



Using the Cisco Media Convergence Server Network Teaming Driver with Operating System Version 2000.4.2

The Cisco Media Convergence Server (MCS) Network Teaming Driver enables the functionality for the failover fault-tolerant network adapters. This driver works with Cisco Media Convergence Servers that have dual network interface cards (NICs) installed. With this functionality, the standby NIC can handle all IP traffic if the primary NIC fails.

Operating system version 2000.4.2 automatically installs the Network Teaming Driver as part of the installation process. You must perform configuration tasks, as described in this document, to set up and use the Network Teaming Driver.

Use this document with operating system version 2000.4.2 or later. For information about installing and configuring the Network Teaming Driver with earlier versions of the operating system, refer to previous versions of *Using the Cisco Media Convergence Server Network Teaming Driver with Operating System*, which are available at this URL:

http://www.cisco.com/univercd/cc/td/doc/product/voice/iptel_os/install/index.htm

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Related Cisco CallManager and Operating System Documentation

[Table 1](#) provides a list of Cisco CallManager and operating system documentation. You can navigate to the appropriate documentation by clicking the URLs that are shown in this table.

Table 1 Quick Reference for Documentation and Software URLs

Related Documentation and Software	URL and Additional Information
Operating system documentation and Virtual Network Computing (VNC) documentation (not readme documentation)	http://www.cisco.com/univercd/cc/td/doc/product/voice/iptel_os/index.htm
Cisco MCS data sheets	http://www.cisco.com/en/US/products/hw/voiceapp/ps378/index.html
Software-only servers (IBM, HP, Compaq, Aquarius)	http://www.cisco.com/en/US/products/hw/voiceapp/ps378/prod_brochure_list.html
Cisco CallManager Compatibility Matrix	http://www.cisco.com/univercd/cc/td/doc/product/voice/c_callmg/index.htm
Cisco CallManager documentation, including installation and upgrade documentation	http://www.cisco.com/univercd/cc/td/doc/product/voice/c_callmg/index.htm
Cisco IP Telephony Applications Backup and Restore documentation	http://www.cisco.com/univercd/cc/td/doc/product/voice/backup/index.htm
Support patches and readme documentation	http://www.cisco.com/kobayashi/sw-center/sw-voice.shtml
	Note The operating system and SQL Server 2000 support patches post on the voice products operating system cryptographic software page. You can navigate to the site from the Cisco CallManager software page.

Server and Operating System Requirements

The following servers support the Network Teaming Driver:

- Cisco MCS-7825H-2266
- Cisco MCS-7825H-3000
- Cisco MCS-7825H1
- Cisco MCS-7835H-1266

- Cisco MCS-7835H-2400
- Cisco MCS-7835H-3000
- Cisco MCS-7835H1
- Cisco MCS-7845H-1400
- Cisco MCS-7845H-2400
- Cisco MCS-7845H-3000
- Cisco MCS-7845-H1
- Cisco-verified, customer-provided HP DL380 G2 server
- Cisco-verified, customer-provided HP DL380 G3 server, including single and dual processors
- Cisco-verified, customer-provided HP DL320 G2 server
- Cisco-verified, customer-provided HP DL320 G3 server

**Note**

Cisco requires that you install Cisco-provided operating system version 2000.4.2 or later before you configure the Network Teaming Driver.

Preparation and Considerations

Review the following information before you configure the Network Teaming Driver:

- Cisco requires that you install Cisco-provided operating system version 2000.4.2 or later.
- You must reboot the server after you perform the driver configuration tasks.
- If you want to uninstall the network teaming driver, you must reboot the server for the changes to take effect.
- Perform all configuration tasks on every server in the cluster where the driver is supported.
- You must enable network teaming from the console. You cannot perform this procedure remotely through Terminal Services or Virtual Network Computing (VNC).

**Note**

Cisco strongly recommends that you configure the Network Teaming Driver before you install or upgrade Cisco CallManager.

