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# Catalyst 3900 4-Port Fiber Token Ring Module Configuration Note

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**January 1, 1998**

This document contains instructions for installing and configuring the Catalyst 3900 4-port fiber Token Ring module (product number WS-C3900-4RF=).

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**Note** For information about configuring and maintaining the Catalyst 3900 switch, refer to the *Catalyst 3900 Token Ring Switch User Guide*. This document is available on the Cisco Connection Online, the Cisco Documentation CD-ROM, or in print.

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## Package Contents

Along with this document, your expansion module package should contain one 4-port fiber Token Ring card.

If this item is missing or damaged, contact the place of purchase.

## Overview

This section provides an overview of the expansion module and its characteristics.

The 4-port fiber Token Ring module provides four additional Token Ring connections for the base Catalyst 3900 Token Ring switch. The ports of this expansion module support four pairs of multimode fiber connections via ST-type optical transmitter and receiver ports. The ports can be connected to the following:

- A station, in which case the port acts like an active media attachment unit (MAU) port.
- A port on a concentrator, in which case the port acts like a station.
- The ring in (RI) or ring out (RO) ports of a Token Ring concentrator or hub.
- The ports of another 4-port fiber Token Ring expansion module installed in another Catalyst 3900, forming a TokenChannel. (For more information about TokenChannels, refer to the *Catalyst 3900 Token Ring Switch User Guide*.)

## Operating Environment and Physical Dimensions

Table 1 describes the operating environment.

<b>Table 1</b>	<b>Operational Parameters</b>
Temperature	50 F to 104 F (10 C to 40 C)
Relative humidity	8% to 80%
Maximum wet-bulb temperature	81 F (27 C)
Electrical power	20 watts

Table 2 lists the physical dimensions of the 4-port fiber Token Ring module.

<b>Table 2</b>	<b>Physical Dimensions</b>
Width	5.45 in. (138.4 mm)
Depth	8.06 in. (204.7 mm)
Height	1 in. (25.4 mm)
Weight	1 lb (.45 kg)

Table 3 lists the optical power transmit and receive parameters of the 4-port fiber Token Ring module.

**Table 3** Transmit and Receive Parameters

Optical Power	Minimum	Typical	Maximum
Transmit	-16.0 dβm (25.1 μ)	-14.5 dβm (35.5 μ)	-12.0 dβm (63.1 μ)
Receive	-31.0 dβm (0.8 μ)		-11.0 dβm (79.4 μ)

## LEDs

There are status LEDs on the front of the 4-port fiber Token Ring module that indicate the operational status of the ports and the module.

Table 4 lists the LEDs for the ports and their meanings.

**Table 4** Port LEDs

LED	Location	State	Meaning
Ins	Top	On	Port is inserted into the ring.
		Off	Port is not inserted into the ring.
Act	Bottom	On	Data is being transmitted by the port.
		Off	No activity on the port.

Table 5 lists the LEDs for the module and their meanings.

**Table 5** Module LEDs

LED	Location	State	Meaning
OK	Top	On	Module is working correctly.
		Off	Module is not working correctly.
Fault	Bottom	On	Module failure has occurred.
		Off	Module is working correctly.

## Installation Considerations

Observe the following cautions when installing an expansion module into an expansion slot of the Catalyst 3900 chassis.



**Caution** Do not touch the components or connectors on the module. Do not touch cable connector pins when the other end of the cable is plugged in. Damage may result from static discharge.



**Caution** During installation, the connector on the expansion module must line up evenly with the connector inside the expansion slot. Misalignment may cause the connector pins to bend. When inserting the expansion module into the expansion slot, be sure that the board is level and that the left and right sides slide evenly into the slot.



**Caution** This module contains static-sensitive devices. Please follow proper electrostatic discharge (ESD) handling procedures (wristband with ground strap and ESD mat) when installing this module in your Token Ring switch chassis.

## Installing the Module

To install the module, perform the following steps:

**Step 1** Power off the Catalyst 3900 by unplugging it. The Catalyst 3900 does not have an on/off switch. To power off the Catalyst 3900, you must disconnect the power cord from the rear of the switch.



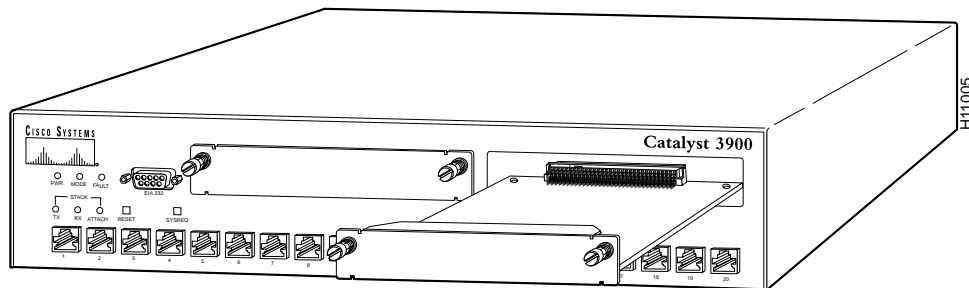
**Warning** Unplug the power cord before you work on a system that does not have an on/off switch.

