



# Catalyst 6500 Series Switch Module Installation Note

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This publication contains the procedures for installing Catalyst 6500 series modules in the Catalyst 6500 series switches and Cisco 7600 series routers. For procedures on installing Optical Services Modules (OSMs) in Catalyst 6500 series switches and Cisco 7600 series routers, refer to the *Optical Services Module Installation and Verification Note*. For additional information on individual modules, refer to the *Catalyst 6500 Series Switch Module Installation Guide*.



## Note

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In this publication, the term Catalyst 6500 series refers to both the Catalyst 6000 series switches (Catalyst 6006 and Catalyst 6009 switches) and the Catalyst 6500 series switches (Catalyst 6503, Catalyst 6506, Catalyst 6509, Catalyst 6509-NEB, Catalyst 6509-NEB-A, and Catalyst 6513 switches) unless otherwise noted.

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## Note

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For the latest Catalyst 6500 series switch and Cisco 7600 series router software release notes, including caveats and updates, refer to the release notes for the latest maintenance release in your software release. You can access release notes at the World Wide Web locations listed in the “Obtaining Documentation” section.

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## Overview

Table 1 lists the Catalyst 6500 series switches and the Cisco 7600 series routers.

**Table 1 Catalyst 6500 Series Switches and Cisco 7600 Series Routers Chassis**

Chassis	Description
Catalyst 6000 Series Switch	Catalyst 6006 switch—6-slot chassis Catalyst 6009 switch—9-slot chassis
Catalyst 6500 Series Switch	Catalyst 6503 switch—3-slot chassis Catalyst 6506 switch—6-slot chassis Catalyst 6509 switch—9-slot chassis Catalyst 6509-NEB switch—9-slot vertical chassis Catalyst 6509-NEB-A switch—9-slot vertical chassis Catalyst 6513 switch—13-slot chassis
Cisco 7600 Series Router	Cisco 7603 router—3-slot chassis Cisco 7606 router—6-slot chassis Cisco 7609 router—9-slot vertical chassis Cisco 7613 router—13-slot chassis



**Note**

Throughout this publication, except where noted, the term *supervisor engine* refers to Supervisor Engine 1, Supervisor Engine 2, and Supervisor Engine 720.



**Note**

Specific combinations of supervisor engines and modules may not be supported in your chassis. Refer to the release notes of the software version running on your system for specific information on modules and supervisor engine combinations that are not supported.

## Safety Overview

Safety warnings appear throughout this publication in procedures that, if performed incorrectly, may harm you. A warning symbol precedes each warning statement.

## Statement 1071—Warning Definition



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****FONTOS BIZTONSÁGI ELOÍRÁSOK**

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

**ORIZZE MEG EZEKET AZ UTASÍTÁSOKAT!**

警告

**Warning**

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

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## Required Tools

These tools are required to install the modules in the Catalyst 6500 series switches or the Cisco 7600 series routers:

- Number 2 Phillips screwdriver
- Antistatic mat or antistatic foam
- Your own electrostatic discharge (ESD) grounding strap or the disposable ESD strap included with the system

## Removing the Supervisor Engine or Module

This section describes how to remove an existing supervisor engine or module from a chassis slot.

**Caution**

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During this procedure, wear grounded wrist straps to avoid ESD damage to the card.

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**Warning**

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**Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments.**

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To remove a supervisor engine or module from the chassis, perform these steps:

- 
- Step 1** Disconnect any network interface cables or console port cables attached to the supervisor engine or module.
- Step 2** Verify that the captive installation screws on all of the modules in the chassis are tight. This step assures that the space created by the removed module is maintained.

**Note**

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If the captive installation screws are loose, the electromagnetic interference (EMI) gaskets on the installed modules will push the modules toward the open slot, reducing the opening size and making it difficult to install the replacement module.

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- Step 3** Loosen the two captive installation screws on the supervisor engine or module.

- Step 4** Depending on the orientation of the slots in the chassis (horizontal or vertical), perform one of the following two sets of substeps.