If you do not perform the tasks in the recommended order and decide to configure the driver after the application upgrade, you might encounter a Service Control Manager message, as shown in [Figure 8 on page 11](#). To resolve this problem, follow the procedure in the “[Troubleshooting the Network Teaming Driver](#)” section on page 11.

Perform the following procedure before you configure the driver:

Procedure

- Step 1** After you install Cisco-provided operating system 2000.4.2 on every server in the cluster, right-click **My Network Places**.
- Step 2** Right-click **Local Area Connection**; choose **Properties**.

- Step 3** Choose the **Internet Protocol (TCP/IP)** component and click the **Properties** button.
- Step 4** In [Table 2 on page 4](#), enter the IP information, including the IP address, subnet mask, the default gateway, and the DNS/WINS settings.



Tip To obtain the WINS setting, click the **Advanced** button for WINS settings.

Table 2 *Internet Protocol Information for the Primary Network Card*

Information	Your Entry
IP address	
Subnet mask	
Default gateway	
DNS settings <ul style="list-style-type: none"> • Primary • Secondary 	
WINS settings <ul style="list-style-type: none"> • Primary • Secondary 	
Link speed setting	
Duplex setting	

- Step 5** After you record the information, click **Cancel**.
- Step 6** In the Local Area Connection window, click the **Configure** button.
- Step 7** Click the **Advanced** tab.
- Step 8** In the Property pane, locate the speed and duplex settings.
These could be one or two different settings, depending on the server type.
- Step 9** In [Table 2](#), enter the speed and duplex setting values for the primary network card.
- Step 10** Right-click the second network card connection, **Local Area Connection 2**.
- Step 11** Choose **Enable**.



Note The installation of Cisco-provided operating system version 2000.4.2 or later automatically disables the second network card. You must enable it now.

In addition, make sure the second network card is connected to the network. The network team will not get created correctly if only one network card is connected. If the network team is not created correctly, verify the connection of the second network card and rerun the Network Teaming Driver configuration procedures.

Configuration Tasks

This section includes information about configuring the Network Teaming Driver.

Configuring the Network Teaming Driver

To configure the Network Teaming Driver, perform the following procedure:

Procedure

- Step 1** Locate the HP Network Configuration Utility icon in the Windows 2000 system tray or by navigating to **Start > Settings > Control Panel > HP Network**.

Figure 1 shows this icon.

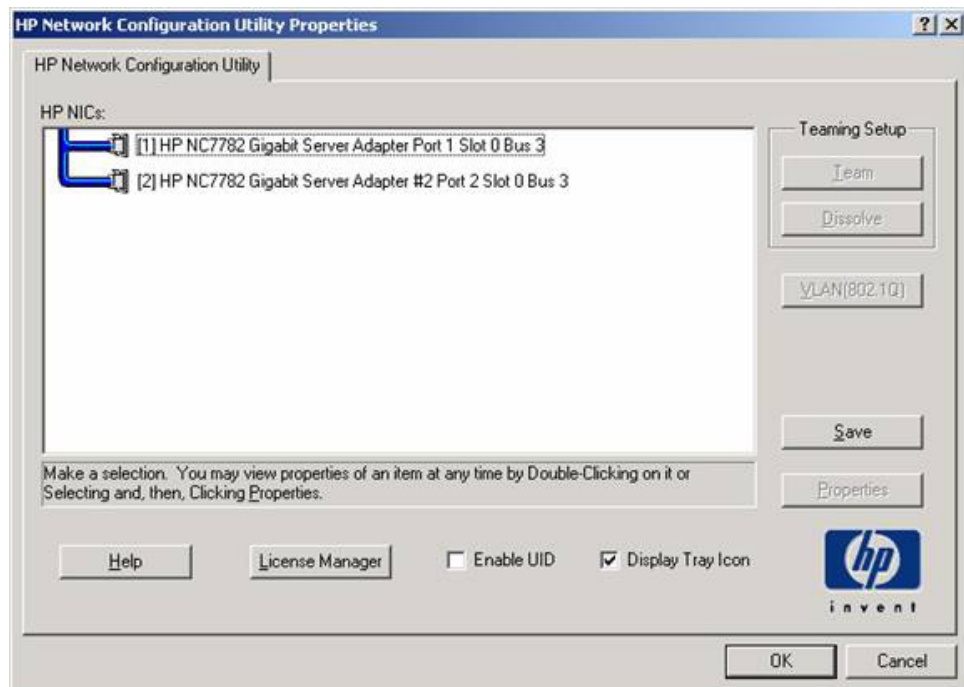
Figure 1 HP Network Configuration Utility Icon