**Step 2** Remove the expansion slot faceplate by unscrewing the thumbscrews.

**Step 3** Slide the module into the slot, being careful to align the sides of the module with the guide rails (Figure 1). Continue sliding the module into the slot until it is seated in the connector at the back of the slot. When the card is fully seated, the back of the module faceplate will be in contact with the front of the Catalyst 3900.

**Step 4** Secure the card using the two thumbscrews attached to it

**Figure 1** Installing the Module



## Testing the Installation

After you have installed the module, perform the following steps to verify the installation:

**Step 1** Power on the Catalyst 3900 so that the diagnostics start.

**Step 2** Verify that the Catalyst 3900 diagnostics have been completed successfully. With the Catalyst 3900, this is indicated when the OK LED is on and the Mode and Fault LEDs are off. Diagnostics can take up to four minutes to complete.

**Step 3** Verify that the Fault LED on the module is off.

If the module Fault LED is on, power off the Catalyst 3900, verify that the module has been seated correctly in the slot, and power on the Catalyst 3900.

If the module Fault LED remains on, contact the Cisco Technical Assistance Center (TAC).

## Cabling the Module Ports to Other Devices

This section provides instructions for connecting devices such as hubs, servers, PCs, and workstations to the module. When making a connection, remember the following:

- Read the Catalyst 3900 documentation for information on choosing the appropriate cable types and lengths.
- Avoid stretching or bending cables excessively.
- Avoid trip hazards by routing the cables away from the aisles and other areas where people walk. If such routes cannot be avoided, use floor cable covers or similar material to secure and protect the cables.
- Be sure that the cables connected to the module are supported so that the cable connectors are not excessively strained.

Observe the following warnings and notes when cabling an expansion module with fiber-optic cable.



**Warning** Laser radiation is present when the system is open.



**Warning** Do not stare into the laser beam.

To connect the cables, perform the following steps:

- Step 1** Using the cabling chart provided by your network administrator as a guide, connect the cables between the module and the other devices.
- Step 2** Label each end of the cable so that it will be easy to find the device if you have to troubleshoot a network problem. Suggested information for this label includes the following:
- Room location of the other device
  - Unique cable identification number
  - Media Access Control (MAC) address of the connected device
  - Number of the port to which the cable is attached

## Configuring the Module

The module ports are configured like the other Token Ring ports of the Catalyst 3900. They appear as additional ports on any configuration panel where ports are listed. Any of the ports on the 4-port Fiber Token Ring module can be configured for Ring in/Ring out mode. Possible port values for the 4-port fiber expansion module are 21 through 24 and 25 through 28. For more information about configuring ports on the Catalyst 3900, refer to the *Catalyst 3900 Token Ring Switch User Guide*.

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**Note** If you want to establish a TokenChannel between two Catalyst 3900s using the ports of the 4-port fiber Token Ring module, you must configure one end of the fiber connection as an adapter and the other end of the fiber connection as a port. Refer to the *Catalyst 3900 Token Ring Switch User Guide* for information about manually configuring port modes.

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**Note** If you want to establish multiple connections to a single ring, you must enable the Spanning Tree Protocol. Refer to the *Catalyst 3900 Token Ring Switch User Guide* for information about configuring spanning-tree parameters.

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## Safety Information

This section contains information about working safely with electrical equipment, safety information about the module LEDs, translations of any safety warnings that appear in this document, and electronic emission notices.

### Safety with Electricity



**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 objects to the terminals.

The Catalyst 3900 does not have an on/off switch. To power off the Catalyst 3900, you must disconnect the power cord from the rear of the switch.



**Warning** Unplug the power cord before you work on a system that does not have an on/off switch.

Follow these guidelines when working with equipment powered by electricity:

- Locate the emergency power-off switch for the room in which you are working.
- Before working on the equipment, unplug the power cord.
- Disconnect all power before doing the following:
  - Installing or removing a chassis
  - Performing a hardware upgrade
- Do not work alone when potentially hazardous conditions exist.
- Never assume that power has been disconnected from a circuit. Always check.
- Look carefully for possible hazards in your work area, such as moist floors, ungrounded power extension cables, and missing safety ground wires.
- If an electrical accident occurs, proceed as follows:
  - Use caution.
  - Unplug the power cord.
  - If possible send another person to get medical aid. Otherwise, assess the victim's condition and then call for help.
  - Determine if the victim needs rescue breathing or external cardiac compressions, then take appropriate action.

