Error Messages and Troubleshooting Guide

HP ARPA Services 2.1/MS-DOS

HEWLETT PACKARD

D1812-90018
Printed in U.S.A. 5/92

Notice

Hewlett-Packard makes no warranty of any kind with regard to this material, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Hewlett-Packard shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

Hewlett-Packard assumes no responsibility for the use or reliability of its software on equipment that is not furnished by Hewlett-Packard.

Colorado Networks Division
3404 East Harmony Road
Fort Collins, Colorado 80525-9599, U.S.A.

About this Guide...

This guide is part of the documentation set for the HP ARPA Services 2.1/MS-DOS product. It describes how to identify and solve network problems that occur when a PC is running HP ARPA Services 2.1 (or HP ARPA 2.1/MS-DOS for NetWare).

The guide is divided into network troubleshooting information and error messages. The network troubleshooting chapters are designed for use by network administrators. Network administrators are responsible for managing the PC workstations on an HP ARPA 2.1 network. This includes solving problems that may arise when computers do not communicate properly on the network.

To solve network problems, you should be familiar with the following:

- Basic networking concepts.
- The MS-DOS® operating system and how to work with files and directories. Refer to your operating system manual for information about these topics.

HP Computer Museum
www.hpmuseum.net

For research and education purposes only.

How this Guide is Organized

The guide is organized as follows:

Chapter 1	"Solving Network Problems" explains the troubleshooting strategy used in this guide and how to recognize network problems.
Chapter 2	"Error Messages" contains alphanumeric listings of error messages with a description of each message's meaning and probable cause.
Chapter 3	"Initial Troubleshooting Checklists" has checklists to follow for problems that occur while performing network tasks.
Chapter 4	"Troubleshooting Networks" has a procedure for diagnosing problems with physical network segments.
Chapter 5	"Diagnosing Problems with NetDiag" describes how to use the NetDiag utility to resolve problems with network connections.
Appendix A	"Troubleshooting HP ARPA Services 2.1 for NetWare" describes the strategy and steps for recognizing and solving network problems while using HP ARPA 2.1 for NetWare.
Appendix B	"Troubleshooting HP ARPA Services 2.1 on a Microsoft LAN Manager 2.1 Client PC" describes the strategy and steps for recognizing and solving network problems while using HP ARPA 2.1 over a client that has Microsoft LAN Manager 2.1 installed.

Reporting Problems to Your HP Support Contact

This section describes the guidelines to follow if you need to report a problem to your HP support contact. If you do not have a service contract with HP, you may follow the procedure described below, but you will be billed accordingly for time and materials.

If you have a service contract with HP, document the problem as a Service Request (SR) and forward it to your Hewlett-Packard support contact.

Before You Report a Problem...

Please answer the following questions:

1. **Description of the Problem**
   - What were you doing when the problem occurred?
   - What is the error message number?
   - When did the problem start to occur?
   - Was any additional error information displayed at the time the error message was displayed? (For example, error code values.)
   - How often does the problem occur?
   - Have you taken any steps to isolate the problem? (For example, running diagnostics utilities or trying solutions found in the checklists of this manual.)
   - Do you have an interim or workaround solution? If so, have you documented it? Sometimes the cause of a problem can be found by comparing the circumstances in which it occurs with the circumstances in which it does not occur.
2. **Network Information**
   - What is your network layout? (For example, StarLAN 10, ThinLAN, or Token Ring.)
   - What is the version of your network software?
   - Have any changes been made to the network?
   - Is this a new installation?
3. **Client/PC Workstation Information**
   - Which version of the operating system are you using?
   - Which type of PC workstation are you using? (For example, Vectra RS/20 or Vectra ES.)
   - Have any changes been made to the client? (For example, a new version of the operating system.)
   - Do you have a printout of your AUTOEXEC.BAT, NET_STRT.BAT, CONFIG.SYS, and PROTOCOL.INI files?
   - Have you created a copy of any ARPA Services or other trace files that were active when the problem occurred?

1. **Host System**

- Which version of the operating system are you using?
- What kind of host (such as an HP 9000, HP/SCO 386, or NS/VAX) are you trying to reach?
- What is the version of your network software?
- Have any changes been made to the host? (For example, a new version of the operating system, changes to the configuration, or software patches.)

Conventions Used in this Guide

Notation	Description
Boldface	Boldface type is used when a term is defined.
`Computer Text`	Computer type is used for commands and keyboard entries that you must type exactly as shown. It is also used for on-screen prompts and messages.
italics	Italic type is used for emphasis and for titles of manuals and publications. Italic type is also used to represent a variable, such as *filename*.
Key	This font is used to indicate a key on the computer's keyboard. When two or more keys appear together with dashes separating them, such as Ctrl-D, press those keys simultaneously to execute the command.
Softkey	This font is used to represent function softkeys that appear at the bottom of your screen.
[ ]	An element inside brackets in a syntax statement is optional. Several elements stacked inside brackets means you may select any one or none of these elements.

Table of Contents

Chapter 4: Troubleshooting PC Networks

Chapter 5: Diagnosing Problems with NetDiag

Appendix A: Troubleshooting HP ARPA Services 2.1 for NetWare

Appendix B: Troubleshooting HP ARPA Services 2.1 on a Microsoft LAN Manager 2.1 Client PC

1

Solving Network Problems

Chapter Overview

This chapter provides an overview of the following:

- The problems covered in this guide.
- The problem-solving strategy of this guide.
- How to recognize network problems through error messages or symptoms.
- The situations in which most problems occur.

Problems Covered in this Guide

This guide focuses on problems that occur during network operation. Problems can also occur during network planning, installation, configuration, and loading. Chapter 2, "Error Messages," offers solutions to problems that occur while configuring and loading the network.

Problem-Solving Strategy

This guide helps you recognize, diagnose, and solve problems you may have with your HP ARPA 2.1 network.

The first step in solving a network problem is to isolate the problem. Start with these steps:

1. Look for error messages. If you see one, go to chapter 2, "Error Messages."
2. Look for symptoms.

   A symptom refers to a sign indicating that something went wrong while you were using the network to do a task. If you don't see an error message, or if you cannot resolve the problem from the error message text, go to chapter 3, "Initial Troubleshooting Checklists."

If you cannot solve a problem through the solutions offered in chapters 2 or 3, go to chapter 4, "Troubleshooting Networks." Chapter 4 has a general procedure for isolating problems to a physical network segment. For more detailed information about troubleshooting a physical network segment, such as a StarLAN 10, ThinLAN, or Token Ring network, refer to the documentation for that type of network.

Figure 1-1 illustrates the problem-solving strategy used in this guide.

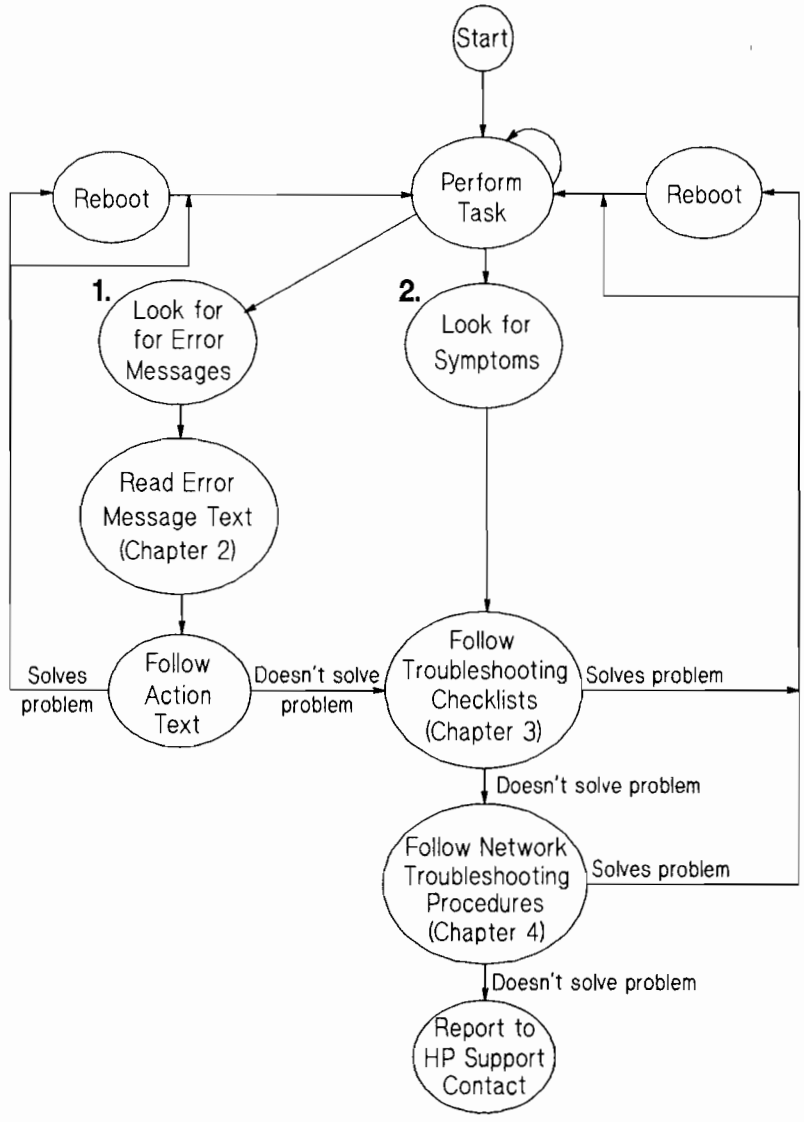

Figure 1-1. Problem-Solving Strategy

Recognizing Network Problems

You can recognize network problems through the following:

- Error Messages.
- Symptoms.

