Technical Support Information

When you have a problem that you cannot resolve, the resource of last resort is your Cisco Systems technical support representative. To analyze a problem, your technical support representative will need certain information about the situation and the symptoms you are experiencing. To speed the problem isolation and resolution process, present this data when you contact your representative.

The sections in this appendix describe how to collect relevant information about your internetwork and how to present that information to your technical support representative. In addition, there are sections that describe Cisco Connection Online, Cisco's primary, real-time support channel on the World Wide Web (WWW), and Cisco Connection Documentation, Cisco's library of product information on CD-ROM.

- Gathering Information about Your Internetwork

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- Cisco Connection Online (CCO)

- Cisco Connection Documentation

Gathering Information about Your Internetwork

Before gathering any specific data, compile a list of all symptoms that users have reported on the internetwork (such as connections dropping or slow host response).

The next step is to gather specific information. Typical information needed to troubleshoot internetworking problems falls into two general categories: information required for any situation and information specific to the topology, technology, protocol, or problem.

Information that is always required by technical support engineers includes the following:

- Configuration listing of all routers involved

- Complete specifications of all routers involved

- Version numbers of software (obtained with **show version** command) and firmware (obtained with the **show controllers** command) on all relevant routers

- Network topology map

- List of hosts and servers (host and server type, number on network, description of host operating systems implemented)

- List of network layer protocols, versions, and vendors

To assist you in gathering this required data, the **show tech-support** EXEC command has been added in Cisco IOS Release 11.1(4) and later. This command provides general information about the router that you can provide to your technical support representative when you are reporting a problem.

The command outputs the equivalent of the **show version**, **show running-config**, **show controllers**, **show stacks**, **show interfaces**, **show buffers**, **show process memory**, and **show process cpu** EXEC commands.

Specific requirements that vary depending on the situation include the following:

- Output from general **show** commands:

  show interfaces

  show controllers {**serial** | **token** | **mci** | **cbus** | **fddi** | **cxbus** | **cybus**}

  show processes {**cpu** | **mem**}

  show buffer

  show mem summary

- Output from protocol-specific **show** commands:

  show *protocol* **route**

  show *protocol* **traffic**

  show *protocol* **interfaces**

  show *protocol* **arp**

  show appletalk globals (AppleTalk only)

  show ipx servers (Novell IPX only)

- Output from relevant **debug** privileged EXEC commands

- Output from protocol-specific **ping** and **trace** diagnostic tests, as appropriate

- Network analyzer traces, as appropriate

- Core dumps obtained using the **exception dump** router configuration command, or using the **write core** router configuration command if the system is operational, as appropriate

Getting the Data from Your Router

You must tailor the way you obtain information from the router to the system you are using to retrieve the information. Following are some hints for different platforms:

- PC and Macintosh—Connect a PC or Macintosh to the console port of the router and log all output to a disk file (using a terminal emulation program). The exact procedure varies depending on the communication package used with the system.

- Terminal connected to console port or remote terminal—The only way to get information with a terminal connected to the console port or with a remote terminal is to attach a printer to the AUX port on the terminal (if one exists) and force all screen output to go to the printer. Using a terminal is undesirable because there is no way to capture the data to a file.

- UNIX workstation—At the UNIX prompt, enter the command **script** *filename*, then Telnet to the router. The UNIX **script** command captures all screen output to the specified filename. To stop capturing output and close the file, enter the end-of-file character (typically **^D**) for your UNIX system.

Note To get your system to automatically log specific error messages or operational information to a UNIX syslog server, use the **logging** *internet-address* router configuration command. For more information about using the **logging** command and setting up a syslog server, refer to the Cisco IOS configuration guides and command references.

Providing Data to Your Technical Support Representative

If you need technical assistance with a Cisco product that is under warranty or covered by a maintenance contract, contact Cisco's Technical Assistance Center (TAC) to open a case. Contact the TAC with a phone call or an e-mail message:

- North America: 800-553-2447, email: `tac@cisco.com`

- Europe: 32 2 778 4242, email: `euro-tac@cisco.com`

- Asia-Pacific: 61 2 9935 4107, email: `asiapac-tac@cisco.com`

When submitting information to your technical support representative, electronic data is preferred. Electronic data significantly eases the transfer of information between technical support personnel and development staff. Common electronic formats include data sent via electronic mail and files sent using FTP.

If you are submitting data to your technical support representative, use the following list to determine the preferred method for submission:

1 The preferred method of information submission is via File Transfer Protocol (FTP) service over the Internet. If your environment supports FTP, you can place your file in the "incoming" directory on the host *cco.cisco.com*.

2 The next best method is to send data by electronic mail. Before using this method, be sure to contact your technical support representative, especially when transferring binary core dumps or other large files.

   If you use email, do not use encoding methods such as binhex or zip. Only MIME-compliant mail should be used.

3 Transfer via a PC-based communications protocol, such as *Kermit*, to upload files to CCO. Again, be sure to contact your technical support representative before attempting any transfer.

4 Transfer by disk or tape.

5 The least favorable method is hardcopy transfer by fax or physical mail.

Cisco Connection Online (CCO)

Cisco Connection Online (CCO), formerly Cisco Information Online (CIO), is Cisco Systems'
primary, real-time support channel. Maintenance customers and partners can self-register on CCO
to obtain additional content and services.

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,
software updates, release notes, technical tips, the Bug Navigator, the Troubleshooting Engine,
configuration notes, brochures, descriptions of service offerings, and download access to public and
authorized files.

CCO serves a wide variety of users through two interfaces that are updated and enhanced
simultaneously—a character-based version and a multimedia version that resides on the World Wide
Web (WWW). The character-based CCO supports Zmodem, Kermit, Xmodem, FTP, Internet e-mail,
and fax download options, and is excellent for quick access to information over lower bandwidths.
The WWW version of CCO provides richly formatted documents with photographs, figures,
graphics, and video, as well as hyperlinks to related information.

You can access CCO in the following ways:

- WWW: `http://www.cisco.com`.

- Telnet: `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; stop bits: 1; parity: none; baud rate:
  up to 14.4 kbps.

For a copy of CCO's Frequently Asked Questions (FAQ), send email to `cco-help@cisco.com`. For
additional information, send email to `cco-team@cisco.com`.

Cisco Connection Documentation

This publication is available on the Cisco Connection Documentation, Enterprise Series
CD—formerly UniverCD—which is the Cisco library of product information on CD-ROM. On CD,
access the Internetwork Troubleshooting Guide in the Technology Information database.

The CD is updated and shipped monthly so it might be more current than printed documentation. To
order the CD, contact your local sales representative or call Customer Service. The CD is available
both as a single CD and as an annual subscription. You can also access complete Cisco technical
documentation on the World Wide Web URL

`http://www.cisco.com`.