



# Catalyst 4000 Family Access Gateway Module DSP Upgrade Installation Note

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**Product Numbers:**

**WS-X4604-DSP(=) Catalyst 4000 DSP Set, 4x6 DSP SIMMs for AGM**

**WS-X4604-GWY(=) Catalyst 4000 Family Access Gateway Module**

This configuration note contains procedures for installing digital signal processor (DSP) cards on the Catalyst 4000 family access gateway module.

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## Warning Definition



**Warning**

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. To see translations of the warnings that appear in this publication, refer to the "Translated Safety Warnings" section in this document.

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**Waarschuwing**

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 standaard maatregelen om ongelukken te voorkomen. Voor vertalingen van de waarschuwingen die in deze publicatie verschijnen, kunt u het gedeelte "Translated Safety Warnings" (Vertalingen van veiligheidsvoorschriften) raadplegen in dit document.

**Varoitus**

Tämä varoitusmerkki merkitsee vaaraa. Olet tilanteessa, joka voi johtaa ruumiinvammaan. Ennen kuin työskentelet minkään laitteiston parissa, ota selvää sähkökytkentöihin liittyvistä vaaroista ja tavanomaisista onnettomuuksien ehkäisykeinoista. Tässä julkaisussa esiintyvien varoitusten käännökset löydät tämän asiakirjan "Translated Safety Warnings" (käännetyt turvallisuutta koskevat varoitukset).

**Attention**

Ce symbole d'avertissement indique un danger. Vous vous trouvez dans une situation pouvant causer des blessures ou des dommages corporels. Avant de travailler sur un équipement, soyez conscient des dangers posés par les circuits électriques et familiarisez-vous avec les procédures couramment utilisées pour éviter les accidents. Pour prendre connaissance des traductions d'avertissements figurant dans cette publication, consultez la section « Translated Safety Warnings » (Traduction des avis de sécurité) de ce document.

**Warnung**

Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu einer Körperverletzung führen könnte. Bevor Sie mit der Arbeit an irgendeinem Gerät beginnen, seien Sie sich der mit elektrischen Stromkreisen verbundenen Gefahren und der Standardpraktiken zur Vermeidung von Unfällen bewußt. Übersetzungen der in dieser Veröffentlichung enthaltenen Warnhinweise finden Sie im Abschnitt "Translated Safety Warnings" (Übersetzung der Warnhinweise) in diesem Dokument.

**Avvertenza**

Questo simbolo di avvertenza indica un pericolo. La situazione potrebbe causare infortuni alle persone. Prima di lavorare su qualsiasi apparecchiatura, occorre conoscere i pericoli relativi ai circuiti elettrici ed essere al corrente delle pratiche standard per la prevenzione di incidenti. La traduzione delle avvertenze riportate in questa pubblicazione si trova nella documento "Translated Safety Warnings" (Traduzione delle avvertenze di sicurezza) nel presente documento.

<b>Advarsel</b>	<b>Dette varselsymbolet betyr fare. Du befinner deg i en situasjon som kan føre til personskade. Før du utfører arbeid på utstyr, må du være oppmerksom på de faremomentene som elektriske kretser innebærer, samt gjøre deg kjent med vanlig praksis når det gjelder å unngå ulykker. Hvis du vil se oversettelser av de advarslene som finnes i denne publikasjonen, kan du se i avsnittet "Translated Safety Warnings" [Oversatte sikkerhetsadvarsler] i dette dokumentet.</b>
<b>Aviso</b>	<b>Este símbolo de aviso indica perigo. Encontra-se numa situação que lhe poderá causar danos físicos. Antes de começar a trabalhar com qualquer equipamento, familiarize-se com os perigos relacionados com circuitos eléctricos, e com quaisquer práticas comuns que possam prevenir possíveis acidentes. Para ver as traduções dos avisos que constam desta publicação, consulte a secção "Translated Safety Warnings" - "Traduções dos Avisos de Segurança" neste documento.</b>
<b>¡Advertencia!</b>	<b>Este símbolo de aviso significa peligro. Existe riesgo para su integridad física. Antes de manipular cualquier equipo, considerar los riesgos que entraña la corriente eléctrica y familiarizarse con los procedimientos estándar de prevención de accidentes. Para ver una traducción de las advertencias que aparecen en esta publicación, consultar la sección titulada "Translated Safety Warnings" que aparece en este documento.</b>
<b>Varning!</b>	<b>Denna varningssymbol 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 vanligt förfarande för att förebygga skador. Om du vill se översättningar av de varningar som visas i denna publikation, se avsnittet "Translated Safety Warnings" [Översatta säkerhetsvarningar] i detta dokument.</b>