Error Messages

Error messages appear on the screen referencing a network problem. If you are entering commands at the operating system prompt, the network errors have a prefix that helps identify the utility generating the error message. Here are two examples of network error messages:

```
FTP2002: Unable to write to local file.
PRO0002: PROTOCOL.INI file read error.
```

Chapter 2 contains the error messages and more information about the message prefixes.

Symptoms

Another way to recognize network problems is through symptoms, which are signs indicating that something went wrong while you were trying to use the network to do a task. Examples of symptoms include the following items:

- You cannot transfer files using a service such as FTP.
- You cannot connect to host computers using terminal access.

Chapter 3 has troubleshooting checklists based on the task the user was doing when the problem occurred.

When Most Common Problems Occur

For a network to operate properly, all computers on the network must be configured correctly. Problems usually occur when you are setting up the network or when something on the network has changed. Here are some examples of when common problems occur:

- After installing and loading the network. Improper installation or configuration may result in network failures.
- After modifying the network, such as:
  - Adding, removing, or relocating nodes on the network.
  - Adding or removing network hardware that extends the network or connects physical network segments.

Here are some examples of causes of common problems:

- The network cable is disconnected or broken.
- The syntax is entered incorrectly. For example, the computer name is misspelled.
- The configuration file has been corrupted.

Where to Go from Here

This chapter provides a general overview of troubleshooting and presents a strategy for solving network problems. To begin troubleshooting, go to one of the following chapters:

- Chapter 2, "Error Messages," if you see an error message.
- Chapter 3, "Initial Troubleshooting Checklists," if you do not see an error message.
- Appendix A, "Troubleshooting HP ARPA Services 2.1 for NetWare," if you are using the HP ARPA 2.1 for NetWare product.
- Appendix B, "Troubleshooting HP ARPA Services 2.1 Over a Microsoft LAN Manager 2.1 Client PC," if you are using HP ARPA 2.1 over a client that has Microsoft LAN Manager 2.1 installed.

2

Error Messages

Chapter Overview

This chapter contains a list of error messages that you may receive while configuring, loading, running, or troubleshooting your network. The list is in alphanumeric order. Following each message is a description of what it means, what probably caused it, and what action(s) to take to solve the problem.

The letters and numbers that precede each message are used by Hewlett-Packard as message identifiers. This chapter contains the following information:

Section	Information Covered
Messages Not Found in this Chapter	Miscellaneous error message information not covered in this chapter
DGN0100 - DGN0219	Generated by the NetDiag utility
FTP1000 - FTP5000	Generated by the FTP application
NET0100 - NET0300	Generated by the PC network. Covers all HP TCP/IP error messages. Messages that have identifiers greater than NET0300 are Microsoft TCP/IP error messages. For information about these, refer to the Microsoft LAN Manager *Administrator's Guide*.
NSU0001 - NSU0030	Generated by the NetSetup utility
PRO0002 - PRO0045	Generated by the Protocol Manager
RCP1000 - RCP5000	Generated by the RCP (Remote Copy Protocol) service
RSH1000 - RSH4000	Generated by the RSH (Remote Shell) service

Messages in this chapter that contain words in brackets, for example <*filespec*> or <*variable*>, indicate that a specific file, directory, or resource is named in the message that appears on your computer display.

Messages Not Found in this Chapter

If you cannot find the message in this chapter, read one of the following sections:

- If the message does *not* have a message identifier, refer to the next section, "Messages without Identifiers."
- If the message has a message identifier but is not listed in this chapter, (for example, "SYS0002: The system cannot find the file specified.") refer to the section "Messages with Identifiers."

Messages without Identifiers

The following messages are documented either online or in other manuals:

- **Operating system messages.** Operating system messages are messages returned by the operating system while using network resources. For example, if an attempt was made to copy a file from a remote directory, but the file could not be found, the following error message would be returned:

  ```
  File not found
  ```

  To solve problems that occur when the operating system returns messages that are network related, refer to the appropriate checklist in chapter 3.

- **Application messages.** Application messages are messages returned by an application while using network resources. To solve network problems that occur while using applications, refer to the appropriate checklist in chapter 3.

Messages with Identifiers

The following messages are documented either online or in other manuals:

- **SYS messages.** The SYS messages are error messages returned by the operating system. To get information about SYS messages, refer to your operating system manual.

The following messages are not documented:

- **INFO messages.** The INFO messages are status messages returned by the operating system. These informational messages do not necessarily require any action.
- **PROMPT messages.** The PROMPT messages are the prompts returned by the operating system.
- **WARNING messages.** The WARNING messages are status messages returned by the operating system. These messages do not necessarily require any action, but are meant as warning messages only.
- **Some DGN, FTP, NET, NSU, or PRO messages.** If a message has one of these identifiers but is not listed in this chapter, follow the checklists in chapter 3.

DGN0100 - DGN0219

This section contains a list of error messages that you may receive when using the NetDiag utility.

DGN0100: Insufficient memory to run NetDiag.

CAUSE The NetDiag utility requires 250 kilobytes of memory to run successfully. There is not enough available conventional memory for the NetDiag utility to run.

ACTION Free up enough memory to run the NetDiag utility. Then reboot your computer to reload the network software and run NetDiag again.

You can free up enough memory in one of the following ways:
- Change CONFIG.SYS or NET_STRT.BAT so that fewer programs are loaded at boot time.
- If you have multiple resident programs, unload some of them.

DGN0102: Opening the help file NETDIAG.HLP failed.

CAUSE An error occurred while trying to open the NETDIAG.HLP file.

ACTION Check if the file NETDIAG.HLP is in the directory that NetDiag is in. If NETDIAG.HLP is not in the directory, copy the help file into the directory or run NetDiag from the master disk. If NETDIAG.HLP is in the directory, the file may be corrupted and should be replaced.

DGN0103: Closing the help file NETDIAG.HLP failed.

CAUSE An error occurred while closing the help file NETDIAG.HLP.

ACTION If the specified drive is a flexible disk drive, check that the disk is properly inserted in the drive and the drive door is closed. If the problem persists, run NetDiag from the master disk.

DGN0105: Network software not loaded.

CAUSE The network software must be loaded in order to run NetDiag. Specifically, either the transport or NMTSR.EXE has not been loaded.

ACTION Reboot your computer to load the network software. Make sure NMTSR.EXE is loaded.

DGN0108: The Internet Protocol (IP) address is invalid.

CAUSE The format of the IP address is incorrect.

ACTION Obtain the correct IP address of the remote computer. If the remote computer is a PC, you can obtain the correct IP address by running the NetDiag utility on the remote computer. From the NetDiag main menu, select `Status -> Current Local Configuration` and write down the IP address. Refer to the *Installation Guide – HP ARPA Services 2.1/MS-DOS* for information about the correct format for IP addresses. If the remote computer is not a PC, contact the administrator in charge of that remote computer.

DGN0109: The remote computer name is not in a correct format.

CAUSE The computer name entered is not in a correct format.

ACTION Enter a valid computer name. Also, verify that the computer name exists. For information about valid computer names, refer to chapter 3 of the *Installation Guide – HP ARPA Services 2.1/MS-DOS*.

DGN0110: Network Services not loaded.

CAUSE The Loopback Connectivity Test detected that the NetIPC support module (TICL) provided in HP ARPA and Network Services is not loaded on this computer. In order to run the Loopback Connectivity Test, your computer must have TICL loaded, and the remote computer must be running HP Network Services.

ACTION If you want to use the loopback connectivity test, configure NetIPC to a value greater than zero in Netsetup, reload the network, and run the test again. If you don't have TICL loaded, you cannot run this test.

DGN0111: The format of the remote interface card address is incorrect.