- Step 2** Double-click the icon to launch the HP Network Configuration Utility.

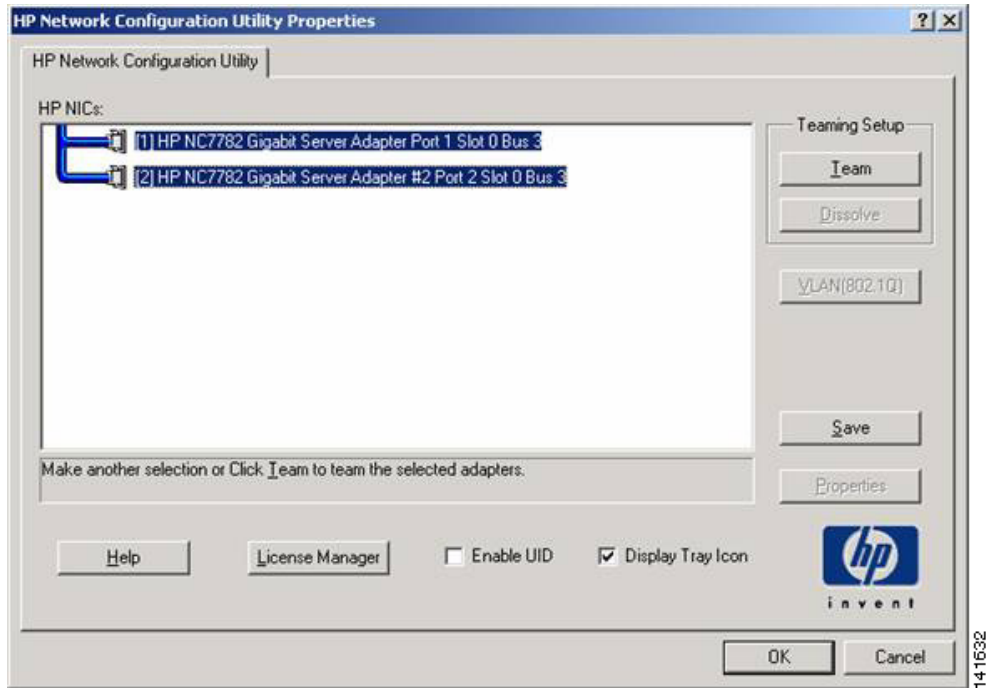
The HP Network Configuration Utility Properties window displays, as shown in Figure 2.