**Horizontal slots**

- a. Place your thumbs on the left and right ejector levers, and simultaneously rotate the levers outward to unseat the module from the backplane connector.
- b. Grasp the front edge of the module and slide the module part of the way out of the slot. Place your other hand under the module to support the weight of the module. Do not touch the module circuitry.

**Vertical slots**

- a. Place your thumbs on the ejector levers located at the top and bottom of the module, and simultaneously rotate the levers outward to unseat the module from the backplane connector.
- b. Grasp the edges of the module, and slide the module straight out of the slot. Do not touch the module circuitry.

- Step 5** Place the module on an antistatic mat or antistatic foam, or immediately reinstall it in another slot.

- Step 6** If the slot is to remain empty, install a module filler plate to keep dust out of the chassis and to maintain proper airflow through the chassis.



**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

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## Installing the Supervisor Engine or Module

This section describes how to install modules in the Catalyst 6500 series switches or the Cisco 7600 series routers.



**Caution**

To prevent ESD damage, handle modules by the carrier edges only and wear grounded wrist straps.

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**Warning**

**Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments.** Statement 1051

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**Note**

Specific combinations of supervisor engines and modules may not be supported in your chassis. Refer to the release notes of the software version running on your system for specific information on modules and supervisor engine combinations that are not supported.

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To install a supervisor engine or module in the chassis, perform these steps:

- 
- Step 1** Determine the slot for installing the supervisor engine or module. The slots differ depending on the model of the switch and supervisor engine or module. For more information, see “Product Overview” section in the *Catalyst 6500 Series Switch Installation Guide*.
- Step 2** Verify that there is enough clearance to accommodate any interface equipment that you will connect directly to the supervisor engine or module ports. If possible, place modules between empty slots that contain only module filler plates.
- Step 3** Verify that the captive installation screws are tightened on all modules installed in the chassis. This assures that the EMI gaskets on all modules are fully compressed in order to maximize the opening space for the new module or the replacement module.




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**Note** If the captive installation screws are loose, the EMI gaskets on the installed modules will push adjacent modules toward the open slot, reducing the opening size and making it difficult to install the replacement module.

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- Step 4** Remove the module filler plate by removing the two Phillips pan-head screws from the filler plate. To remove a module, see “[Removing the Supervisor Engine or Module](#)” section on page 6.
- Step 5** Fully open both ejector levers on the new or replacement module. (See [Figure 1](#).)
- Step 6** Depending on the orientation of the slots in the chassis (horizontal or vertical), perform one of the following two sets of substeps.

#### Horizontal slots

- a. Position the supervisor engine or module in the slot. (See [Figure 1](#).) Make sure that you align the sides of the module carrier with the slot guides on each side of the slot.
- b. Carefully slide the supervisor engine or module into the slot until the EMI gasket along the top edge of the module makes contact with the module in the slot above it and both ejector levers have closed to approximately 45 degrees with respect to the module faceplate. (See [Figure 2](#).)
- c. Using the thumb and forefinger of each hand, grasp the two ejector levers and press down to create a small (0.040 inch [1 mm]) gap between the module’s EMI gasket and the module above it. (See [Figure 2](#).)



#### Caution

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Do not press down too hard on the levers. They will bend and be damaged.

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- d. While pressing down, simultaneously close the left and right ejector levers to fully seat the supervisor engine or module in the backplane connector. The ejector levers are fully closed when they are flush with the module faceplate. (See [Figure 3](#).)




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**Note** Failure to fully seat the module in the backplane connector can result in error messages.

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- e. Tighten the two captive installation screws on the supervisor engine or module.