CAUSE The Link Connectivity Test requires the interface card address of the remote computer. The interface card address is a 6-byte hexadecimal address that can be supplied in 12 digits, for example, 02608c161242.

ACTION Obtain the correct interface card address of the remote computer and run the test again. If the remote computer is a PC, you can obtain the correct interface card address by running the NetDiag utility on the remote computer. From the NetDiag main menu, select `Status -> Current Local Configuration` and write down the interface card address. If the remote computer is not a PC, contact the administrator in charge of that remote computer to get the correct interface card address.

DGN0112: A remote interface card address is required.

CAUSE An interface card address was not entered.

ACTION Enter an interface card address of the remote computer and run the test again. If the remote computer is a PC, you can obtain the correct interface card address by running the NetDiag utility on the remote computer. From the NetDiag main menu, select `Status -> Current Local Configuration` and write down the interface card address. If the remote computer is not a PC, contact the administrator in charge of that remote computer to get the correct interface card address.

DGN0113: A remote computer name is required.

CAUSE A computer name of the remote computer was not entered.

ACTION Enter the computer name of the remote computer and run the test again. The computer name may be the name of the host as it appears in a hosts file, or in the host.domain format if Domain Naming is enabled.

If the remote computer is a PC, you can obtain the correct computer name by running the NetDiag utility on the remote computer. From the NetDiag main menu, select `Status -> Current Local Configuration` and write down the computer name. If the remote computer is not a PC, contact the administrator in charge of that remote computer to get the correct computer name.

DGN0119: Enter either an IP address or a computer name.

CAUSE To run the PING Connectivity Test, you need either the IP address or the computer name of the remote computer. Note that only one field can be filled in.

ACTION Enter either the IP address or the computer name of the remote computer. Refer to the *Installation Guide – HP ARPA Services 2.1/MS-DOS* for information about ARPA domain and NS domain names.

DGN0121: The directory path specified is incorrect.

CAUSE This message may occur when you try to use the Software Version Test. This test is not supported for use with HP ARPA 2.1.

ACTION If you suspect that your networking software is corrupted, reinstall it to see if the problem is eliminated.

The WHAT.EXE utility is included with your networking software to print version information of network files.

DGN0122: The file specified cannot be found.

CAUSE The address file specified in the Connectivity Test Option cannot be found.

ACTION Make sure the address file name is correct. If an address file does not exist, exit NetDiag, and use an editor to create the address file.

DGN0123: Cannot read/write to a directory. Specify a file instead.

CAUSE A directory name was specified instead of a file name.

ACTION Enter a valid file name.

DGN0124: Cannot read/append to the file specified. Check file permission.

CAUSE The system cannot read/append to the specified file.

ACTION Make sure you have read permission to the specified file.

DGN0201: Interface malfunction detected.

CAUSE The NDIS driver's diagnostics test reported that the interface card did not pass the diagnostics test.

ACTION Run the diagnostics utility included with the interface card to test that the card is working. Follow the directions given in the hardware documentation included with the interface card.

DGN0202: Network cabling problem detected.

CAUSE The cable is either not connected to the interface card, not connected to the hub, or broken somewhere else.

ACTION Verify that the cable is connected properly to the interface card of the PC workstation. Then try to run the test again. If the failure persists, see the troubleshooting procedure for your particular network in this manual.

DGN0203: The Link Self Test failed.

CAUSE Either the network interface card is malfunctioning or there is a problem with the network cable.

ACTION Run the diagnostics utility included with the interface card to test that the card is working. If the interface card test fails, refer to the hardware documentation included with the interface card. If the interface card test passes, follow the troubleshooting procedures in this manual.

DGN0205: The send and receive data are different.

CAUSE The test sends a packet of data over the network and expects it to be echoed by the receiving remote computer. When the packet is returned, a comparison is made between the packet sent and the packet received. There should be no difference between the two. When comparing the data, however, a difference was detected between the sending and receiving computer.

ACTION Reboot the computer to reload the network software. If the error persists, part of the network hardware or software on either your computer or the remote computer may be faulty. Test the reliability of the network hardware. Check the configuration of the software to make sure the configuration meets the specification. If the problem continues, call your HP support contact. For more information, see "Reporting Problems to Your HP Support Contact" in the introduction of this manual.

DGN0207: Cannot open an installed network file.

CAUSE This message may occur when you try to use the Software Version Test feature, which is not supported by Netsetup.

ACTION If you suspect that your networking software is corrupted, reinstall it to see if the problem is eliminated.

The WHAT.EXE utility is included with your networking software to print version information of network files.

DGN0208: A network file is corrupted or there is a version mismatch.

CAUSE This message may occur when you try to use the Software Version Test. This test is not supported for use with HP ARPA 2.1.

ACTION If you suspect that your networking software is corrupted, reinstall it to see if the problem is eliminated.

The WHAT.EXE utility is included with your networking software to print version information of network files.

DGN0209: Internal software error (<*errmsg*>).

CAUSE An internal software error has occurred. <*errmsg*> is a text message describing the type of networking error that has occurred. Here are some examples of the type of text message you may see:
- NMDRV out of resource.
- NMDRV buffer too small.
- TICL no response available.

ACTION Reboot and try the test again. If the problem continues, call your HP support contact. Guidelines for callingFor more information, see "Reporting Problems to Your HP Support Contact" in the introduction of this manual.

DGN0211: Software Version checksum file error (<*errmsg*>).

CAUSE This message occurs when you try to use the Software Version Test feature, which is not supported by Netsetup.

ACTION If you suspect that your networking software is corrupted, reinstall it to see if the problem is eliminated. To print version information of network files, use the WHAT.EXE utility that is included with your networking software .

DGN0217: Remote computer name cannot be resolved.

CAUSE NetDiag cannot find a computer with the specified computer name on this network. Note that the remote computer must be running the HP NS 2.1.

ACTION Check that the computer name is correct and that the remote computer is running the HP Network Services.

DGN0219: Remote computer not responding.

CAUSE A remote connectivity test failed. Either the remote computer is not running, the cable is broken somewhere, or a gateway is not working properly.

If this test was performed on a computer running HP Network Services, the remote computer may not have the loopback server loaded.

ACTION Refer to the troubleshooting procedures for your specific network in chapter 4.

FTP1000 - FTP5000

This section contains a list of error messages that you may receive when using the FTP application.

FTP1000: Ambiguous command - does not contain enough characters to be uniquely identified.

CAUSE The FTP command specified does not contain enough characters to uniquely identify the command you want to use. For example, RE is an ambiguous command because it could mean either REmote help or REname. In this example, a third letter must be used to uniquely specify the command.

ACTION Reenter the desired command specifying the entire FTP command, or enter enough characters so that the command cannot be confused with another valid command.

FTP1001: Unrecognized FTP command.

CAUSE FTP did not recognize the command. Either the command was misspelled or it is not supported by this implementation of FTP.

ACTION Check the spelling of the command. Retry the operation using a valid FTP command. Refer to the *User's Guide -- HP ARPA Services 2.1/MS-DOS* or invoke the FTP HELP facility to determine the valid commands. To invoke the FTP HELP facility, at the FTP prompt type:

```
help
```

FTP1002: Missing closing quotation mark - assumed at end of string.

CAUSE FTP detected a missing closing quotation mark and will proceed as if the quotation mark was at the end of the input string.

ACTION If FTP's assumption of the placement for the quotation mark is incorrect, you need to reissue the command and the quoted data with the intended quotation placement.

FTP1003: String too long - must be no longer than <*length*> characters.

CAUSE An invalid string has been entered in response to an FTP prompt. The valid length of a string depends on the state of FTP when the error occurred. <*length*> indicates the maximum length.

ACTION Reenter a string that is less than or equal to <*length*> characters.

FTP1004: No match for <*filespec*>.

CAUSE This error occurs when a local file (or files) is specified on the client PC workstation and a file matching the description does not exist. <*filespec*> may include wildcard characters.

ACTION Check the spelling and use of any wildcard syntax. Also, perform a local directory listing to see if the file(s) exist.

FTP1005: Unable to change local directory to <*directoryspec*>.

CAUSE FTP could not change the current working directory on the client PC workstation to <*directoryspec*>. This could be caused by incorrect spelling or improper path specification.

ACTION Check the spelling and syntax of the desired pathname. Reissue the command. Also, verify that the directory exists on the client PC workstation.

FTP1006: Ambiguous help command: <*command*>.

CAUSE An FTP command specified in a HELP request does not contain enough characters to be uniquely identified.

ACTION Reenter the HELP command specifying the entire FTP command, or enter enough characters so that the command cannot be confused with another valid command.

FTP1007: Unrecognized help command: <*command*>.