Figure 2 HP Network Configuration Utility Properties Window



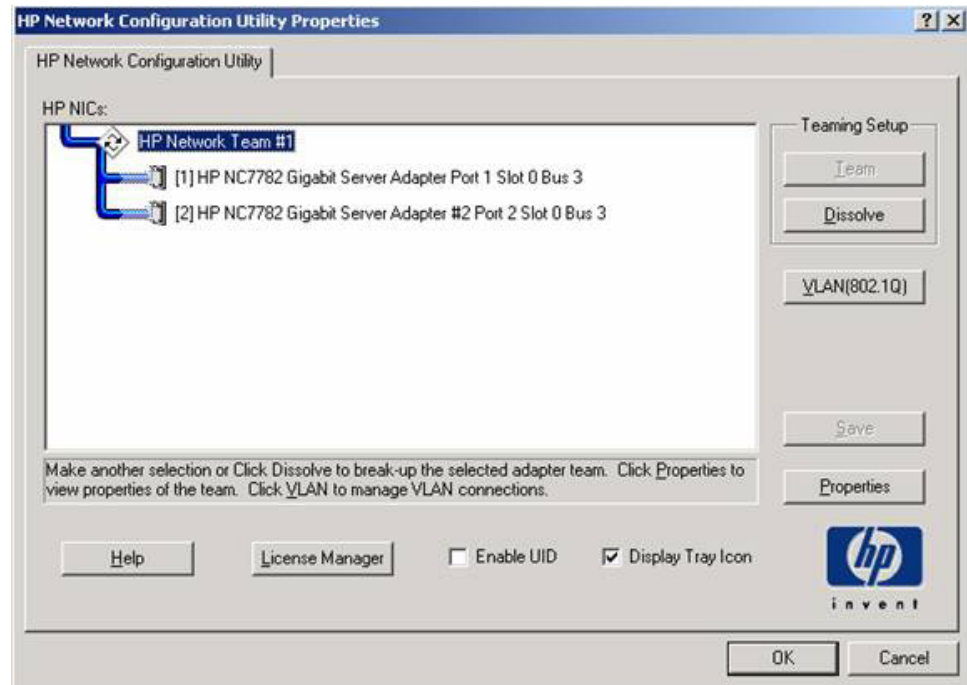
Step 3 Click each HP NIC that is listed to select both entries, as shown in [Figure 3](#).

Figure 3 Selected HP NICs



Step 4 In the Teaming Setup area, click **Team** to team the selected HP NICs. The system creates the NIC team, as shown in [Figure 4](#):

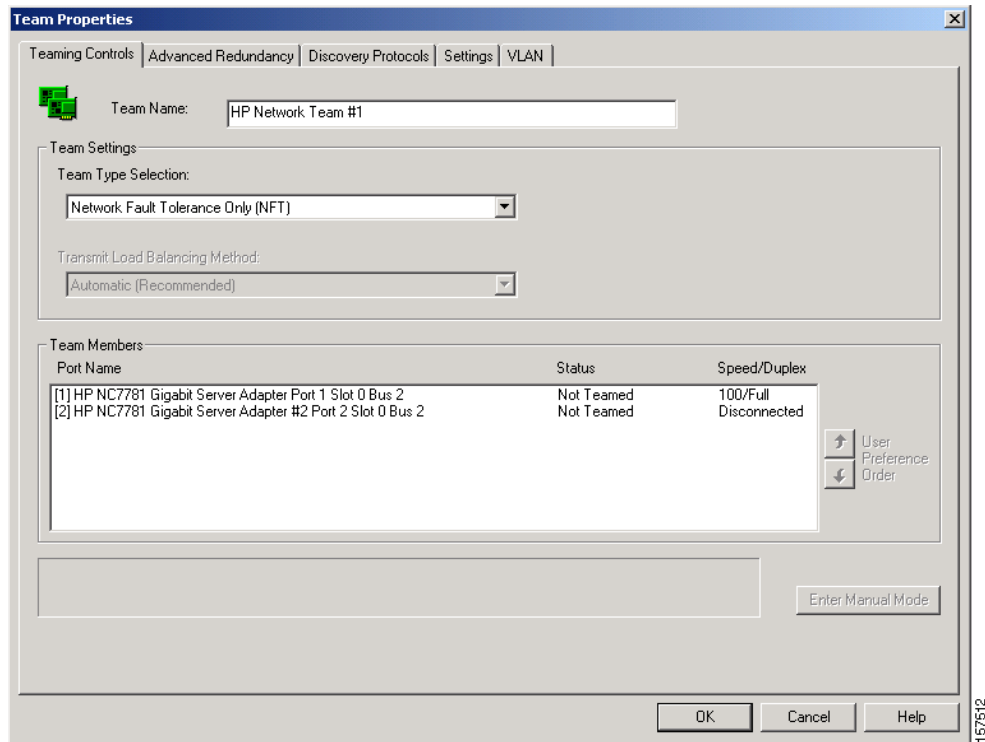
Figure 4 Team Created



Step 5 Click **Properties**.