## Required Tools

The following tools are required to remove and replace the DSPs:

- Antistatic mat or foam pad to support the removed supervisor engine
- Flat-blade screwdriver to remove any filler (blank) modules and to tighten the captive installation screws that secure the supervisor engine in its slot
- A wrist strap or other grounding device to prevent electrostatic discharge (ESD) damage

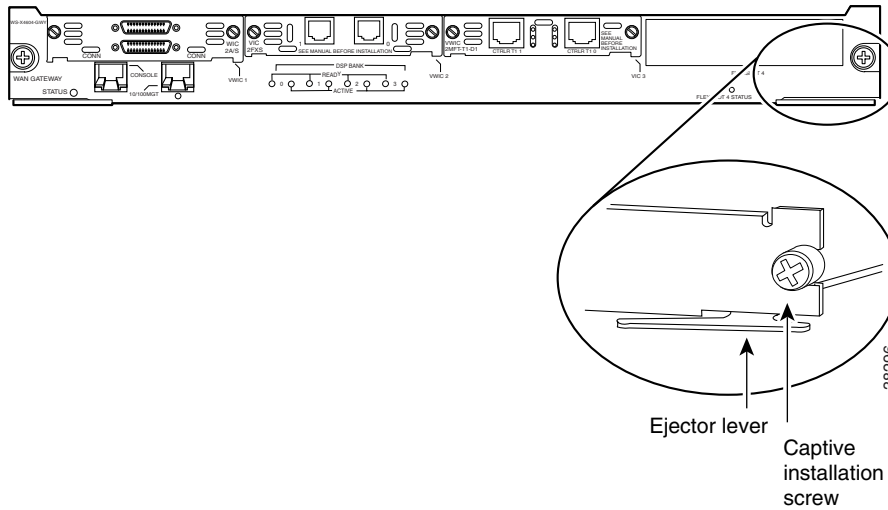
## Avoiding Problems When Installing and Removing Modules

The ejector levers on switching modules align and seat the module connectors in the backplane (see Figure 1). If you fail to use the ejector levers to insert the module, you can disrupt the order in which the pins contact the backplane. Follow the removal and replacement instructions carefully.

When removing a module, use the ejector levers to ensure that the module connector pins disconnect from the backplane properly. Any supervisor engine or switching module that is only partially connected to the backplane can disrupt the system.

For detailed instructions on removing and installing supervisor engines, see the *Catalyst 4003 and 4006 Switch Installation Guide*.

**Figure 1 Ejector Levers and Captive Installation Screws**



## Safety Overview

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

  
Warning

Before you install, operate, or service the system, read the *Site Preparation and Safety Guide*. This guide contains important safety information you should know before working with the system.

  
Warning

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

  
Warning

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

## Removing the Access Gateway Module

  
Caution

To prevent ESD damage, handle switching modules by the carrier edges only.

To remove an access gateway module from a Catalyst 4000 family switch, perform these steps:

**Step 1** Disconnect any network interface cables attached to the ports on the switching module that you intend to remove.

- Step 2** Loosen the captive installation screws, as shown in Figure 1.
- Step 3** Grasp the left and right ejector levers and simultaneously pivot the levers outward to release the switching module from the backplane connector.
- Figure 1 shows a close-up of the right ejector lever.
- Step 4** Grasp the access gateway module front panel with one hand and place your other hand under the carrier to support and guide it out of the slot. Do not touch the printed circuit boards or connector pins.
- Step 5** Carefully pull the access gateway module straight out of the slot, keeping your other hand under the carrier to guide it.
- Step 6** Place the access gateway module on an antistatic mat or antistatic foam.