## Preventing Electrostatic Discharge Damage

Electrostatic discharge can damage or impair electrical circuitry. It occurs when electronic components are handled improperly. Always follow electrostatic discharge prevention procedures when removing or replacing components. Ensure that the chassis is electrically connected to earth ground using an electrostatic discharge mat or a ground wire. Wear an electrostatic discharge-preventive wrist strap, ensuring that it makes good skin contact and is connected to an unpainted surface on the chassis frame. If no wrist strap is available, ground yourself by touching the metal part of the chassis while handling a component.

## LED Safety Information

The 4-port fiber Token Ring module contains LEDs. The expansion module is classified as a Class 1 LED product and is certified to conform to the requirements of EN60825-1:1994 and IEC825-1:1993.

Class 1 laser products are not considered hazardous. The 4-port fiber Token Ring module has embedded Class 3a LED assemblies operating at a nominal wavelength of 850 nanometers and a maximum potential output power of 1.25 milliwatts. The design of the 4-port fiber Token Ring module incorporates engineering features including current limiting, which ensures that there is no human access to LED radiation greater than Class 1 under any set of operating, maintenance, or service conditions, including a single fault.

There are fewer than 0.442 milliwatts propagating in the link or in any portion of the module. Therefore, according to IEC825-2:1993, Hazard Level 1 prevails in all parts of the system.

The LEDs are located on the front face of the module.

## Translated Safety Warnings

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



**Warning** 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 *Regulatory Compliance and Safety Information* document that accompanied this device.

**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 document *Regulatory Compliance and Safety Information* (Informatie over naleving van veiligheids- en andere voorschriften) raadplegen dat bij dit toestel is ingesloten.

**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 laitteen mukana olevasta *Regulatory Compliance and Safety Information* -kirjasesta (määräysten noudattaminen ja tietoa turvallisuudesta).

**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 le document *Regulatory Compliance and Safety Information* (Conformité aux règlements et consignes de sécurité) qui accompagne cet appareil.

**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 Dokument *Regulatory Compliance and Safety Information* (Informationen zu behördlichen Vorschriften und Sicherheit), das zusammen mit diesem Gerät geliefert wurde.

**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 nel documento *Regulatory Compliance and Safety Information* (Conformità alle norme e informazioni sulla sicurezza) che accompagna questo dispositivo.

**Advarsel** 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 dokumentet *Regulatory Compliance and Safety Information* (Overholdelse av forskrifter og sikkerhetsinformasjon) som ble levert med denne enheten.

**Aviso** 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 o documento *Regulatory Compliance and Safety Information* (Informação de Segurança e Disposições Reguladoras) que acompanha este dispositivo.

**¡Advertencia!** 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 el documento titulado *Regulatory Compliance and Safety Information* (Información sobre seguridad y conformidad con las disposiciones reglamentarias) que se acompaña con este dispositivo.

**Varning!** 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. Se förklaringar av de varningar som förekommer i denna publikation i dokumentet *Regulatory Compliance and Safety Information* (Efterrättelse av föreskrifter och säkerhetsinformation), vilket medföljer denna anordning.



## 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.

**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.

**Warning!** 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 brännskador; metallobjekt kan också sammansvetsas med kontakterna.

### No On/Off Switch Warning



**Warning** Unplug the power cord before you work on a system that does not have an on/off switch.

**Waarschuwing** Voordat u aan een systeem werkt dat geen aan/uit schakelaar heeft, dient u de stekker van het netsnoer uit het stopcontact te halen.

**Varoitus** Ennen kuin teet mitään sellaiselle järjestelmälle, jossa ei ole kaksiasentokytkintä, kytke irti virtajohto.

**Attention** Avant de travailler sur un système non équipé d'un commutateur marche-arrêt, débrancher le cordon d'alimentation.

**Warnung** Bevor Sie an einem System ohne Ein/Aus-Schalter arbeiten, ziehen Sie das Netzkabel heraus.

**Avvertenza** Prima di lavorare su un sistema che non è dotato di un interruttore on/off, scollegare il cavo di alimentazione.

**Advarsel** Før det skal utføres arbeid på et system som ikke har en av/på-bryter, skal strømledningen trekkes ut.

**Aviso** Antes de começar a trabalhar num sistema que não possui um interruptor ON/OFF, desligue o cabo de alimentação.

**¡Advertencia!** Antes de trabajar sobre cualquier sistema que carezca de interruptor de Encendido/Apagado (ON/OFF), desenchufar el cable de alimentación.