CAUSE An FTP command specified in a HELP request is not recognized.

ACTION Check the spelling of the command. Also, check that the command is supported by this FTP implementation. Refer to the *User's Guide -- HP ARPA Services 2.1/MS-DOS*, or invoke the FTP HELP facility to determine the valid commands. To invoke the FTP HELP facility, type at the FTP prompt:

```
help
```

FTP1008: Unrecognized option - <*option*> ignored.

CAUSE This implementation of FTP does not recognize this option. This error only occurs when an invalid option is specified on the command line when starting FTP. All options that can be specified from the command line may also be set from within the FTP application by issuing the appropriate **FTP** commands as documented in the *User's Guide -- HP ARPA Services 2.1/MS-DOS*.

ACTION Make sure the option is supported, then retype the command. Refer to the *User's Guide -- HP ARPA Services 2.1/MS-DOS* to determine supported options.

FTP1009: The drive specification "<*drivespec*>" cannot be located.

CAUSE A drive specified in the **DRIVE** command cannot be located. This error occurs if the specified drive does not exist.

ACTION Specify a valid drive. If the specified drive is a flexible disk drive, check that a disk is properly inserted into a specified flexible drive (and that the door is closed).

FTP2000: Unable to open local file: <*filename*>.

CAUSE A local file <*filename*> could not be opened on the client PC workstation. This could be caused by improper spelling, improper path specification, or an attempt to open a read-only file for writing.

ACTION Check the spelling, pathname syntax, and protections for the specified filename.

FTP2001: Unable to read from local file - file is locked.

CAUSE A read was attempted on a locked file on the client PC workstation. This can happen if you attempt to access a file that another program may have open.

ACTION Determine if another program has the file open. If the error persists, reboot the computer to reset all of the open files.

FTP2002: Unable to write to local file.

CAUSE A write was attempted to a read-only file on the client PC workstation, or the disk is full.

ACTION Check file protections on the filename specified in the command and check to verify that the disk to which the file was being written is not full.

FTP2003: Error loading command interpreter.

CAUSE FTP is unable to provide a temporary command line environment. The operating system cannot locate and execute `COMMAND.COM`.

ACTION Make sure that the command interpreter is specified under COMSPEC. It must also be in a directory which is in the PATH statement.

FTP2004: Unable to establish pathname for current working directory.

CAUSE Either there was insufficient memory available for allocation, or the pathname on the host was too long. The maximum pathname length is 66 characters (including the two characters specifying the drive).

ACTION Check available memory. Also verify that the pathname on the host does not exceed 66 characters.

FTP3000: Network software not loaded.

CAUSE The network transport or the sockets interface has not been loaded prior to attempting to run FTP.

ACTION Verify that the transport and sockets interface are loaded. Then try to run FTP again.

FTP3001: Internal networking error (<*errmsg*> - <*number*>).

CAUSE An attempt to interact with the network has failed. <*errmsg*> is a text message describing the type of networking error that has occurred. <*number*> is an internal error code number that may be useful when calling your HP support contact.

ACTION The connection will be aborted, and in most cases, the FTP application will also be aborted. Try rebooting and reloading the network. If the error persists, contact your network administrator. The network administrator should follow the suggestions in the "Using ARPA Services" troubleshooting checklist in chapter 3.

FTP3002: Time out expired on network service request.

CAUSE Due to a lost connection, or an extreme delay in the network, a timer expired and the connection was lost.

ACTION The connection was aborted, and in most cases, the FTP application was aborted. Try rebooting and reloading the network. If the error persists, contact your network administrator. The network administrator should follow the suggestions in the "Using ARPA Services" troubleshooting checklist in chapter 3.

FTP3003: Invalid or unknown host: <*hostname*>.

CAUSE FTP was unable to match <*hostname*> to an IP address. This may be caused by improper spelling of the hostname, or by a hostname which has not been registered on the network (or listed in a host file).

ACTION Check the spelling of the hostname and ensure that the hostname is included in the host file if the host file is being used for name-to-IP address resolution. If the hostname does not work, try using the IP address in the command. For information, refer to the *User's Guide -- HP ARPA Services 2.1/MS-DOS*.

FTP3004: Unable to connect to <*host*> (<*reason*>).

CAUSE FTP was unable to initiate a connection to the specified host. <*reason*> is a text message indicating the cause of the failed connection. The reason for the failed connection may be one of the following:
- The connection timed out. For example, a time out expired prior to connection establishment.
- The connection is refused by the host.
- The host is unreachable. For example, the host is not running or IP addresses may be configured incorrectly.
- Insufficient network resources on the network or local PC.

ACTION Try to connect later. If the error persists, contact your network administrator. The network administrator should follow the suggestions in the "Using ARPA Services" troubleshooting checklist in chapter 3.

FTP3005: Session lost - connection reset.

CAUSE The session with the remote server has been unexpectedly lost. FTP has reset itself to a disconnected state.

ACTION Use the **OPEN** command to try to reestablish a connection to the remote server.

FTP3006: Data connection closed unexpectedly - transfer failed.

CAUSE During the process of data transfer between an FTP client and server, the data connection was closed by the remote host. This error only occurs when data is being transferred from the local machine to the remote host.

ACTION Try the data transfer again. If the error persists, contact your network administrator. The network administrator should follow the suggestions in the "Using ARPA Services" troubleshooting checklist in chapter 3.

FTP4000: Not connected to an FTP server - use OPEN first.

CAUSE An FTP connection from the local FTP client to an FTP server was not established prior to issuing this command.

ACTION After connecting to an FTP server with the **OPEN** command, try the command again.

FTP4001: Already connected - use CLOSE first.

CAUSE An **OPEN** command was issued when the client is already connected to an FTP server. The **OPEN** command is only valid when FTP is not currently connected to an FTP server. Only one connection can be OPEN at a time.

ACTION If you want to connect to a different server, issue the **CLOSE** command, then reissue an **OPEN** command to the desired server.

FTP4002: Server response not understood.

CAUSE A response from the FTP server was not understood by the FTP client. It is possible that an error caused a loss of synchronization between the server and client.

ACTION If the error persists, exit FTP. Restart FTP and reissue the desired commands. Experienced users may use the DEBUG option to determine the cause of this error.

FTP4003: Unrecognized transfer type.

CAUSE An unsupported or unrecognized transfer type has been specified using the **TYPE** command.

ACTION Be sure to correctly enter only the ASCII or Binary transfer types.

FTP4004: Connection not accepted by server.

CAUSE The FTP server is currently unable to accept the connection. The cause of this error is dependent on the implementation of the FTP server to which a connection was attempted. A common cause is the lack of the necessary system or network resources on the FTP server host.

ACTION Try to connect to the server later. If the error persists, contact your network administrator. The network administrator should follow the suggestions in the "Using ARPA Services" troubleshooting checklist in chapter 3.

FTP5000: File list overflow.

CAUSE A wildcard expansion has caused an internal FTP buffer to overflow. This may happen if a very general file specification (for example, *.*) has matched an extremely large number of files. This is possible only on the **MGET**, **MPUT**, and **MDELETE** commands.

ACTION Be more specific about the files to be manipulated, or separate the files into smaller categories. For example, where the command **MGET *.*** may cause the capture buffer to overflow, the command "**MGET *.c *.h *.asm**" would probably work.

NET0100 - NET0233

This section contains a list of messages that you may receive when using the network.

NET0100: Incorrect value for *<parm name>* **detected in PROTOCOL.INI file by** *<module name>*.

CAUSE An incorrect value or incorrect number of values for a parameter was found in the PROTOCOL.INI file. *<module name>* is the name of the network module that encountered the incorrect value. *<parm name>* is the name of the parameter which has the incorrect value.

ACTION Correct the value in the PROTOCOL.INI file. Refer to the *Installation Guide - HP ARPA Services 2.1/MS-DOS* for information about parameter settings.

NET0101: The value for *<parm name>* **not found in PROTOCOL.INI file by** *<module name>*.

CAUSE Either a parameter is missing or the value for the parameter is missing from the PROTOCOL.INI file.

ACTION The parameter and its value should be added to the PROTOCOL.INI file. Refer to the *Installation Guide - HP ARPA Services 2.1/MS-DOS* for information about the parameters and their values.

NET0102: Cannot load *<module name>* *<vers>*: **incompatible DOS version.**

CAUSE The network could not be loaded because it cannot execute on the version of DOS that is currently on the PC workstation. The version of DOS must be 3.3 or greater. *<module name>* is the name of the network module that detected the incompatible DOS version. *<vers>* is the version number of the network module.

ACTION Install a version of DOS that is 3.3 or greater.