## Installing the DSPs

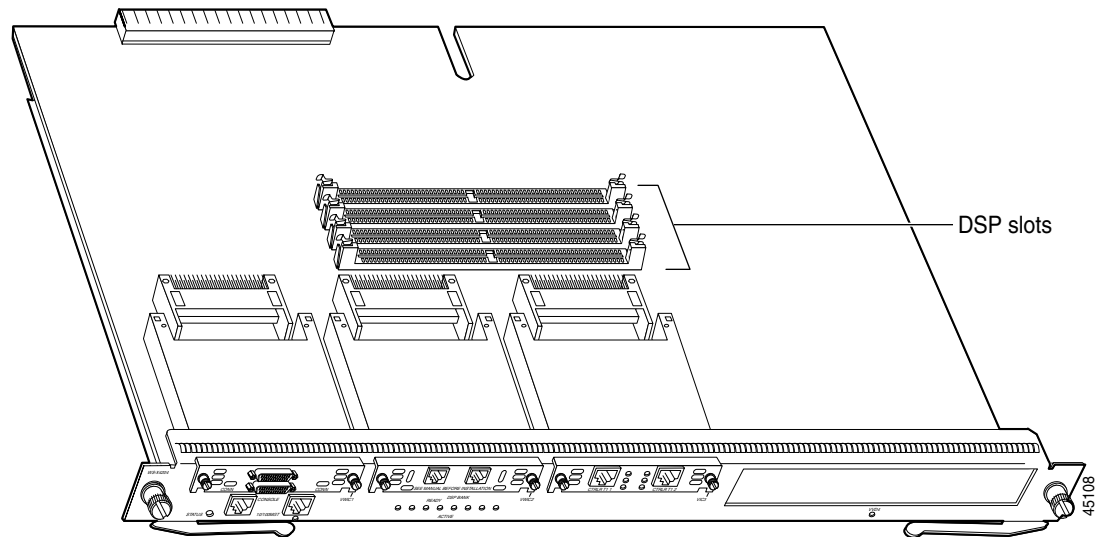
The DSPs must be fastened to the access gateway module (see Figure 2). After you remove the access gateway module from the Catalyst 4000 family switch, you can install the DSPs.



### Caution

Always use an ESD wrist strap when handling modules or coming into contact with internal components.

**Figure 2** Access Gateway Module DSP Slots



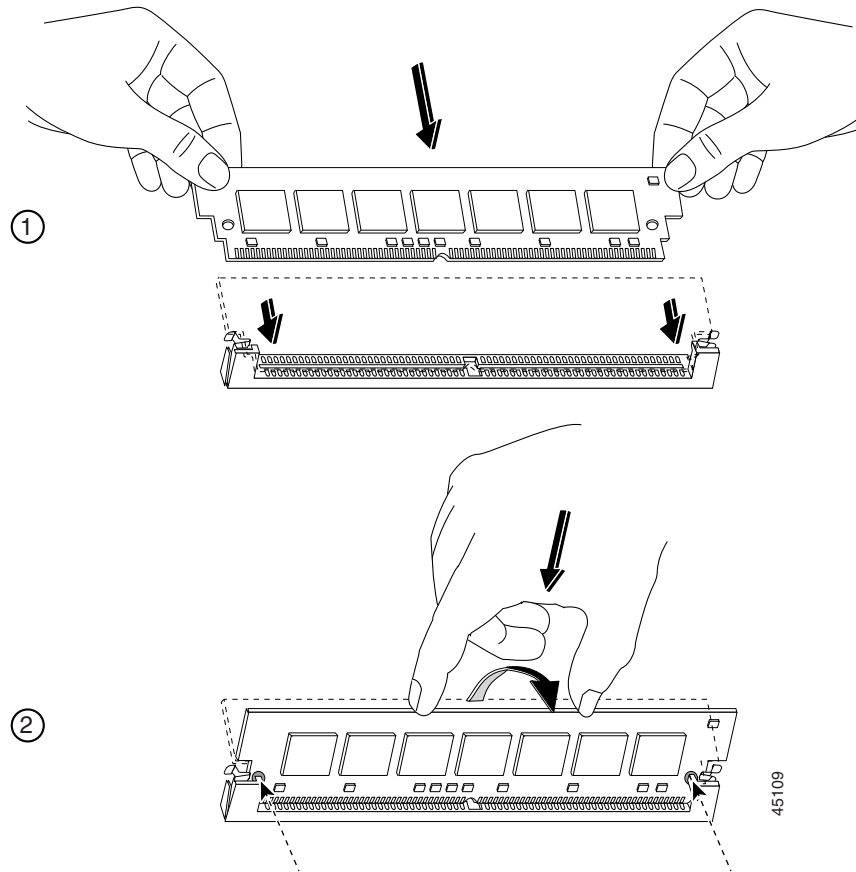
### Caution

Handle the DSP by its edges only; avoid touching the memory module, pins, or traces (the metal *fingers* along the connector edge of the DSP). DSPs are sensitive components that are susceptible to ESD damage, and can be shorted by mishandling.