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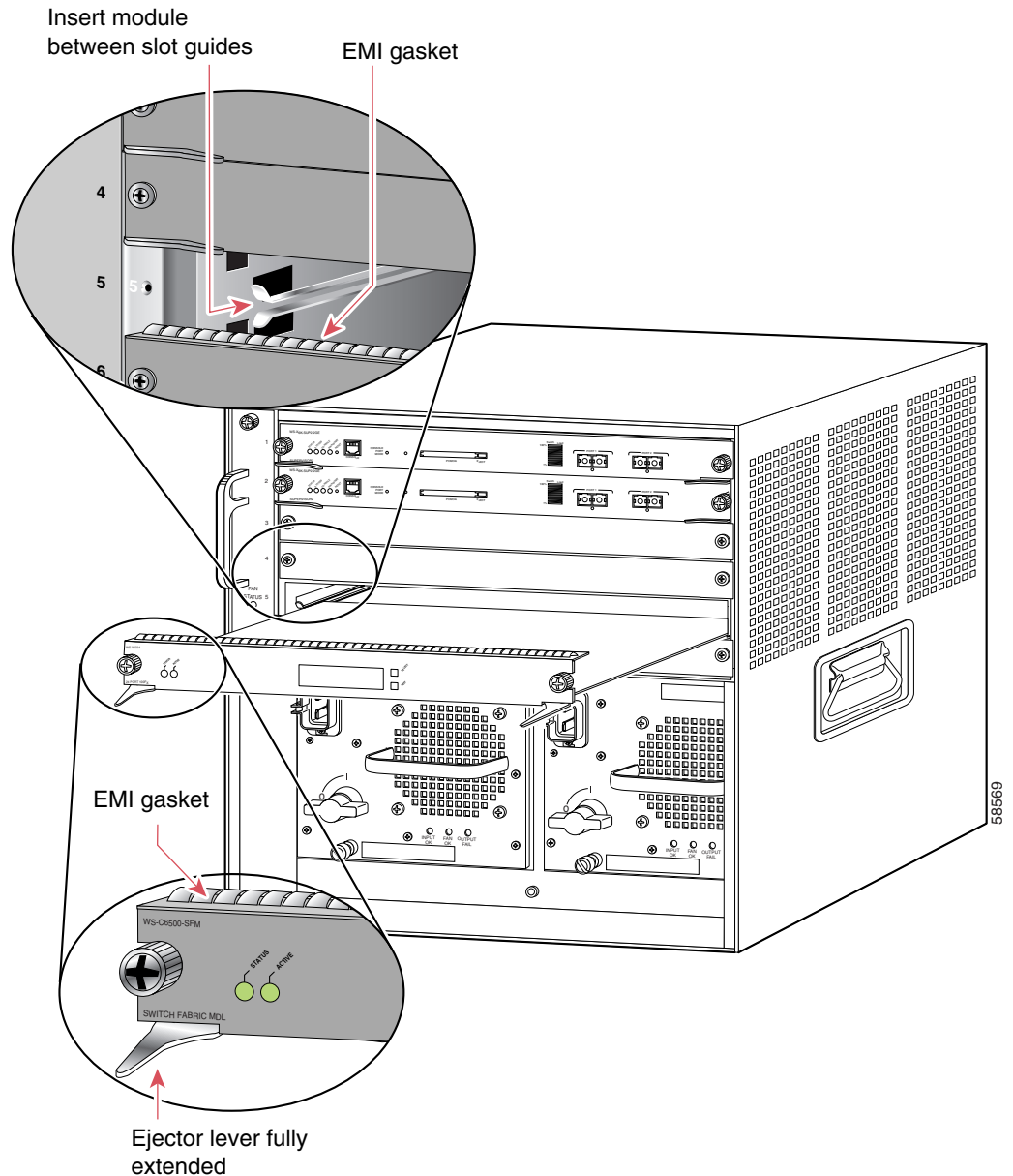
**Note** Make sure the ejector levers are fully closed before tightening the captive installation screws.