NET0103: Insufficient memory to allocate *<value> <parm name>* **by** *<module name>*.

CAUSE There was not enough memory for the network software to obtain internal resources that it needs, for example, internal buffers used by the network software. *<module name>* is the name of the network module that was unable to obtain the resource. *<value>* is the amount of the resource and *<parm name>* is the name of the parameter/resource.

ACTION Lower the amount of the resource that was being requested. Refer to the *Installation Guide – HP ARPA Services 2.1/MS-DOS* for information about the parameters that are in the PROTOCOL.INI file that control resource allocation.

NET0104: Insufficient memory to initialize *<module name>*.

CAUSE There was not enough memory to obtain all the resources needed by network module *<module name>*, (for example, internal buffers used for sending messages).

ACTION Lower the amount of resources needed by *<module name>* in order to fit in the amount of resources available. Refer to the *Installation Guide – HP ARPA Services 2.1/MS-DOS* for information about the parameters that are in the PROTOCOL.INI file that control resource allocation.

NET0105: Bind failure: *<module name>* **cannot bind to** *<module name>*.

CAUSE For the network to load successfully, each piece of the network software must load successfully. This error is displayed when it has been detected that not all network modules loaded successfully. The first *<module name>* is the name of the network module that is failing to load. The second *<module name>* is the name of the network module that is not loaded.

This situation could arise from the following:

1. Upon loading, a module detected an error and failed to load. In this case an error message, indicating the problem, should have been displayed (prior to the current one).

2. If the CONFIG.SYS or NET_STRT.BAT file has been modified, it is possible that one of the network module names may have been deleted and, as a result, that module did not load.

If a secondary protocol stack is being used, it must be manually loaded before executing the service that requires it.

3. The parameters for your network interface card were incorrectly specified.

ACTION Have the network administrator determine the cause of the problem and make any necessary corrections. If the CONFIG.SYS or NET_STRT.BAT file has been modified, use a backup copy of the CONFIG.SYS or NET_STRT.BAT file.

NET0106: Open failure on PROTOCOL.INI by <*module name*>.

CAUSE An error occurred while trying to open the PROTOCOL.INI file. <*module name*> is the name of the network module that encountered the problem.

ACTION Check CONFIG.SYS for the PROTMAN installation line:

```
DEVICE=PROTMAN.DOS /I:<PROTOCOL.INI path>
```

Verify that the PROTOCOL.INI file is present in the directory indicated in the CONFIG.SYS file. The `DEVICE=PROTMAN.DOS` line in the CONFIG.SYS file should contain a `/I` option followed by the path to the PROTOCOL.INI file.

If the file is being read from a flexible disk, make sure the disk is inserted in the disk drive.

NET0107: Read failure on PROTOCOL.INI by <module name>.

CAUSE An error occurred while trying to read the PROTOCOL.INI file. <*module name*> is the name of the network module that encountered the problem.

ACTION If the file is being read from a flexible disk, make sure the disk is inserted in the disk drive. If the problem persists, try restoring a backup copy of the file. If the problem continues, have the network administrator call your HP support contact. For more information, see "Reporting Problems to Your HP Support Contact" in the introduction of this manual.

NET0108: Close failure on PROTOCOL.INI by *<module name>*.

CAUSE An error occurred while trying to close the PROTOCOL.INI file. *<module name>* is the name of the network module that encountered the error.

ACTION If the file resides on a flexible disk, make sure the disk is inserted in the disk drive.

NET0109: TCP is not loaded - detected by *<module name>*.

CAUSE A network module (named TCP), whose services are required by *<module name>*, has not been loaded. This may be due to errors detected when the TCP module attempted to load, or because the TCP module has been deleted from the load process; that is, the TCP module was deleted from the CONFIG.SYS file. If you are using Microsoft TCP, you may have unloaded it with the Microsoft `unload` command.

ACTION Check that the configuration file contains the line:

```
DEVICE=TCPDRV.DOS
```

If the configuration file contains the `DEVICE=TCPDRV.DOS` line, reboot and look for error messages. The loading process pauses when an error is encountered. If you are using Microsoft TCP, reconfigure TCP with the Microsoft Setup program.

NET0110: Insufficient memory to load *<module name> <vers>*.

CAUSE As the network is loading, modules are "relocated" or moved to other areas in memory to make more efficient use of available memory. In this case, there was not enough memory to relocate a network module. *<module name>* is the name of the network module that could not be moved. *<vers>* is the module's version number. The version number is helpful if you have to call your HP support contact.

ACTION Try to make more memory available. One way to do this when running DOS is to have the network administrator reduce the number of resident programs that are present in memory.

NET0111: Error accessing NEMM.DOS. *<module name>* *<vers>* **not loaded.**

CAUSE NEMM.DOS (Network Expanded Memory Manager) is a network module whose presence is required by all other network modules, or else they cannot load. Either NEMM.DOS has been corrupted on the disk, or it has been accidentally deleted from the load process. *<module name>* is the name of the network module that is not loaded. *<vers>* is the module's version number. The version number is helpful if you have to call your HP support contact.

ACTION Verify that NEMM.DOS has not been accidentally deleted from the load process: there should be a `DEVICE=NEMM.DOS` line in the CONFIG.SYS file. If CONFIG.SYS is correct, NEMM.DOS can be copied from the installation disks to the proper directory. If there are a number of corrupted files, re-run NetSetup in order to re-install the network software.

If the problem continues, call your HP support contact. For more information, see "Reporting Problems to Your HP Support Contact" in the introduction of this manual.

NET0112: Relocation failure. *<module name>* *<vers>* **not loaded.**

CAUSE At load time, network modules are moved in memory to make the most efficient use of memory. In this case, a network module could not be moved to the desired location. This may be due to corruption of the network module as it resides on disk. *<module name>* is the name of the module that could not be relocated. *<vers>* is the module's version number.

ACTION Re-install the network by re-running NetSetup. If the load continues to fail, contact your network administrator. The administrator should call your HP support contact. For more information, see "Reporting Problems to Your HP Support Contact" in the introduction of this manual.

NET0113: Network context failure. *<module name>* *<vers>* **not loaded.**

CAUSE A network module detected an error while accessing expanded memory. This may be due to corruption of the network's NEMM.DOS module, or it may be due to errors in the expanded memory software or hardware, possibly from a vendor other than Hewlett-Packard. *<module name>* is the name of the network module that failed to load. *<vers>* is the module's version number.

ACTION Re-install the network using NetSetup. If the error persists, run the diagnostics provided with the expanded memory hardware.

NET0114: Warning: memory release failure in *<module name>* *<vers>*.

CAUSE An error occurred when the network module *<module name>* attempted to release system memory it no longer requires. This is a diagnostic warning only; the module was able to load and should function properly. However, a small amount of system memory will not be accessible. *<module name>* is the name of the network module that detected the error. *<vers>* is the module's version number.

ACTION None – this is only a warning. If you continue to get this message, reboot to free up memory that was not released.

NET0116: TCP access failure by *<module name>*.

CAUSE The network module, *<module name>*, detected an error while accessing the network TCP module. This may be due to corruption of either *<module name>* or the network TCP module. This message is also displayed if you try to load the ARPA networking files after you unloaded Microsoft TCP/IP. If you are using Microsoft TCP, you may have unloaded TCP with the Microsoft `unload` command.

ACTION Re-install the network using NetSetup. If you are using Microsoft TCP, reconfigure TCP with the Microsoft Setup program. If the problem persists, contact your network administrator. The administrator should call your HP support contact. For more information, see "Reporting Problems to Your HP Support Contact" in the introduction of this manual.

NET0117: Incorrect PROTOCOL.INI format detected by *<module name>*.

CAUSE Information in the PROTOCOL.INI file is incorrectly formatted due to corruption of the file.

ACTION Replace the PROTOCOL.INI file with a backup copy.

NET0119: PROTOCOL.INI file too large.

CAUSE There is not enough memory to analyze the contents of the PROTOCOL.INI file. The PROTOCOL.INI file exceeds the 8 kilobytes maximum size allowed.

ACTION Edit PROTOCOL.INI and remove unnecessary entries in order to decrease the size.

NET0120: Logical driver name *<name>* **not found in PROTOCOL.INI.**

CAUSE The specified logical driver name was not found in PROTOCOL.INI.

ACTION Re-run NetSetup to create a new PROTOCOL.INI file.

NET0121: Insufficient TCP resources to load *<module name>*.

CAUSE The parameter configurations for the network TCP module do not contain enough resources to allow *<module name>* to load. This may be due to modifying PROTOCOL.INI and changing parameters for one or more services modules without changing the corresponding TCP resources.

ACTION Re-run NetSetup to build a new PROTOCOL.INI file and to establish a proper base configuration for network module resources at load time.