To install the DSPs, perform the following steps:

- Step 1** Remove a DSP from its package, holding it by its edges, and carefully insert it into the connector (see Figure 3).
- Step 2** While gently pressing the DSP into the connector, tilt the DSP to the vertical position until it clicks into place.
- Step 3** Repeat the procedure for each of the remaining three DSPs.

**Figure 3** Installing the DSPs



## Installing the Access Gateway Module

All Catalyst 4000 family switching modules are installed in horizontal chassis slots that are numbered from top to bottom.



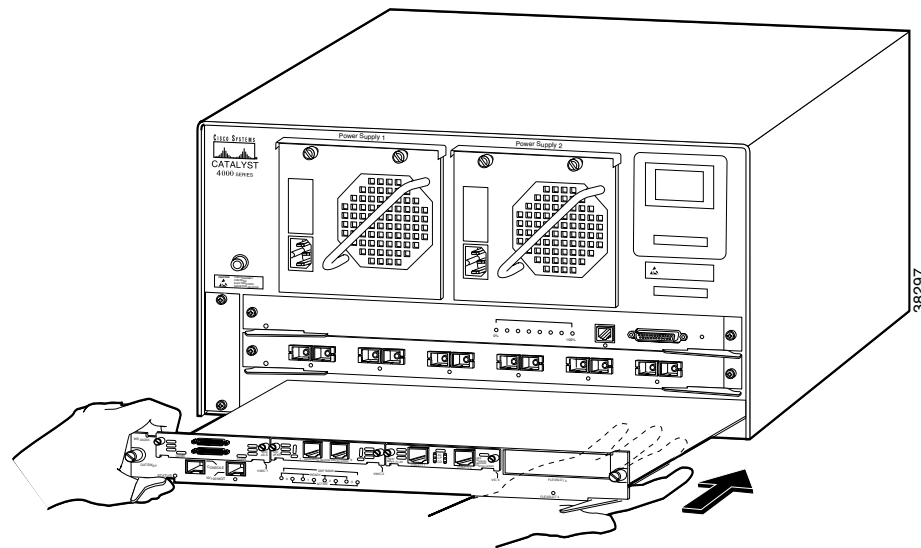
**Caution**

To prevent ESD damage, handle the access gateway modules by the carrier edges only.

To install the access gateway module in a Catalyst 4000 family switch, perform these steps:

- 
- Step 1** Take the necessary precautions to prevent ESD damage.
- Step 2** Choose a slot for the new access gateway module.
- Be sure that you have enough clearance to accommodate any interface equipment that you will connect directly to the access gateway module ports.
- Step 3** To install the access gateway module, hold the switching module front panel with one hand, and place your other hand under the carrier to support the module, as shown in Figure 4. Do not touch the printed circuit boards or connector pins.
- Step 4** Align the edges of the access gateway module carrier with the slot guides on the sides of the switch chassis, as shown in Figure 4.

**Figure 4** Installing the Access Gateway Module in the Chassis



- Step 5** Pivot the two module ejector levers out away from the faceplate.
- Step 6** Carefully slide the access gateway module into the slot until the notches on both ejector levers engage the chassis sides.
- Step 7** Using the thumb and forefinger of each hand, simultaneously pivot in both ejector levers to fully seat the access gateway module in the backplane connector.



**Caution**

Always use the ejector levers when installing or removing access gateway modules. A module that is partially seated in the backplane will cause the system to halt and reset. Make sure the ejectors are locked when the module is in the slot.

- Step 8** Use a screwdriver to tighten the captive installation screws on each end of the access gateway module faceplate.
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# Standards Compliance Specifications

When installed in a system, the Catalyst 4000 family modules comply with the standards listed in Table 1.