**Warning!** Dra ur nätsladden innan du utför arbete på ett system utan strömbrytare.

### Laser Radiation Warning



**Warning** Laser radiation is present when the system is open.

**Waarschuwing** Laserstraling wanneer geopend.

**Varoitus** Lasersäteitä aukkojen ollessa avoinna.

**Attention** Production d'un rayonnement laser en position ouverte.

**Warnung** Laserstrahlung in geöffnetem Zustand

**Avvertenza** Emette radiazioni laser quando è aperto.

**Advarsel** Laserstråling er til stede når enheten er åpen.

**Aviso** Radiação laser presente quando aberto.

**¡Advertencia!** Radiación láser cuando está abierto.

**Warning!** Rikta inte blicken in mot strålen.

### Laser Beam Exposure Warning



**Warning** Do not stare into the laser beam.

**Waarschuwing** Niet in de straal staren.

**Varoitus** Älä katso säteeseen.

**Attention** Ne pas fixer le faisceau des yeux.

**Warnung** Nicht direkt in den Strahl blicken.

**Avvertenza** Non fissare il raggio con gli occhi.

**Advarsel** Stirr ikke på strålen.

**Aviso** Não olhe fixamente para o raio.

**¡Advertencia!** No mirar fijamente el haz.

**Varning!** Laserstrålning när enheten är öppen.

## Electronic Emission Notices

This section contains statements pertaining to compliance with electronic emission regulations.

### Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

### Industry Canada Class B Emission Compliance Statement

This Class B digital apparatus meets the requirements of the Canadian Interference-Causing Equipment Regulations.

### Avis De Conformite Aux Normes D'industrie Canada

Cet appareil numerique de la classe B respecte toutes les exigences du Reglement sur le materiel brouilleur du Canada.

### European Union (EU) Statement

This product is in conformity with the protection requirements of EU Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. This company cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non-Cisco option cards.

This product has been tested and found to comply with the limits for Class B Information Technology Equipment according to CISPR 22 / European Standard EN 55022. The limits for Class B equipment were derived for typical residential environments to provide reasonable protection against interference with licensed communication devices.

### Japanese Voluntary Control Council for Interference (VCCI) Statement

This is a Class B product based on the standard of the Voluntary Control Council for Interference from Information Technology Equipment (VCCI). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

## Obtaining Service and Support

For service and support for a product purchased from a reseller, contact the reseller. Resellers offer a wide variety of Cisco service and support programs, which are described in the section “Service and Support” in the information packet that shipped with your product.

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**Note** If you purchased your product from a reseller, you can access Cisco Connection Online (CCO) as a guest. CCO is Cisco Systems’ primary, real-time support channel. Your reseller offers programs that include direct access to CCO’s services.

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For service and support for a product purchased directly from Cisco, use CCO.

## Cisco Connection Online

CCO is Cisco Systems’ primary, real-time support channel. SMARTnet customers and partners can self-register on CCO to obtain additional information and services.

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**Note** If you purchased your product from a reseller, you can access CCO as a guest. Your reseller offers programs that include direct access to CCO’s services.

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Available 24 hours a day, 7 days a week, CCO provides a wealth of standard and value-added services to Cisco’s customers and business partners. CCO services include product information, product documentation, software updates, release notes, technical tips, the Bug Navigator, configuration notes, brochures, descriptions of service offerings, and download access to public and authorized files.

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You can access CCO in the following ways:

- WWW: <http://www.cisco.com>
- WWW: <http://www-europe.cisco.com>
- WWW: <http://www-china.cisco.com>
- Telnet: [cco.cisco.com](http://cco.cisco.com)
- Modem: From North America, 408 526-8070; from Europe, 33 1 64 46 40 82. Use the following terminal settings: VT100 emulation; databits: 8; parity: none; stop bits: 1; and connection rates up to 28.8 kbps.

For a copy of CCO's Frequently Asked Questions (FAQ), contact [cco-help@cisco.com](mailto:cco-help@cisco.com). For additional information, contact [cco-team@cisco.com](mailto:cco-team@cisco.com).

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**Note** If you need technical assistance with a Cisco product that is under warranty or covered by a Cisco maintenance contract, contact Cisco's Technical Assistance Center (TAC) at 800 553-2447, 408 526-7209, or [tac@cisco.com](mailto:tac@cisco.com).

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Please use CCO to obtain general information about Cisco Systems, Cisco products, or upgrades. If CCO is not accessible, contact 800 553-6387, 408 526-7208, or [cs-rep@cisco.com](mailto:cs-rep@cisco.com).

## Ordering Documentation

Documentation for Cisco products is available in three forms: in a CD-ROM package, printed books, and on the World Wide Web. You have the option of subscribing to the CD ROM package through an update service. Or you can order printed documentation at an additional cost. Refer to the information packet included with the router for detailed ordering information. You can also access Cisco documentation on the World Wide Web URL <http://www.cisco.com>.

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