapter.
 - Step 2** To remove the port adapter from the Cisco 7304 PCI Port Adapter Carrier Card, turn the port adapter lock from its locked and horizontal position shown in A of [Figure 3-5](#) to its unlocked and vertical position shown in B of [Figure 3-5](#).
 - Step 3** Grasp the handle of the port adapter and pull the port adapter from the Cisco 7304 PCI Port Adapter Carrier Card. (You have already disconnected the cables from the port adapter when removing the Cisco 7304 PCI Port Adapter Carrier Card).
 - Step 4** To insert the port adapter in the Cisco 7304 PCI Port Adapter Carrier Card, locate the guide rails inside the Cisco 7304 PCI Port Adapter Carrier Card that hold the port adapter in place. They are at the top left and top right of the port adapter slot and are recessed about an inch, as shown in C of [Figure 3-5](#).
 - Step 5** Carefully slide the port adapter in the Cisco 7304 PCI Port Adapter Carrier Card until the port adapter makes contact with the port adapter interface connector. When fully seated, the port adapter front panel should be flush with the face of the Cisco 7304 PCI Port Adapter Carrier Card.
 - Step 6** After the port adapter is properly seated, turn the port adapter lock to its locked and horizontal position, as shown in A of [Figure 3-5](#).
-

Figure 3-5 illustrates how to remove and install a port adapter in a Cisco 7304 PCI Port Adapter Carrier Card.

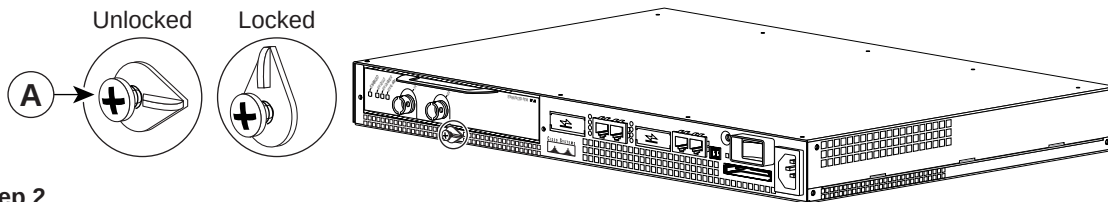
Figure 3-5 Cisco 7304 PCI Port Adapter Carrier Card—Port Adapter Removal and Installation



Cisco 7401ASR Router—Removing and Installing a Port Adapter

Step 1

To remove the port adapter, use a number 2 Phillips screwdriver to loosen the screw on the port adapter latch. Rotate the port adapter latch until it clears the faceplate of the port adapter. (See A.) The latch can rotate 360°.



Step 2

Pull the port adapter from the router, about halfway out of its slot. (If you remove a blank port adapter, keep the blank port adapter for use in the router if you should ever remove the port adapter. The port adapter slot must always be filled.)

Step 3

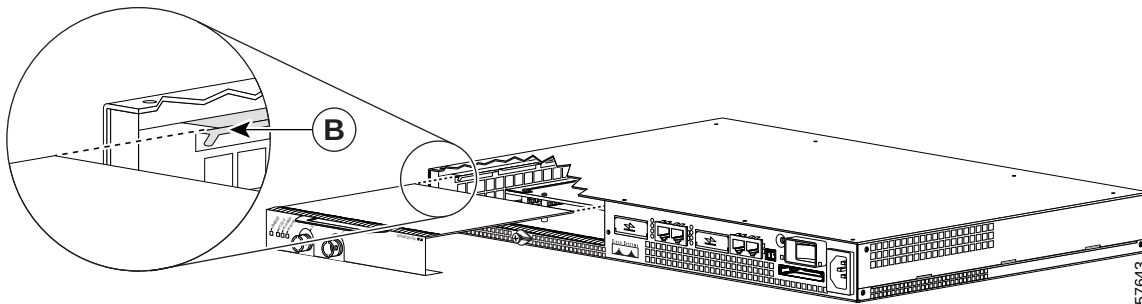
With the port adapter halfway out of the slot, disconnect all cables from the port adapter. After disconnecting the cables, pull the port adapter completely out of the chassis slot.