**Table 1 Standards Compliance Specifications**

Item	Specification
Compliance	CE <sup>1</sup> Marking
Safety	UL <sup>2</sup> 1950, CSA <sup>3</sup> -C22.2 No. 950, EN <sup>4</sup> 60950, and IEC <sup>5</sup> 950, TS001 <sup>6</sup> , AS/NZS <sup>7</sup> 3260
EMC <sup>8</sup>	FCC <sup>9</sup> Part 15, Class A (CFR <sup>10</sup> 47) (USA), ICES <sup>11</sup> -003 Class A (Canada), EN55022 Class A (Europe), CISPR22 Class A (International), AS/NZS 3548 Class A (Australia), and VCCI Class A (Japan) with UTP <sup>12</sup>  EN55022 Class B (Europe), CISPR22 Class B (International), AS/NZS 3548 Class B, and VCCI <sup>13</sup> Class B (Japan) with FTP <sup>14</sup> cables

1. CE = European Compliance
2. UL = Underwriters Laboratory
3. CSA = Canadian Standards Association
4. EN = European Norm
5. IEC = International Electrotechnical Commission
6. TS = technical specifications
7. AS/NZS = Australia Standards/New Zealand Standards
8. EMC = electromagnetic compatibility
9. FCC = Federal Communications Commission
10. CFR = Code of Federal Regulations
11. ICES = Interference-Causing Equipment Standard
12. UTP = unshielded twisted-pair
13. VCCI = Voluntary Control Council for Information Technology Equipment
14. FTP = foil twisted-pair

## FCC Class A Compliance

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio-frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case users will be required to correct the interference at their own expense.

You can determine whether your equipment is causing interference by turning it off. If the interference stops, it was probably caused by the Cisco equipment or one of its peripheral devices. If the equipment causes interference to radio or television reception, try to correct the interference by using one or more of the following measures:

- Turn the television or radio antenna until the interference stops.
- Move the equipment to one side or the other of the television or radio.
- Move the equipment farther away from the television or radio.
- Plug the equipment into an outlet that is on a different circuit from the television or radio. (That is, make certain the equipment and the television or radio are on circuits controlled by different circuit breakers or fuses.)

Modifications to this product not authorized by Cisco Systems could void the FCC approval and negate your authority to operate this product.

## Related Documentation

For more detailed installation and configuration information, refer to the following:

- *Site Preparation and Safety Guide*
- *Catalyst 4003 and 4006 Switch Installation Guide*
- *Software Configuration Guide—Catalyst 4000 Family, Catalyst 2948G, and Catalyst 2980G Switches*
- *Command Reference—Catalyst 4000 Family, Catalyst 2948G, and Catalyst 2980G Switches*
- *System Message Guide—Catalyst 6000 Family, Catalyst 5000 Family, Catalyst 4000 Family, Catalyst 2926G Series, Catalyst 2948G, and Catalyst 2980G Switches*
- *Layer 3 Services Software Configuration Guide—Catalyst 5000 Family, Catalyst 4000 Family, Catalyst 2926G Series, Catalyst 2948G, and Catalyst 2980G Switches*

## Translated Safety Warnings

This section translates to multiple languages the warnings in this installation note. These translated warnings can be used with other documents related to this document.

## Qualified Personnel Warning



**Warning**

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

**Waarschuwing**

**Installatie en reparaties mogen uitsluitend door getraind en bevoegd personeel uitgevoerd worden.**

**Varoitus**

**Ainoastaan koulutettu ja pätevä henkilökunta saa asentaa tai vaihtaa tämän laitteen.**

<b>Avertissement</b>	<b>Tout installation ou remplacement de l'appareil doit être réalisé par du personnel qualifié et compétent.</b>
<b>Achtung</b>	<b>Gerät nur von geschultem, qualifiziertem Personal installieren oder auswechseln lassen.</b>
<b>Avvertenza</b>	<b>Solo personale addestrato e qualificato deve essere autorizzato ad installare o sostituire questo apparecchio.</b>
<b>Advarsel</b>	<b>Kun kvalifisert personell med riktig opplæring bør montere eller bytte ut dette utstyret.</b>
<b>Aviso</b>	<b>Este equipamento deverá ser instalado ou substituído apenas por pessoal devidamente treinado e qualificado.</b>
<b>¡Atención!</b>	<b>Estos equipos deben ser instalados y reemplazados exclusivamente por personal técnico adecuadamente preparado y capacitado.</b>
<b>Varning</b>	<b>Denna utrustning ska endast installeras och bytas ut av utbildad och kvalificerad personal.</b>