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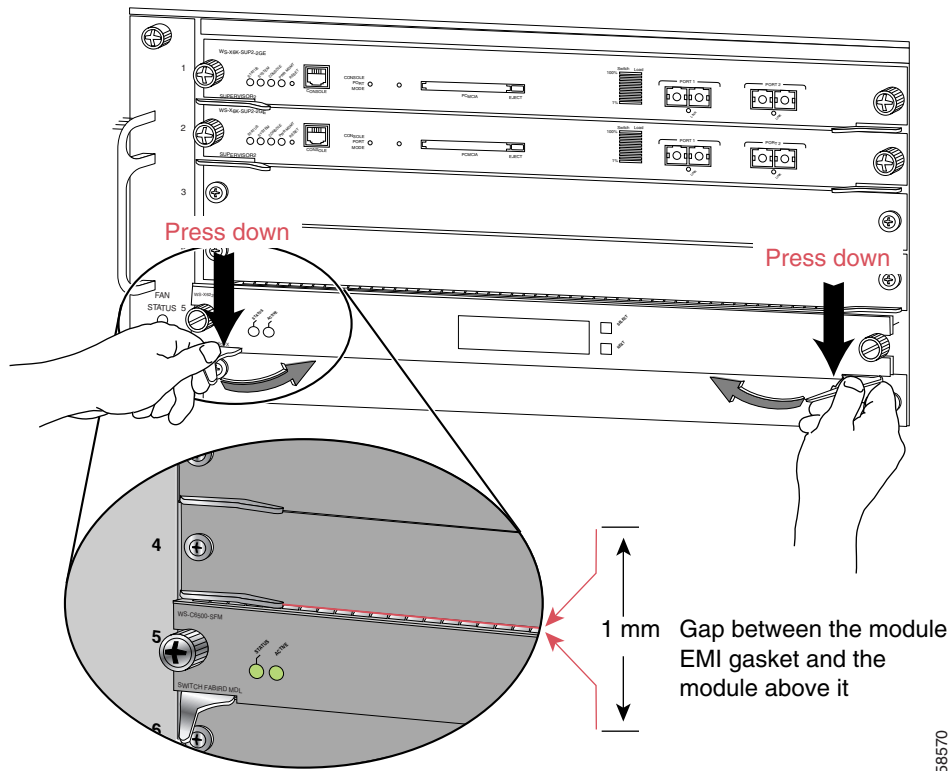


- f. Verify that the supervisor engine or module STATUS LED is lit. Check the STATUS LED periodically. If the STATUS LED changes from orange to green, the supervisor engine or module has successfully completed the boot process and is now online. If the STATUS LED remains orange or turns red, the supervisor engine or module has not successfully completed the boot process and may have encountered an error.

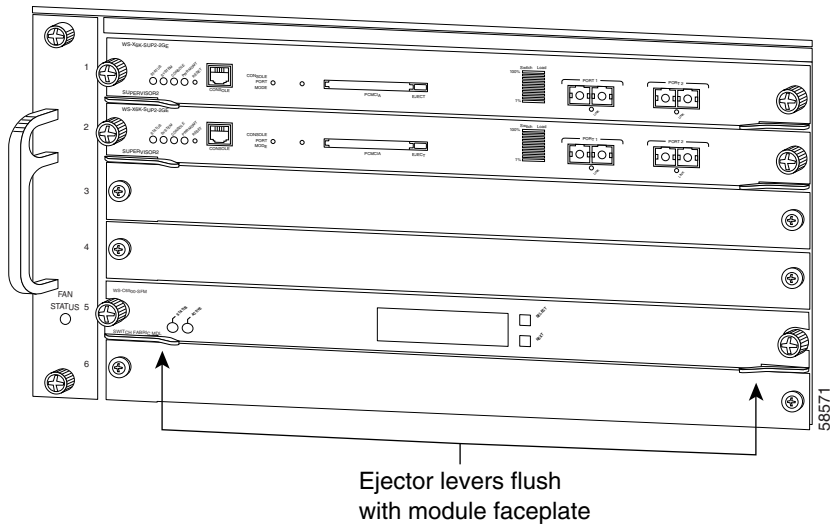
**Figure 1** Positioning the Module in a Horizontal Slot Chassis



**Figure 2** Clearing the EMI Gasket in a Horizontal Slot Chassis



**Figure 3** Ejector Lever Closure in a Horizontal Slot Chassis



**Vertical slots**

- a. Position the supervisor engine or switching module in the slot. (See [Figure 4.](#)) Make sure that you align the sides of the switching-module carrier with the slot guides on the top and bottom of the slot.
- b. Carefully slide the supervisor engine or module into the slot until the EMI gasket along the right edge of the module makes contact with the module in the slot adjacent to it and both ejector levers have closed to approximately 45 degrees with respect to the module faceplate. (See [Figure 5.](#))
- c. Using the thumb and forefinger of each hand, grasp the two ejector levers and exert a slight pressure to the left, deflecting the module approximately 0.040 inches (1 mm) to create a small gap between the module's EMI gasket and the module adjacent to it. (See [Figure 5.](#))

**Caution**

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Do not exert too much pressure on the ejector levers. They will bend and be damaged.