Step 4

To insert the port adapter, locate the port adapter slot guides inside the Cisco 7401ASR router. They are near the top, and are recessed about 1/2 inch. (See B.)

Caution

The port adapter must slide into the slot guides under the chassis lid. Do not allow the port adapter components to come in contact with the system board, or the port adapter could be damaged.



Step 5

Insert the port adapter in the slot guides halfway, and then reconnect the port adapter cables.

Step 6

After the cables are connected, carefully slide the port adapter all the way into the slot until the port adapter is seated in the router midplane. When installed, the port adapter input/output panel should be flush with the face of the router.

Step 7

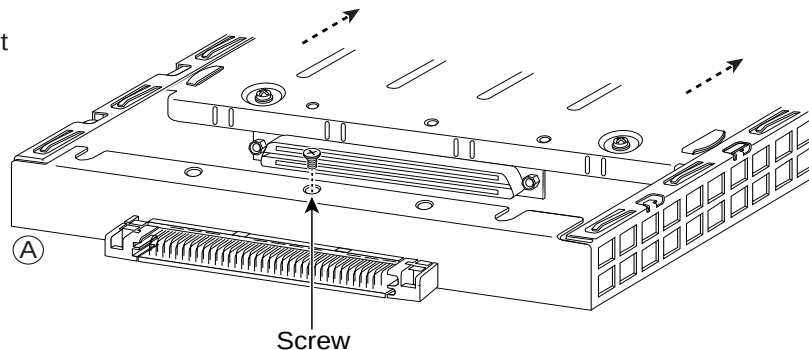
After the port adapter is properly seated, rotate the port adapter latch to the upright locked position and use a number 2 Phillips screwdriver to tighten the latch screw. If needed, loosen the latch screw to rotate the latch over the port adapter. Finish the installation by tightening the latch screw.

Cisco 7500 Series Routers with VIP—Removing and Installing a Port Adapter

Note: You must first remove the VIP from the chassis before removing a port adapter from the VIP.

Step 1

To remove the port adapter, remove the screw that secures the port adapter (or blank port adapter). (See A.)

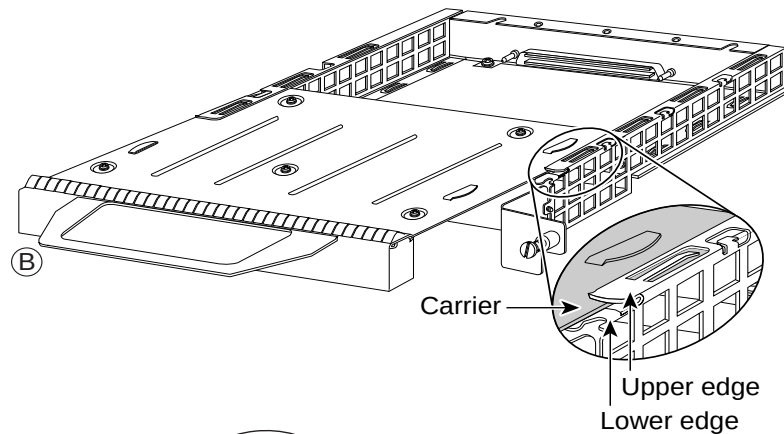


Step 2

With the screw removed, grasp the handle on the front of the port adapter (or blank port adapter) and carefully pull it out of its slot, away from the edge connector at the rear of the slot. (See A.)

Step 3

To insert the port adapter, carefully align the port adapter carrier between the upper and the lower edges of the port adapter slot. (See B.)