The Team Properties window displays, as shown in [Figure 5](#). In this figure, HP Network Team #1 represents the default name for the team.

Figure 5 Team Properties Window



Note In the Team Properties window, Cisco strongly recommends that you choose the specified setting in [Step 6](#).

- Step 6** Under the Team Controls tab in the Team Properties window, choose **Network Fault Tolerance Only (NFT)** from the Team Type Selection drop-down list box.
After you choose this setting, the options in the Transmit Load Balancing Method drop-down list box appear disabled.
- Step 7** In the Team Properties window, click **OK**.
You have created the HP Network Team.
- Step 8** In the HP Network Configuration Utility Properties window, click **OK**.
A confirmation window displays, as shown in [Figure 6](#).

Figure 6 Confirmation





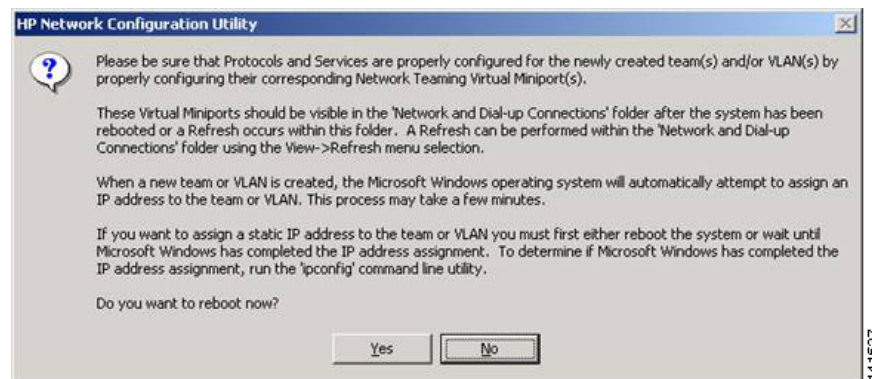
Tip

You can change the team properties, if you want to do so, by clicking **Properties** in the HP Network Configuration Utility Team Properties window. For example, you can use Properties to change the name of the HP Network Team. After you change the properties, click **OK**.

Step 9 To confirm your changes and continue, click **Yes**.

Step 10 Wait while the adapters are being configured; then, click **Yes** when prompted to reboot the server, as shown in [Figure 7](#).

Figure 7 Successful Configuration Changes



Step 11 Launch the HP Network Configuration Utility, as described in [Step 2](#).

Step 12 Click **NIC Port #1** (or a variation of that name) to select the NIC; then, click **Properties**.

Step 13 Click the **Settings** tab.

Step 14 Choose **Speed/Duplex Setting** and enter the setting that you recorded in [Table 2 on page 4](#).

Step 15 Click **OK**.

Step 16 Click **NIC Port #1** (or a variation of that name) to deselect the NIC.

Step 17 Repeat [Step 12](#) through [Step 15](#) for **NIC Port #2** (or a variation of that name).

Step 18 Click **OK**.

Step 19 Right-click **My Network Places**; choose **Properties** for the Local Area Connection.

An additional network card, Local Area Connection 3, displays in the window.

Step 20 Right-click the teamed connection; choose **Properties**.

Step 21 Choose the **Internet Protocol (TCP/IP)** option and click the **Properties** button.

Step 22 From [Table 2 on page 4](#), enter the information, including the IP address, the subnet mask, the default gateway, and the DNS/WINS settings.



Tip

To enter the WINS setting, click the **Advanced** button for WINS settings. After you enter the information, make sure that you click **OK**.

Step 23 After you enter the information, click **OK**.

Step 24 Click **OK**.