NET0122: Exceptional error condition detected by <module name>.

CAUSE An internal software error has occurred.

ACTION Reboot your PC workstation. If this error appears again, call your HP support contact. For more information, see "Reporting Problems to Your HP Support Contact" in the introduction of this manual.

NET0123: Cannot access Protocol Manager.

CAUSE An error occurred while trying to access the Protocol Manager. This error can occur if the Protocol Manager device driver has not been configured in CONFIG.SYS, or Procotol Manager cannot be accessed due to an unexpected software error.

ACTION Make sure that CONFIG.SYS contains the following line:

```
DEVICE=<path>PROTMAN.DOS /I:<PROTOCOL.INI path>
```

Verify that the PROTOCOL.INI file is present in the directory indicated in the CONFIG.SYS file.

If the problem is not with the configuration, the network administrator should call your HP support contact. For more information, see "Reporting Problems to Your HP Support Contact" in the introduction of this manual.

NET0124: TCP/IP TSR module must be loaded before WINDOWS/386.

CAUSE Your system tried to load the TCP/IP module named TCPTSR.EXE from inside the WINDOWS/386 environment. The TCP/IP module was not loaded. The loading process stops.

ACTION First load the TCP/IP module. Then start WINDOWS/386.

NET0125: NETBIND must be executed before TCP/IP TSR module is loaded.

CAUSE An error occurred while trying to load the TCP/IP module named TCPTSR.EXE. The NETBIND program was not executed.

ACTION First run NETBIND. Then load the TCP/IP module.

NET0128: Attempting to load 80286 code on 8088 or 80186.

CAUSE An incorrect version of the TCP/IP transport was used. A version of the TCP/IP transport that was designed for 8088 or 80186-based PC workstations was used instead of a version intended for 80286-based PC workstations.

ACTION Either find a copy of the TCPDRV.86 and TCPTSR.86 files and copy these files to an appropriate place on your PC workstation (with the filenames TCPDRV.DOS and TCPTSR.EXE), or re-install the network.

NET0129: Warning: No remote NS system names configured. Run INETNAME to set up names. Problem detected by PROBE. Press any key to continue loading.

CAUSE A personal computer that is running on a Token Ring network and has NS naming (PROBE) enabled is not properly configured. This is probably due to one of the following:
- The HOSTS file does not contain NSHOST entries.
- The HOSTS file does not exist.

ACTION Run INETNAME to configure the names and IP addresses of all systems that you want this personal computer to be able to communicate with.

NET0130: <*program_name*> must be loaded before WINDOWS 3.0.

CAUSE WINDOWS was started on the PC workstation before the indicated network program was loaded.

ACTION Load network programs first; then start WINDOWS. Network programs cannot be loaded from within WINDOWS enhanced mode.

NET0131: < program_name > must be loaded before the DOS 5.0 shell is started.

CAUSE An attempt was made to load the indicated network program from within a DOS shell started from the DOS 5.0 Task Manager.

ACTION Load network programs first, then start DOS shells. Network programs cannot be loaded from within DOS shells spawned from the DOS 5.0 Task Manager.

NET0150: Unexpected error detected.

CAUSE An unexpected error occurred while trying to initialize the HP StarLAN 10 or HP ThinLAN driver.

ACTION Contact your network administrator. The administrator should call your HP support contact. For more information, see "Reporting Problems to Your HP Support Contact" in the introduction of this manual.

NET0151: Protocol Manager not installed.

CAUSE The Protocol Manager has not been installed prior to the HP StarLAN 10 or HP ThinLAN driver installation. Either CONFIG.SYS does not contain the PROTMAN installation line before the driver installation line, or PROTMAN is failing to load for some other reason.

ACTION Make sure that CONFIG.SYS contains the PROTMAN.DOS line and that this line precedes the line that installs the HP StarLAN 10 or HP ThinLAN driver. For example:

```
DEVICE=<path>PROTMAN.DOS  /I:<path>
DEVICE=<path>HPLAN.DOS
```

Also verify that PROTMAN.DOS is in the path specified by CONFIG.SYS.

If Protocol Manager fails to load, an error message is displayed. Refer to the error message for possible causes and action.

NET0152: Protocol Manager failed on configuration image call.

CAUSE This is an unexpected software error. The Protocol Manager stores an image of the NDIS driver information in the PROTOCOL.INI file. The HP StarLAN 10 or HP ThinLAN driver needs to access this information and cannot.

ACTION Contact your network administrator. The administrator should call your HP support contact. For more information, see "Reporting Problems to Your HP Support Contact" in the introduction of this manual.

NET0153: PROTOCOL.INI contains illegal parameter: <*parm name*>.

CAUSE The HPLAN section of PROTOCOL.INI contains an illegal parameter. The legal parameters are:

AT Machines	MCA Machines
Interrupt	MaxMulticast
IOAddress	MaxSWTrans
MaxMulticast	MaxHWTrans
MaxSWTrans	
MaxHWTrans	

ACTION Check CONFIG.SYS for the PROTMAN installation line:

```
DEVICE=<protman path> /I:<PROTOCOL.INI path>
```

The `/I` option tells you the location of PROTOCOL.INI. If the `/I` option is not present, PROTOCOL.INI is in the same directory as the Protocol Manager. Edit PROTOCOL.INI to correct the parameter. Make sure the spelling is correct. Refer to the *Installation Guide – HP ARPA Services 2.1/MS-DOS* for the meaning and legal values of each parameter.

NET0154: PROTOCOL.INI contains an illegal value after parameter: <*parm name*>.

CAUSE The HPLAN section of PROTOCOL.INI contains an illegal parameter value.

ACTION Check CONFIG.SYS for the PROTMAN installation line:

```
DEVICE=<protman path> /I:<PROTOCOL.INI path>
```

The `/I` option tells you the location of PROTOCOL.INI. If the `/I` option is not present, PROTOCOL.INI is in the same directory as Protocol Manager. Edit PROTOCOL.INI to correct the parameter. If the parameter is an IO address, verify that the value matches the value configured on the interface card. If the parameter is `Interrupt`, verify that the value has not been used by another interface card.

NET0155: HPLAN interface card not installed.

CAUSE The HP StarLAN 10 or HP ThinLAN interface card is not installed. Note that this message is only generated on an MCA computer.

ACTION Have your network administrator install the HP StarLAN 10 or HP ThinLAN card in your MCA computer. Follow the procedure for installing a new interface card on an MCA computer.

NET0156: HPLAN card not installed at configured I/O address.

CAUSE If you have an AT computer, either the HP StarLAN 10 or the HP ThinLAN interface card is not installed or the interface card is not at the configured I/O address.

If you have an MCA computer, the interface card is malfunctioning.

ACTION For an AT computer, install the HP StarLAN 10 or HP ThinLAN interface card in your computer. Follow the procedure for installing a new interface card. If the interface card is installed, check that the HP StarLAN 10 or HP ThinLAN interface card is at the same I/O address specified in PROTOCOL.INI. Also, make sure that no other cards are set to the same address.

For an MCA computer, run the diagnostics software that came with your interface card.

NET0158: Memory error detected in HPLAN interface card.

CAUSE The memory selftest detected an error in the HP StarLAN 10 or the HP ThinLAN interface card packet memory.

ACTION Replace the interface card.

NET0160: Cable error detected.

CAUSE The loopback selftest detected an error. The cable is either not connected to the ThinLAN interface card, not properly terminated, or broken somewhere. Note that this error is not expected for StarLAN 10 cards.

ACTION Verify that the cable is connected to the ThinLAN interface card and that the cable is properly terminated at both ends.

NET0161: Cable error detected.

CAUSE The loopback selftest detected an error when testing a StarLAN 10 interface card with the test switch set to TEST. This error is caused by one of the following:

1. The test switch on the StarLAN 10 interface card was set to TEST, but the interface card on the hub was not replaced by a loopback hood or the StarLAN 10 hub was not set to provide loopback connectivity.

2. The regular StarLAN 10 connection on the hub was replaced by a loopback hood. The problem is that either the interface card or the loopback hood is bad.

3. The StarLAN 10 hub was set to provide loopback continuity through the hub. The problem is that either the cable to the hub, the interface card, or the hub is bad.

ACTION Depending on the situation, do one of the following:

1. Either connect a loopback hood to the hub, or provide loopback continuity through the hub and reboot.

2. If the regular StarLAN 10 connection on the hub was replaced with a loopback hood, replace the interface card or the loopback hood as required.

3. If the StarLAN 10 hub was set to provide loopback continuity through the hub, replace the cable to the hub, the interface card, or the hub as required.

NET0162: Cable error detected.

CAUSE An unexpected loopback packet was detected.