## Wrist Strap Warning



### Warning

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

### Waarschuwing

**Draag tijdens deze procedure aardingspolsbanden om te vermijden dat de kaart beschadigd wordt door elektrostatische ontlading. Raak het achterbord 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 kortin vaurioitumisen sähköstaattisen purkauksen vuoksi. Älä kosketa taustalevyä suoraan kädelläsi tai metallisella työkalulla sähköiskuvaaran takia.**

### Attention

**Lors de cette procédure, toujours porter des bracelets antistatiques pour éviter que des décharges électriques n'endommagent la carte. Pour éviter l'électrocution, ne pas toucher le fond de panier directement avec la main ni avec un outil métallique.**

### Warnung

**Zur Vermeidung einer Beschädigung der Karte durch elektrostatische Entladung während dieses Verfahrens ein Erdungsband am Handgelenk tragen. Bei Berührung der Rückwand 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 pannello 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 bakplanet med hånden eller metallverktøy, slik at di ikke får elektrisk støt.
Aviso	Durante este procedimento e para evitar danos ESD causados à placa, use fitas de ligação à terra para os pulsos. Para evitar o risco de choque eléctrico, não toque directamente na parte posterior com a mão ou com qualquer ferramenta metálica.
Advertencia	Usartiras conectadas a tierra en las muñecas durante este procedimiento para evitar daños en la tarjeta causados por descargas electrostáticas. No tocar el plano posterior 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 inte vid baksidan med handen eller metallverktyg då detta kan orsaka elektrisk stöt.

## Site Preparation and Safety Guide Warning



### Warning

Before you install, operate, or service the system, read the *Site Preparation and Safety Guide*. This guide contains important safety information you should know before working with the system.

### Waarschuwing

Lees de handleiding *Vorbereiding en veiligheid van de locatie Handleiding* voordat u het systeem installeert of gebruikt of voordat u onderhoud aan het systeem uitvoert. Deze handleiding bevat belangrijke beveiligingsvoorschriften waarvan u op de hoogte moet zijn voordat u met het systeem gaat werken.

### Varoitus

Ennen kuin asennat järjestelmän tai käytät tai huollat sitä, lue *Asennuspaikan valmistelu-jaturvaopas* -opasta. Tässä oppaassa on tärkeitä turvallisuustietoja, jotka tulisi tietää ennen järjestelmän käyttämistä.

### Attention

Avant d'installer le système, de l'utiliser ou d'assurer son entretien, veuillez lire le *Guide de sécurité et de préparation du site*. Celui-ci présente des informations importantes relatives à la sécurité, dont vous devriez prendre connaissance.

### Warnung

Warnhinweis Bevor Sie das System installieren, in Betrieb setzen oder warten, lesen Sie die *Anleitung zur Standortvorbereitung und Sicherheitshinweise*. Dieses Handbuch enthält wichtige Informationen zur Sicherheit, mit denen Sie sich vor dem Verwenden des Systems vertraut machen sollten.

<b>Avvertenza</b>	<b>Prima di installare, mettere in funzione o effettuare interventi di manutenzione sul sistema, leggere le informazioni contenute nella documentazione sulla <i>Guida alla sicurezza</i>. Tale guida contiene importanti informazioni che è necessario acquisire prima di iniziare qualsiasi intervento sul sistema.</b>
<b>Advarsel</b>	<b>Før du installerer, tar i bruk eller utfører vedlikehold på systemet, må du lese <i>Veiledning for stedsklargjøring og sikkerhet</i>. Denne håndboken inneholder viktig informasjon om sikkerhet som du bør være kjent med før du begynner å arbeide med systemet.</b>
<b>Aviso</b>	<b>Antes de instalar, funcionar com, ou prestar assistência ao sistema, leia o <i>Guia de Preparação e Segurança do Local</i>. Este guia contém informações de segurança importantes que deve conhecer antes de trabalhar com o sistema.</b>
<b>Advertencia</b>	<b>Antes de instalar, manejar o arreglar el sistema, le aconsejamos que consulte la <i>Guía de prevención y preparación de una instalación</i>. Esta guía contiene importante información para su seguridad que debe saber antes de comenzar a trabajar con el sistema.</b>
<b>Varning!</b>	<b>Innan du installerar, använder eller utför service på systemet ska du läsa <i>Förberedelser och säkerhet Handbok</i>. Denna handbok innehåller viktig säkerhetsinformation som du bör känna till innan du arbetar med systemet.</b>