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- d. While pressing on the ejector levers, simultaneously close them to fully seat the supervisor engine or module in the backplane connector. The ejector levers are fully closed when they are flush with the module faceplate. (See [Figure 6.](#))
- e. Tighten the two captive installation screws on the module.



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**Note** Make sure the ejector levers are fully closed before tightening the captive installation screws.

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- f. Verify that the supervisor engine or module STATUS LED is lit. Check the STATUS LED periodically. If the STATUS LED changes from orange to green, the supervisor engine or module has successfully completed the boot process and is now online. If the STATUS LED remains orange or turns red, the supervisor engine or module has not successfully completed the boot process and may have encountered an error.
-

Figure 4 Positioning the Module in a Vertical Slot Chassis

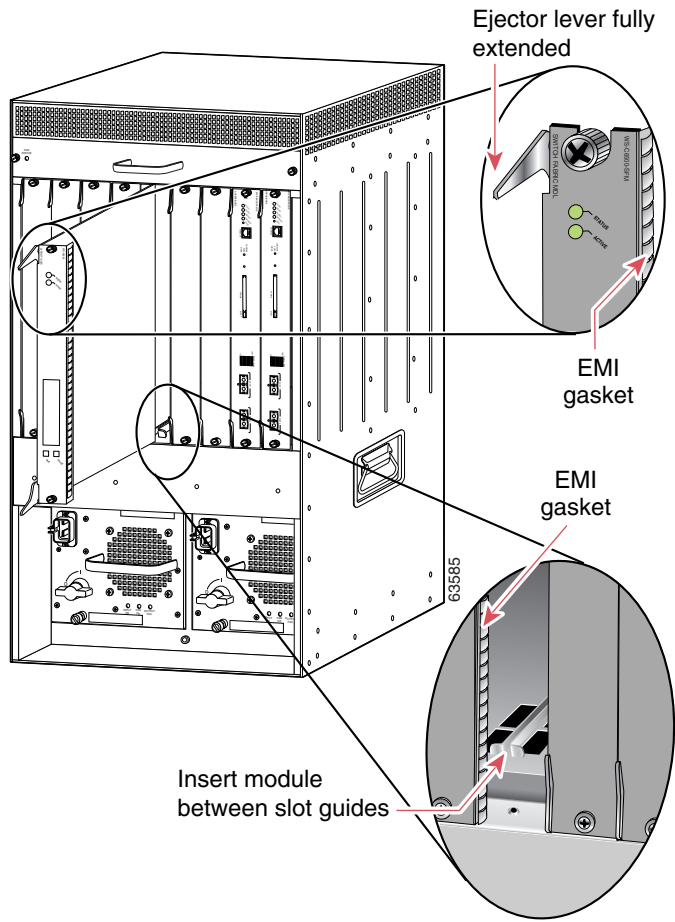
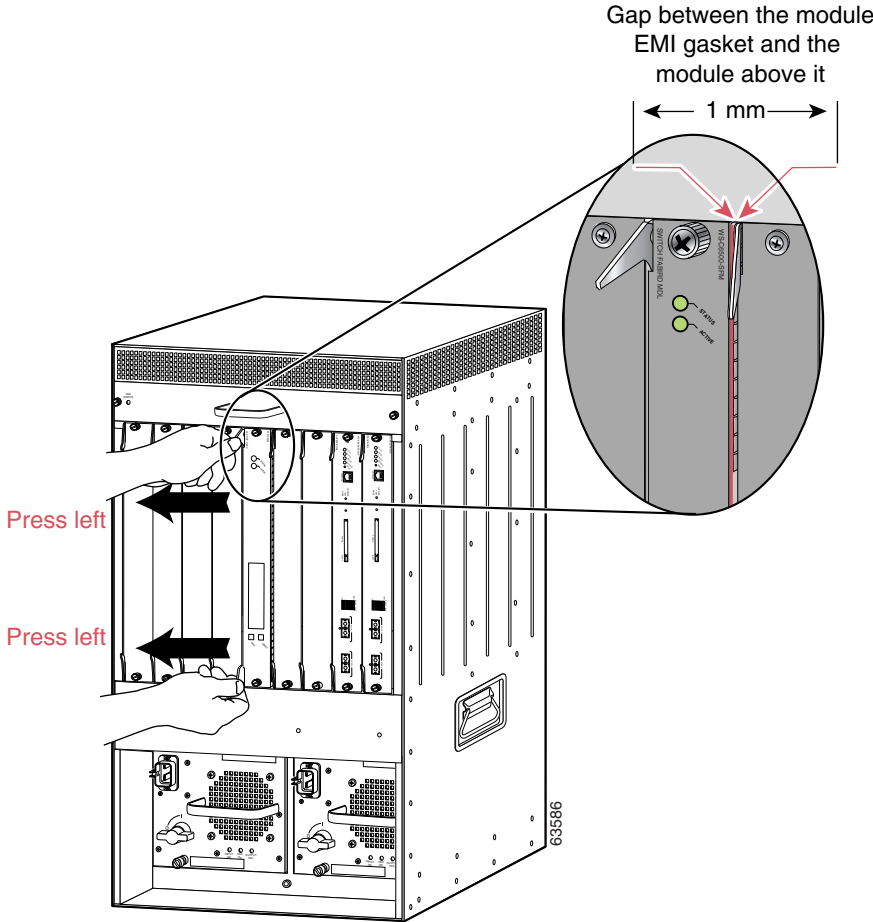
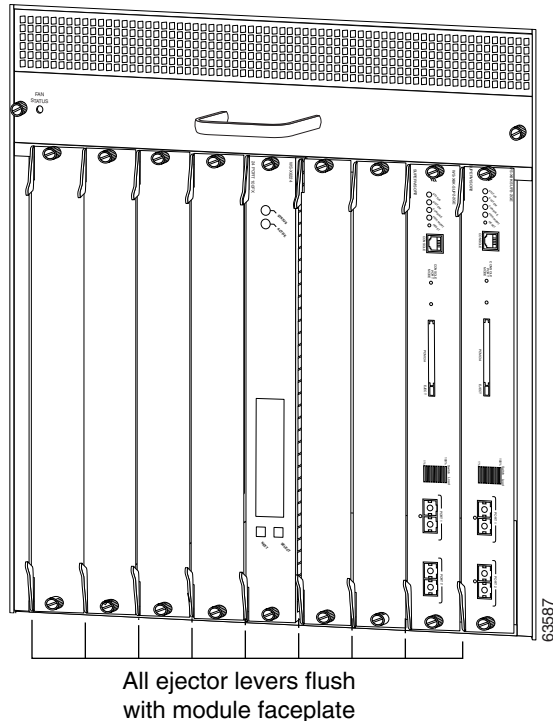