Step 4

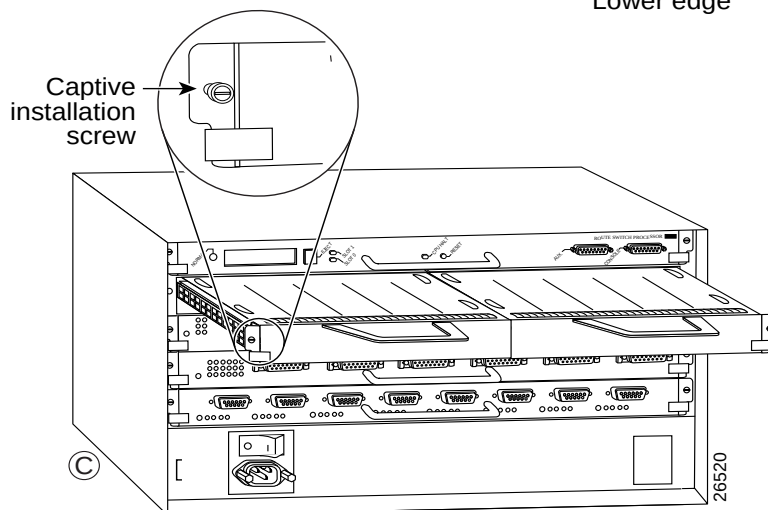
Carefully slide the new port adapter into the port adapter slot until the connector on the port adapter is completely seated in the connector at the rear of the port adapter slot. (See B.)

Step 5

Install the screw in the rear of the port adapter slot on the VIP. Do not overtighten the screw. (See A.)

Step 6

Carefully slide the VIP motherboard into the interface processor slot until the connectors at the rear of the VIP are completely seated in the connectors at the rear of the interface processor slot. Use the ejector levers to seat the VIP in the interface processor slot. Tighten the captive installation screws on the VIP. (See C.)



Connecting a PA-MC-STM-1 Cable

To continue your PA-MC-STM-1 port adapter installation, you must connect the interface cables. The instructions that follow apply to all supported platforms.


Note

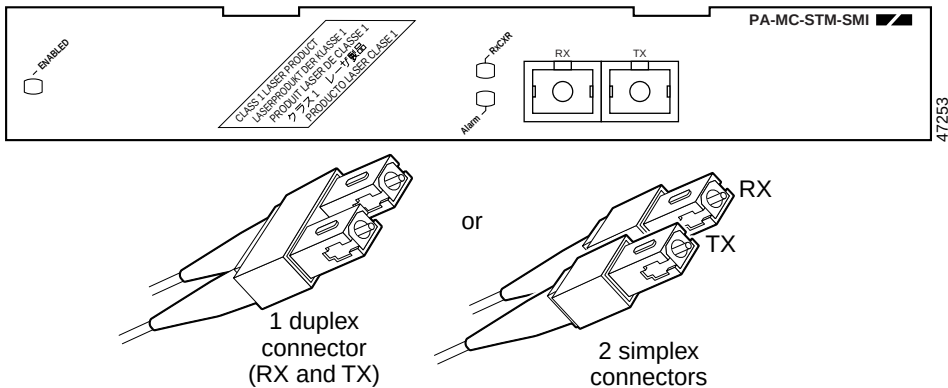
Optical fiber cables are not available from Cisco Systems; they are available from outside commercial cable vendors. (For more information on the cables you should use with this port adapter, see the [“PA-MC-STM-1 Optical Fiber Specifications”](#) section on page 1-5 and the [“Cables, Connectors, and Pinouts”](#) section on page 1-7.)

To connect cables to the PA-MC-STM-1, attach either one duplex optical fiber cable or two simplex optical fiber cables between the PA-MC-STM-1 interface port and your network. (See [Figure 3-6](#).)


Note

Ensure that you observe the proper relationship of receive (RX) cable to RX SC-type receptacle and transmit (TX) cable to TX SC-type receptacle on the PA-MC-STM-1.

Figure 3-6 Connecting Simplex or Duplex Optical Fiber Cables to the PA-MC-STM-1




Warning

Invisible laser radiation may be emitted from the end of the unterminated fiber cable or connector. Do not view directly with optical instruments. Viewing the laser output with certain optical instruments (for example, eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye hazard. Statement 1056


Warning

Class 1 Laser Product. Statement 1008.


Warning

Class 1 LED Product. Statement 1027.

This completes the procedure for replacing an optical fiber cable on the PA-MC-STM-1.