## Obtaining Documentation

### World Wide Web

You can access the most current Cisco documentation on the World Wide Web at <http://www.cisco.com>, <http://www-china.cisco.com>, or <http://www-europe.cisco.com>.

### Documentation CD-ROM

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

### Ordering Documentation

Registered CCO users can order the Documentation CD-ROM and other Cisco Product documentation through our online Subscription Services at <http://www.cisco.com/cgi-bin/subcat/kaojump.cgi>.

Nonregistered CCO users can order documentation through a local account representative by calling Cisco's corporate headquarters (California, USA) at 408 526-4000 or, in North America, call 800 553-NETS (6387).

# Obtaining Technical Assistance

Cisco provides Cisco Connection Online (CCO) as a starting point for all technical assistance. Warranty or maintenance contract customers can use the Technical Assistance Center. All customers can submit technical feedback on Cisco documentation using the web, e-mail, a self-addressed stamped response card included in many printed docs, or by sending mail to Cisco.

## Cisco Connection Online

Cisco continues to revolutionize how business is done on the Internet. Cisco Connection Online is the foundation of a suite of interactive, networked services that provides immediate, open access to Cisco information and resources at anytime, from anywhere in the world. This highly integrated Internet application is a powerful, easy-to-use tool for doing business with Cisco.

CCO's broad range of features and services helps customers and partners to streamline business processes and improve productivity. Through CCO, you will find information about Cisco and our networking solutions, services, and programs. In addition, you can resolve technical issues with online support services, download and test software packages, and order Cisco learning materials and merchandise. Valuable online skill assessment, training, and certification programs are also available.

Customers and partners can self-register on CCO to obtain additional personalized information and services. Registered users may order products, check on the status of an order and view benefits specific to their relationships with Cisco.

You can access CCO in the following ways:

- WWW: [www.cisco.com](http://www.cisco.com)
- Telnet: [cco.cisco.com](http://cco.cisco.com)
- Modem using standard connection rates and the following terminal settings: VT100 emulation; 8 data bits; no parity; and 1 stop bit.
  - From North America, call 408 526-8070
  - From Europe, call 33 1 64 46 40 82

You can e-mail questions about using CCO to [cco-team@cisco.com](mailto:cco-team@cisco.com).

## Technical Assistance Center

The Cisco Technical Assistance Center (TAC) is available to warranty or maintenance contract customers who need technical assistance with a Cisco product that is under warranty or covered by a maintenance contract.

To display the TAC web site that includes links to technical support information and software upgrades and for requesting TAC support, use [www.cisco.com/techsupport](http://www.cisco.com/techsupport).

To contact by e-mail, use one of the following:

Language	E-mail Address
English	<a href="mailto:tac@cisco.com">tac@cisco.com</a>
Hanzi (Chinese)	<a href="mailto:chinese-tac@cisco.com">chinese-tac@cisco.com</a>
Kanji (Japanese)	<a href="mailto:japan-tac@cisco.com">japan-tac@cisco.com</a>

Language	E-mail Address
Hangul (Korean)	korea-tac@cisco.com
Spanish	tac@cisco.com
Thai	thai-tac@cisco.com

In North America, TAC can be reached at 800 553-2447 or 408 526-7209. For other telephone numbers and TAC e-mail addresses worldwide, consult the following web site:  
<http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml>.

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You can e-mail your comments to [bug-doc@cisco.com](mailto:bug-doc@cisco.com).

To submit your comments by mail, for your convenience many documents contain a response card behind the front cover. Otherwise, you can mail your comments to the following address:

Cisco Systems, Inc.  
 Document Resource Connection  
 170 West Tasman Drive  
 San Jose, CA 95134-9883

We appreciate and value your comments.

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This document is to be used in conjunction with the *Catalyst 4003 and 4006 Switch Installation Guide*.

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