Figure 5 Clearing the EMI Gasket in a Vertical Slot Chassis



**Figure 6** Ejector Lever Closure in a Vertical Slot Chassis



## Cabling the Supervisor Engine or Module

After you have completed installing the supervisor engine or module, you are ready to attach the interface cables. Depending on the module type, the interface cables may plug directly into receptacles on the module, or you may need to install a Gigabit Interface Converter (GBIC) or Small Form-Factor Pluggable (SFP) transceiver in the module and then connect the interface cable to the GBIC or SFP. For additional information on installing GBICs or SFP transceiver modules, refer to the *Gigabit Interface Converter Installation Note* or the *Cisco Small Form-Factor Pluggable Modules Installation Notes*.

## Verifying the Installation

This section describes how to verify the installation of modules.



### Note

To verify the installation of a module on a switch or router running Cisco IOS, refer to the *Catalyst 6500 Series Switch Cisco IOS Software Configuration Guide*.

## Verifying Newly Installed Modules

Enter the **show module** or **show port** [*mod\_num/port\_num*] command to verify that the system acknowledges the new modules and has brought them online.

This example shows the output of the **show module** command:

```

Console> show module
Mod Slot Ports Module-Type           Model                               Sub Status
-----
 1   1   2   1000BaseX Supervisor      WS-X6K-SUP1A-2GE      yes ok
15   1   1   Multilayer Switch Feature WS-F6K-MSFC           no ok
 8   8   48  10/100BaseTX Ethernet      WS-X6248-RJ-45       no ok
 9   9   48  10/100BaseTX Ethernet      WS-X6348-RJ-45       yes ok

Mod Module-Name           Serial-Num
-----
 1                               SAD03436055
15                               SAD03432597
 9                               SAD03414268

Mod MAC-Address(es)           Hw   Fw   Sw
-----
 1  00-30-80-f7-a5-06 to 00-30-80-f7-a5-07 1.0   5.2(1)  6.1(0.12)
    00-30-80-f7-a5-04 to 00-30-80-f7-a5-05
    00-30-a3-4a-a0-00 to 00-30-a3-4a-a3-ff
15  00-d0-bc-ee-d0-dc to 00-d0-bc-ee-d1-1b 1.2   12.0(3)XE1 12.0(3)XE1
 8  00-d0-c0-c8-83-ac to 00-d0-c0-c8-83-db 1.1   4.2(0.24)V 6.1(0.37)FTL
 9  00-50-3e-7c-43-00 to 00-50-3e-7c-43-2f 0.201 5.3(1)

Mod Sub-Type           Sub-Model           Sub-Serial   Sub-Hw
-----
 1  L3 Switching Engine  WS-F6K-PFC         SAD03451187 1.0
 9  Inline Power Module  WS-F6K-VPWR         SAD03451187 1.0
Console>

```

## Checking Connectivity

To check connectivity on any switching module port, perform these tasks:

Task	Command
<ul style="list-style-type: none"> <li>Ping a host.</li> </ul>	<b>ping</b> <i>host</i>
<ul style="list-style-type: none"> <li>If the host is unresponsive, check the IP address of the switch and default IP route, if appropriate.</li> </ul>	<b>show interface</b> <b>show ip route</b>

For example, to ping a host named `server1`, enter this command:

```

Console> ping server1
server1 is alive
Console>

```

## Configuring the Modules

After you verify the module installation and check connectivity, you must configure the module. For complete configuration information, refer to the following publications:

- *Catalyst 6500 Series Switch Software Configuration Guide*
- *Catalyst 6500 Series Switch Command Reference*
- *ATM Software Configuration and Command Reference—Catalyst 5000 Family and Catalyst 6500 Series Switches*
- Cisco IOS Configuration Guides and Command References
- *Cisco 7600 Series Router Software Configuration Guide*
- *Cisco 7600 Series Router Command Reference*

## Regulatory Standards Compliance

Catalyst 6500 series switching modules comply with the regulatory standards listed in the *Regulatory Compliance and Safety Information for the Catalyst 6500 Series Switches* publication. Cisco 7600 series routers comply with the regulatory standards listed in the *Regulatory Compliance and Safety Information for the Cisco 7600 Series Router* publication.

## Related Documentation

For more detailed installation and configuration information, refer to these publications:

- *Regulatory Compliance and Safety Information for the Catalyst 6500 Series Switches*
- *Regulatory Compliance and Safety Information for the Cisco 7600 Series Router*
- *Site Preparation and Safety Guide*
- *Catalyst 6500 Series Switch Module Installation Guide*
- *Catalyst 6500 Series Switch Software Configuration Guide*
- *Catalyst 6500 Series Switch Command Reference*
- *Cisco 7600 Series Router Installation Guide*
- *Cisco 7603 Router Installation Guide*
- *Cisco 7600 Series Router Quick Software Configuration Guide*
- *Cisco 7600 Series Router Software Configuration Guide*
- *Cisco 7600 Series Router Command Reference*
- *Catalyst 6500 Series Switch Cisco IOS Software Configuration Guide*
- *Gigabit Interface Converter Installation Note*
- *Cisco Small Form-Factor Pluggable Modules Installation Notes*
- *Installation Note for the CWDM Passive Optical System*



# Obtaining Documentation and Submitting a Service Request

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<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

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