- Step 25** Close the Network and Dial-up Connections window.
You do not need to reboot the server.
- Step 26** Perform all teaming procedures on every server in the cluster where the teaming driver is supported.
- Step 27** Perform Cisco CallManager installation tasks. See [Table 1 on page 2](#) for reference to Cisco CallManager documentation.
-

Dissolving the Network Teaming Driver

When you dissolve the driver, you disassociate the two NICs and the virtual NIC that is used for the driver. The teaming drivers remain installed, but they no longer are configured or used.

In this case, the server will use NIC #1 only for IP telephony.

To dissolve the Network Teaming Driver, perform the following procedure:

Procedure

- Step 1** Double-click the HP Network Configuration Utility icon that displays in the Windows 2000 system tray.
- Step 2** Click **HP Network Team #1**.
- Step 3** Click **Dissolve**.
- Step 4** Click **OK**.
- Step 5** To apply changes, click **Yes**.
- Step 6** After all configuration changes are successful, click **OK**.



Caution

Failing to disable the second NIC may result in two IP addresses being assigned to the server. Assigning two IP addresses to the Cisco CallManager server may cause a loss of service.

Uninstallation Tasks

When you uninstall the driver, you delete the drivers from the server. The server will use only NIC #1 for IP telephony.

To uninstall the Network Teaming Driver, perform the following procedure:

Procedure

- Step 1** Right-click **My Network Places** and choose **Properties**.
- Step 2** Right-click any active network card connection and click **Properties**.
- Step 3** Choose **HP Network Configuration Utility** and click **Uninstall**.
- Step 4** To uninstall the driver, click **Yes**.

Step 5 For the changes to take effect, click **Yes** to reboot the server.

Step 6 After the server reboots, disable the second NIC.



Note

If you need to reinstall the Network Teaming Driver, you must run `HPConfigUtil.exe`. To do so, navigate to `C:\Utils\DualNIC\HPConfigUtil.exe` and follow the procedure for configuring the driver (see [Step 11](#) in the “Configuring the Network Teaming Driver” section on page 5).



Caution

Failing to disable the second NIC may result in two IP addresses being assigned to the server. Assigning two IP addresses to the Cisco CallManager server may cause a loss of service.

Uninstallation Verification

To verify that you have uninstalled the driver, perform the following procedure:

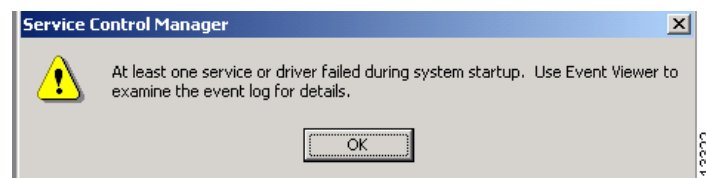
Procedure

- Step 1** Right-click **My Network Properties** and choose **Properties**.
A list, which should not include the network team, displays.
- Step 2** Right-click the primary network card connection, which is, by default, Local Area Connection, and choose **Properties**.
- Step 3** Choose **Internet Protocol (TCP/IP)** option and click **Properties**.
- Step 4** Verify that the settings from [Step 4](#) in the “Preparation and Considerations” section on page 3 display.

Troubleshooting the Network Teaming Driver

After you configure the Network Teaming Driver and install Cisco CallManager, you might encounter a Service Control Manager message, such as the one shown in [Figure 8](#).

Figure 8 Service Control Manager Message



To identify and resolve this problem, perform the following procedure:

Procedure

Step 1 Open the Event Viewer by choosing **Start > Programs > Administrative Tools > Event Viewer**.

Step 2 Select **System Log**.

Step 3 Browse the System Log to find an occurrence of the following entry around the time of the error:

- Source entry—Service Control Manager
- Event ID—7000

Step 4 Double-click the **Service Control Manager** entry to open the Event Properties window.

The following description displays:

```
The HP Network Configuration Utility service failed to start due to the following error:  
The service cannot be started, either because it is disabled or because it has enabled  
devices associated with it.
```

Step 5 Navigate to the **C:\Utils\DualNIC** folder and double-click **Teaming-CDP.cmd**.