ACTION If you are diagnosing the card with a loopback hood or with the hub set up to provide loopback continuity, set the card test switch to TEST.

If you want to use the card in normal mode make sure the cable is properly connected to the hub and that the hub is set for normal operation not loopback.

NET0163: Hardware error detected in HPLAN interface card.

CAUSE The loopback selftest detected an error in the interrupt system. This is probably a hardware fault in the HP StarLAN 10 or HP ThinLAN interface card although it could be a problem in the computer.

ACTION Replace the StarLAN 10 or HP ThinLAN interface card and run the loopback selftest again. If the problem persists, make sure that the particular interrupt channel on the computer is working.

NET0180: Open failure on Protocol Manager by *<module name>*.

CAUSE The Protocol Manager module, whose services are required by *<module name>*, has not been loaded. This may be due to errors detected when the Protocol Manager attempted to load, or because the line that loads Protocol Manager has been deleted from the CONFIG.SYS configuration file.

ACTION Verify that the DEVICE=PROTMAN.DOS line in the CONFIG.SYS file has not been accidentally deleted. If this is not the source of the problem, reboot the computer and see if an error message is displayed when the Protocol Manager is loading. If there is an error message, determine the cause of the error and correct it. If the problem continues, have the network administrator call your HP support contact. For more information, see "Reporting Problems to Your HP Support Contact" in the introduction of this manual.

NET0181: Read failure on Protocol Manager by *<module name>*.

CAUSE An error occurred while retrieving information from the Protocol Manager. *<module name>* is the name of the network module that encountered the problem.

ACTION Restore a backup copy of the PROTMAN.DOS file, and reboot the computer. If the problem continues have your network administrator call your HP support contact. For more information, see "Reporting Problems to Your HP Support Contact" in the introduction of this manual.

NET0182: Close failure on Protocol Manager by *<module name>*.

CAUSE An error occurred while trying to close the Protocol Manager module. *<module name>* is the name of the network module that encountered the error.

ACTION Restore a backup copy of the PROTMAN.DOS file, and reboot the computer. If the problem continues have the network administrator call your HP support contact. For more information, see "Reporting Problems to Your HP Support Contact" in the introduction of this manual.

NET0220: Invalid number of arguments. Type HPUNLOAD ? for help.

CAUSE The HPUNLOAD command accepts only zero or one command line option. There are several command line options to unload (/STATUS, /VERIFY, /TOPONLY); however, only one (or none) of them may be specified at any one time.

ACTION Re-run HPUNLOAD, specifying the correct option syntax. Run HPUNLOAD ? for further help information.

NET0221: Invalid argument. Type HPUNLOAD ? for help.

CAUSE An unknown command line option was entered.

ACTION Re-run HPUNLOAD, specifying the correct option syntax. Options include /STATUS, /VERIFY, and /TOPONLY. Run HPUNLOAD ? for further information.

NET0222: Network not loaded.

CAUSE The networking system device drivers (in particular, TCPDRV.SYS) have not been loaded. This indicates that none of the networking software is available at this time.

ACTION None. There is no network to unload.

NET0223: No network programs loaded.

CAUSE Although the networking system device drivers are loaded, no network Terminate and Stay Resident (TSR) programs have been loaded. These would be the only unloadable pieces of the networking software.

ACTION None. There is no unloadable network software currently loaded.

NET0224: Cannot unload network program *<program>* **(BIND).**

CAUSE An internal software error has occurred in the BIND utility. *<program>* is the network program that failed to unload.

ACTION Contact your network administrator. The administrator should call your HP support contact. For more information, see "Reporting Problems to Your HP Support Contact" in the introduction of this manual.

NET0225: Cannot unload network program *<program>* **(UNBIND).**

CAUSE An internal software error has occurred in the UNBIND utility. *<program>* is the network program that failed to unload.

ACTION Contact your network administrator. The administrator should call your HP support contact. For more information, see "Reporting Problems to Your HP Support Contact" in the introduction of this manual.

NET0226: Cannot unload network program <*program*> (UNREGISTER).

CAUSE An internal software error has occurred in the UNREGISTER utility. <*program*> is the network program that failed to unload.

ACTION Contact your network administrator. The administrator should call your HP support contact. For more information, see "Reporting Problems to Your HP Support Contact" in the introduction of this manual.

NET0227: Cannot unload network program <*program*> (HPUNLOAD).

CAUSE The specified program failed to unload. The most likely cause is that all network connections were not terminated prior to running the HPUNLOAD utility.

ACTION Make sure that all network connections are terminated and run the HPUNLOAD utility again.

NET0228: Cannot unload network program <*program*>. Other programs (TSRs) are loaded above it in memory.

CAUSE The specified program failed to unload. Other Terminate and Stay Resident (TSR) programs were loaded after the network program. This may include LAN Manager services.

ACTION Either load the other TSR programs before the specified network program or unload the other TSR programs (if the TSR programs can be unloaded). Then run the HPUNLOAD utility again.

NET0229: Network programs cannot be unloaded while inside Windows 3.0.

CAUSE You tried to unload network modules while running Windows 3*x*. This operation is not supported.

ACTION Exit Windows 3*x* and then run the HPUNLOAD utility to unload the network modules.

NET0230: Cannot unload network program <*module name*> because the Network Redirector is loaded.

CAUSE You tried to unload a network module that cannot be unloaded while the Network Redirector is loaded.

ACTION None. Unloading the Network Redirector before you unload a network module is not a supported operation with LAN Manager.

NET0231: Cannot unload network program <*module name*>. Other programs (TSRs) using same interrupt vector as <*module name*>.

CAUSE Other programs (TSRs) that use the same interrupt vector as the network have been loaded after the network was loaded.

ACTION Load the network after the other programs (TSRs) are loaded.

NET0232: Cannot unload modules after Windows 3.0 is running.

CAUSE You are trying to use demand load while running in Windows 3.*x* enhanced mode.

ACTION Either do not use demand loading while running in Windows 3.*x* enhanced mode, or run Windows 3.*x* in standard mode (or real mode if in Windows 3.0 only).

NET0233: The command "telnet" cannot be used with demand loading. Use "telnetd".

CAUSE Demand loading was set to `yes` when Netsetup was run.

ACTION You must use the `telnetd` command to run Telnet and Kermit when demand loading is set to `yes`.

NSU0001 - NSU0030

This section contains a list of error messages that you may receive when using the HP Netsetup utility.

NSU0001: Invalid target drive.

CAUSE A target drive is the drive on which the HP PC files will be installed. An invalid target drive was entered. For example, drives A: or B: cannot be used to set up HP PC files.

ACTION Enter a different target drive, such as drive C: or D:

NSU0002: Incorrectly specified drive.

CAUSE The target drive that is entered must have the proper syntax.

ACTION Reenter the target drive using the correct syntax. For example, to specify drive D: as the target drive, it must be entered with both the letter (D) and a following colon (:).

NSU0003: Not enough disk space.

CAUSE 1.2 megabytes of disk space is required to set up the HP PC files. There was not enough free disk space on the target drive to copy the HP PC files.

ACTION Either specify a different target drive that has more disk space, or exit the NetSetup program, clear 1.2 megabytes of disk space on the current drive, and then rerun the NetSetup program.

NSU0004: Invalid IP address.

CAUSE An invalid IP address was entered.

ACTION An IP address has 12 digits in four groups of three, such as 192.001.001.001. If you have a system administrator, check with that person for this value. For more information about IP addresses, see chapter 2 of the *Installation Guide – HP ARPA 2.1 Services/MS-DOS*.

NSU0005: Invalid subnet mask.

CAUSE An invalid subnet mask wwas entered.

ACTION A subnet mask must be entered in four fields, using periods to separate the fields (for example, 255.255.248.0). If you have a system administrator, check with that person for this value. For more information about subnet masks, see chapter 2 of the *Installation Guide – HP ARPA 2.1 Services/MS-DOS*.

NSU0006: Incorrect NS domain.

CAUSE An incorrect NS domain was entered.

ACTION An NS domain consists of two fields separated by a dot. Each field must start with a letter and must consist of letters, digits, - (hyphen), and _ (underscore). Embedded or trailing blanks are not allowed. Do not use more than 16 characters per field; the total for both fields should not exceed 33 characters. If you have a system administrator, check with that person for this value.

NSU0007: Incorrect ARPA domain.

CAUSE An incorrect ARPA domain was entered.

ACTION An ARPA domain may contain up to 63 characters per field, with a maximum of 240 characters. Each field must begin with an alphanumeric character. Fields must be separated from each other by a period. If you have a system administrator, check with that person for this value.

NSU0008: Incorrect buffer size.

