



Technical Support

When you have a problem that you cannot resolve, contact customer service. To help resolve these problems, gather relevant information about your network prior to calling. This appendix includes the following sections:

- [Gathering Information About Your Internetwork, page A-1](#)
- [Providing Data to Customer Service, page A-2](#)

Gathering Information About Your Internetwork

Before gathering any specific data, compile a list of all symptoms 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 fall 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 systems involved
- Complete specifications of all systems involved
- Version numbers of software (obtained by using the **show version** command) and Flash code (obtained by using the **show controllers** command) on all relevant systems
- Network topology map
- List of hosts and servers (host and server type, number on network, description of host operating systems that are 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 system that you can provide to your technical support representative when you are reporting a problem.

The **show tech-support** command display includes outputs from the **show version**, **show hardware**, **show diag power-on**, **show running-config**, **show controllers**, **show stacks**, **show interfaces**, **show buffers**, **show process memory**, and **show process** EXEC commands.

Specific information that might be needed by technical support varies, depending on the situation, and include the following:

- Output from the following general **show** commands:

show interfaces

show controllers [atm | serial | e1 | ethernet]

show processes [cpu | mem]

show buffers

show memory summary

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

show protocol route

show protocol traffic

show protocol interface

show protocol arp

- Output from relevant **debug** privileged EXEC commands
- Output from protocol-specific **ping** and **trace** command diagnostic tests, as applicable
- Network analyzer traces, as applicable
- Core dumps obtained by using the **exception dump** switch configuration command, or by using the **write core** switch configuration command if the system is operational, as appropriate

Getting the Data from Your System

When obtaining information from your system, tailor your method to the system that 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 system 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 to 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 **script filename** command, then use Telnet to connect to the system. 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** switch 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 reference publications.

Providing Data to Customer Service

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

- North America: 800-553-2447, e-mail: tac@cisco.com
- Europe: 32 2 778 4242, e-mail: euro-tac@cisco.com
- Asia-Pacific: 61 2 9935 4107, e-mail: 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 e-mail and files sent using FTP (File Transfer Protocol).

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

3. Use a PC-based communications protocol, such as Kermit, to upload files to Cisco.com. 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 hard-copy transfer by fax or physical mail.