The utility runs for a few seconds. The fix takes effect without rebooting the server.

Starting with the next reboot of the server, this message no longer appears.

Obtaining Documentation

Cisco documentation and additional literature are available on Cisco.com. Cisco also provides several ways to obtain technical assistance and other technical resources. These sections explain how to obtain technical information from Cisco Systems.

Cisco.com

You can access the most current Cisco documentation at this URL:

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

You can access the Cisco website at this URL:

<http://www.cisco.com>

You can access international Cisco websites at this URL:

http://www.cisco.com/public/countries_languages.shtml

Product Documentation DVD

Cisco documentation and additional literature are available in the Product Documentation DVD package, which may have shipped with your product. The Product Documentation DVD is updated regularly and may be more current than printed documentation.

The Product Documentation DVD is a comprehensive library of technical product documentation on portable media. The DVD enables you to access multiple versions of hardware and software installation, configuration, and command guides for Cisco products and to view technical documentation in HTML. With the DVD, you have access to the same documentation that is found on the Cisco website without being connected to the Internet. Certain products also have .pdf versions of the documentation available.

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<http://www.cisco.com/go/marketplace/>

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<http://www.cisco.com/go/marketplace/>

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You can send comments about Cisco documentation to bug-doc@cisco.com.

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170 West Tasman Drive
San Jose, CA 95134-9883

We appreciate your comments.

Cisco Product Security Overview

This product contains cryptographic features and is subject to United States and local country laws governing import, export, transfer and use. Delivery of Cisco cryptographic products does not imply third-party authority to import, export, distribute or use encryption. Importers, exporters, distributors and users are responsible for compliance with U.S. and local country laws. By using this product you agree to comply with applicable laws and regulations. If you are unable to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found at:

<http://www.cisco.com/wwl/export/crypto/tool/stqrg.html>.

If you require further assistance please contact us by sending email to export@cisco.com.

Cisco provides a free online Security Vulnerability Policy portal at this URL:

http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

From this site, you can perform these tasks:

- Report security vulnerabilities in Cisco products.
- Obtain assistance with security incidents that involve Cisco products.
- Register to receive security information from Cisco.

A current list of security advisories and notices for Cisco products is available at this URL:

<http://www.cisco.com/go/psirt>

If you prefer to see advisories and notices as they are updated in real time, you can access a Product Security Incident Response Team Really Simple Syndication (PSIRT RSS) feed from this URL:

http://www.cisco.com/en/US/products/products_psirt_rss_feed.html

Reporting Security Problems in Cisco Products

Cisco is committed to delivering secure products. We test our products internally before we release them, and we strive to correct all vulnerabilities quickly. If you think that you might have identified a vulnerability in a Cisco product, contact PSIRT:

- Emergencies—security-alert@cisco.com

An emergency is either a condition in which a system is under active attack or a condition for which a severe and urgent security vulnerability should be reported. All other conditions are considered nonemergencies.

- Nonemergencies—psirt@cisco.com

In an emergency, you can also reach PSIRT by telephone:

- 1 877 228-7302
- 1 408 525-6532



Tip

We encourage you to use Pretty Good Privacy (PGP) or a compatible product to encrypt any sensitive information that you send to Cisco. PSIRT can work from encrypted information that is compatible with PGP versions 2.x through 8.x.

Never use a revoked or an expired encryption key. The correct public key to use in your correspondence with PSIRT is the one linked in the Contact Summary section of the Security Vulnerability Policy page at this URL:

http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

The link on this page has the current PGP key ID in use.

Obtaining Technical Assistance

Cisco Technical Support provides 24-hour-a-day award-winning technical assistance. The Cisco Technical Support & Documentation website on Cisco.com features extensive online support resources. In addition, if you have a valid Cisco service contract, Cisco Technical Assistance Center (TAC) engineers provide telephone support. If you do not have a valid Cisco service contract, contact your reseller.

