



## APPENDIX **C**

# Using Technical Support

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This appendix describes how to resolve problems with your ML-Series card and contains the following sections:

- [Gathering Information About Your Internetwork, page C-1](#)
- [Getting the Data from Your ML-Series Card, page C-2](#)
- [Providing Data to Your Technical Support Representative, page C-3](#)

To help resolve these problems, use the “[Gathering Information About Your Internetwork](#)” section on [page C-1](#) as a guideline for gathering relevant information about your network prior to calling.



### Note

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When you have a problem that you cannot resolve, contact the Cisco Technical Assistance Center (TAC). See the “[Obtaining Documentation and Submitting a Service Request](#)” section on [page xxv](#) as needed.

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## 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, or protocol.

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

- Network topology map for the data network and the SONET topology and provisioning.
- List of hosts and servers: Include the host and server type, number on network, and a description of the host operating systems that are implemented.
- Configuration listing of all switch routers and switches involved.
- Complete specifications of all switch routers and switches involved.
- Version numbers of software (obtained with the **show version** command) and flash code (obtained with the **show controllers** command) on all relevant switch routers and switches.
- List of network layer protocols, versions, and vendors.
- List of alarms and conditions on all nodes in the SONET/SDH topology.
- Node equipment and configuration.

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 switch router that you can provide to your technical support representative when you are reporting a problem.

The **show tech-support** 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** EXEC commands.

The specific information requirements that might be needed by technical support vary depending on the situation. They include the following:

- Output from the following general **show** commands:
  - show interfaces**
  - show controllers**
  - show processes {cpu | mem}**
  - show buffer**
  - show mem summary**
- Output from the following protocol-specific **show** commands:
  - show protocol route**
  - show protocol traffic**
  - show protocol interfaces**
  - show protocol arp**
- Output from provisioning show commands
- 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** command, or using the **write core** command if the system is operational, as appropriate

## Getting the Data from Your ML-Series Card

When obtaining the information from your ML-Series card, you must 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 ML-Series card 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 the 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 command **script filename**, then use Telnet to connect to the ML-Series card. 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 **Ctrl-D**) for your UNIX system.

**Note**

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To get your system to automatically log specific error messages or operational information to a UNIX syslog server, enter the **logging** *internet-address* 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.

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## Providing Data to Your Technical Support Representative

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 through electronic mail and files sent using FTP.

If you are submitting data to your technical support representative, use the following list (in order of most to least favorable) to determine the preferred method for submission:

- 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 Cisco.com.
- The next best method is to send data by e-mail. Before using this method, be sure to contact your technical support representative, especially when transferring binary core dumps or other large files.
- Transfer through 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.
- Transfer by disk or tape.
- The least favorable method is hard-copy transfer by fax or physical mail.

**Note**

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

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