Cisco Technical Support & Documentation Website

The Cisco Technical Support & Documentation website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The website is available 24 hours a day, at this URL:

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

Access to all tools on the Cisco Technical Support & Documentation website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a user ID or password, you can register at this URL:

<http://tools.cisco.com/RPF/register/register.do>



Note

Use the Cisco Product Identification (CPI) tool to locate your product serial number before submitting a web or phone request for service. You can access the CPI tool from the Cisco Technical Support & Documentation website by clicking the **Tools & Resources** link under Documentation & Tools. Choose **Cisco Product Identification Tool** from the Alphabetical Index drop-down list, or click the **Cisco Product Identification Tool** link under Alerts & RMAs. The CPI tool offers three search options: by product ID or model name; by tree view; or for certain products, by copying and pasting **show** command output. Search results show an illustration of your product with the serial number label location highlighted. Locate the serial number label on your product and record the information before placing a service call.

Submitting a Service Request

Using the online TAC Service Request Tool is the fastest way to open S3 and S4 service requests. (S3 and S4 service requests are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Service Request Tool provides recommended solutions. If your issue is not resolved using the recommended resources, your service request is assigned to a Cisco engineer. The TAC Service Request Tool is located at this URL:

<http://www.cisco.com/techsupport/servicerequest>

For S1 or S2 service requests or if you do not have Internet access, contact the Cisco TAC by telephone. (S1 or S2 service requests are those in which your production network is down or severely degraded.) Cisco engineers are assigned immediately to S1 and S2 service requests to help keep your business operations running smoothly.

To open a service request by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)

EMEA: +32 2 704 55 55

USA: 1 800 553-2447

For a complete list of Cisco TAC contacts, go to this URL:

<http://www.cisco.com/techsupport/contacts>

Definitions of Service Request Severity

To ensure that all service requests are reported in a standard format, Cisco has established severity definitions.

Severity 1 (S1)—Your network is “down,” or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Severity 2 (S2)—Operation of an existing network is severely degraded, or significant aspects of your business operation are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

Severity 3 (S3)—Operational performance of your network is impaired, but most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Severity 4 (S4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- Cisco Marketplace provides a variety of Cisco books, reference guides, documentation, and logo merchandise. Visit Cisco Marketplace, the company store, at this URL:
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- *Cisco Press* publishes a wide range of general networking, training and certification titles. Both new and experienced users will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press at this URL:

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- *Packet* magazine is the Cisco Systems technical user magazine for maximizing Internet and networking investments. Each quarter, Packet delivers coverage of the latest industry trends, technology breakthroughs, and Cisco products and solutions, as well as network deployment and troubleshooting tips, configuration examples, customer case studies, certification and training information, and links to scores of in-depth online resources. You can access Packet magazine at this URL:
<http://www.cisco.com/packet>
- *iQ Magazine* is the quarterly publication from Cisco Systems designed to help growing companies learn how they can use technology to increase revenue, streamline their business, and expand services. The publication identifies the challenges facing these companies and the technologies to help solve them, using real-world case studies and business strategies to help readers make sound technology investment decisions. You can access iQ Magazine at this URL:

<http://www.cisco.com/go/iqmagazine>

or view the digital edition at this URL:


<http://ciscoiq.texterity.com/ciscoiq/sample/>

- *Internet Protocol Journal* is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the Internet Protocol Journal at this URL:
<http://www.cisco.com/ipj>
- Networking products offered by Cisco Systems, as well as customer support services, can be obtained at this URL:
<http://www.cisco.com/en/US/products/index.html>
- Networking Professionals Connection is an interactive website for networking professionals to share questions, suggestions, and information about networking products and technologies with Cisco experts and other networking professionals. Join a discussion at this URL:
<http://www.cisco.com/discuss/networking>
- World-class networking training is available from Cisco. You can view current offerings at this URL:
<http://www.cisco.com/en/US/learning/index.html>

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