CAUSE An incorrect buffer size for sockets was entered.

ACTION Enter a buffer size that falls between 3000 and 30000.

NSU0010: TCP resources exceeded.

CAUSE The value entered for the number of TCP connections is too high.

ACTION The maximum number of TCP connections is 22.

NSU0011: Invalid computer name.

CAUSE An invalid character was entered in a computer name.

ACTION A computer name may contain up to 15 characters and must start with a letter. It may contain letters, digits, or the following characters:
$ % @ - _ { } ~ ' ! # ( ) No blank spaces are permitted.

NSU0012: Invalid user name.

CAUSE An invalid user name was entered.

ACTION A user name may contain up to 15 characters and must start with a letter. It may contain letters, digits, or the following characters:
$ % @ - _ { } ~ ' ! # ( ) No blank spaces are permitted.

NSU0013: Path too long.

CAUSE With the addition of the network path, your path name has more than 127 characters.

ACTION Shorten the path name.

NSU0014: Could not initialize text mode.

CAUSE The Netsetup utility failed to re-initialize the monitor to a text mode that Netsetup requires for its menus.

ACTION Make sure your PC is properly configured. Then reboot your PC and rerun Netsetup.

NSU0015: No hard disk detected.

CAUSE The Netsetup utility installs onto a hard drive only, but could not find the `C:` drive on your PC.

ACTION You must have a hard drive on your system for Netsetup to install the networking files.

NSU0017: Error occurred checking operating system version.

CAUSE The Netsetup utility detected an invalid version of the operating system.

ACTION Upgrade your operating system to DOS 3.3 or later.

NSU0018: Microsoft LAN Manager is no longer installed or is improperly configured.

CAUSE Although Microsoft LAN Manager was installed earlier, your system cannot find it now. LAN Manager may be improperly configured.

ACTION Rerun the Microsoft Setup program to restore the proper configuration for LAN Manager.

NSU0020: Error occurred reading NTMSG.DAT

CAUSE The NTMSG.DAT file is missing or corrupt, or there is not enough memory available to load it.

ACTION Make sure you have not removed the *Install* flexible disk before completing the ARPA installation. If you are reconfiguring your system, make sure NTMSG.DAT is still on the hard drive in your networking directory (NETPROG).

NSU0021: Error occurred reading NETSETUP.INF

CAUSE The NETSETUP.INF file is missing or corrupt, or there is not enough memory available to load it.

ACTION Make sure you have not removed the ARPA *Install* flexible disk before completing the ARPA installation. If you are reconfiguring your system, make sure NTMSG.DAT is still on the hard drive in your networking directory (NETPROG).

NSU0022: Error occurred reading AUTOEXEC.BAT

CAUSE The AUTOEXEC.BAT file is missing or corrupt. This file is required in Microsoft LAN Manager 2.1 installations.

ACTION Re-run the LAN Manager 2.*x* SETUP program.

NSU0024: Error occurred reading SETUP.INI.

CAUSE The SETUP.INI file is missing or corrupt. This file is required in Microsoft LAN Manager 2.1 installations.

ACTION Re-run the LAN Manager 2.*x* SETUP program.

NSU0027: Dynamic Memory Allocation Error

CAUSE Netsetup did not have enough dynamic memory available to run.

ACTION Remove memory-resident TSRs. Then reboot and rerun Netsetup.

NSU0028: NETSETUP cannot find TCP/IP.

CAUSE HP ARPA Services requires the TCP/IP protocol to run. TCP/IP was configured when you installed ARPA. Since then you ran the Microsoft SETUP program, and changed the LAN Manager configuration so that TCP/IP is no longer configured.

ACTION You must reinstall ARPA from your HP ARPA 2.1 *Install* disk. The TCP/IP protocol must be reconfigured, either through the Microsoft SETUP program, or through the HP ARPA installation process.

NSU0029: NETSETUP cannot find the HP networking Install floppy in drive

CAUSE During installation, the ARPA *Install* flexible disk was removed from the drive.

ACTION Re-insert the ARPA *Install* flexible disk and start the installation process over.

NSU0030: NETSETUP has detected Microsoft TCP Utilities installed and configured on your PC

CAUSE The Microsoft ARPA product, TCP Utilities, is installed on your PC. Netsetup detected the TCP Utilities product when you tried to install HP ARPA Services. It is also possible that HP ARPA Services is already installed.

ACTION To use HP ARPA Services 2.1, remove the Microsoft TCP Utilities product. To use the Microsoft TCP Utilities product, do not install HP ARPA Services. If you want to use the Microsoft product and the HP ARPA Services are already installed, rerun HP Netsetup. Netsetup will then configure HP ARPA Services so that the HP ARPA Services will not be used.

PRO0002 - PRO0045

This section contains a list of error messages that you may receive when using the Protocol Manager.

PRO0002: PROTOCOL.INI file read error.

CAUSE An error such as `Drive not ready`, `Data CRC error`, `Sector not found`, or `Read fault` is encountered in reading the PROTOCOL.INI file.

ACTION If the PROTOCOL.INI file is read from a disk, make sure the disk is in the drive and the drive door is closed. If the problem persists, the disk may be bad. Use a backup copy of the PROTOCOL.INI file.

PRO0003: PROTOCOL.INI file open failure.

CAUSE Either the Protocol Manager cannot find the PROTOCOL.INI file or an error was detected in opening the file. The PROTOCOL.INI file should be in the default directory <*path*>\LANMAN\DRIVERS on the boot device, or in the directory specified on the `DEVICE=`<*path*>`PROTOCOL.INI` following the `/I:` option switch.

ACTION If the PROTOCOL.INI file is read from a disk, make sure the disk is in the drive and the drive door is closed. Then follow the installation and set up procedure to install the network drivers and Protocol Manager.

PRO0004: A parameter does not belong to any logical module.

CAUSE A configuration parameter appeared in the PROTOCOL.INI file before a logical module is defined in brackets [ ].

ACTION Review the PROTOCOL.INI file and make sure that all configuration parameters appear under a logical module name enclosed in brackets []. For information, see the *Installation Guide – HP ARPA 2.1 Services/MS-DOS*. If the cause cannot be found, restore PROTOCOL.INI from a backup copy.

PRO0005: Not enough memory for PROTOCOL.INI image.

CAUSE The PROTOCOL.INI file is too big.

ACTION Reduce the size of the PROTOCOL.INI file by removing unnecessary entries.

PRO0006: Integer overflow in PROTOCOL.INI parameter.

CAUSE The numeric value of a configuration parameter exceeds 4,294,967,296 decimal or 100,000,000 hexadecimal.

ACTION Review the PROTOCOL.INI file and make sure that all numeric values for configuration parameters are less than 4,294,967,296 decimal or 100,000,000 hexadecimal.

PRO0007: Invalid hex digit in PROTOCOL.INI file.

CAUSE An invalid character is seen in a hexadecimal number.

ACTION Review the PROTOCOL.INI file to make sure that all hexadecimal numbers consist only of numbers 0 through 9 and letters A through F (or a through f).

PRO0008: Invalid decimal number in PROTOCOL.INI file.

CAUSE An invalid character is seen in a decimal number.

ACTION Review the PROTOCOL.INI file to make sure that all decimal numbers consist only of numbers 0 through 9. Note that hexadecimal numbers always begin with prefix 0x or 0X and string values that start with a number must be enclosed in double quotation marks ("...").

PRO0009: String parameter missing end quote in PROTOCOL.INI file.

CAUSE A character string that begins with a double quotation mark is not terminated with a double quotation mark on the same line.

ACTION Find the character string in the PROTOCOL.INI file and terminate it with a double quotation mark (").

PRO0010: Invalid option.

CAUSE The only valid option on the `DEVICE=<path>\PROTMAN.DOS` line must begin with `/I:` or `/i:`. It may specify a device and path name that override the default path \LANMAN in locating the PROTOCOL.INI file.

ACTION Correct the error and reboot.

PRO0011: Equal sign missing between keyword and value.

CAUSE A configuration keyword must be followed by an equal sign (=) if it has one or more values assigned.

ACTION Correct the error in PROTOCOL.INI and reboot.

PRO0012: Initialization failure.

CAUSE System software error during DOS Protocol Manager initialization.

ACTION If previous errors were displayed while the network software was loading, look up the error message. If no other errors were displayed, prior to this one, call your HP support contact. For more information, see "Reporting Problems to Your HP Support Contact" in the introduction of this manual.

PRO0021: General failure in binding <*variable*> to <*variable*>.

CAUSE A general error code (0xFF) is returned during the binding process.

ACTION If previous errors were displayed while the network software was loading, look up the error message. If no other errors were displayed, prior to this one, call your HP support contact. For more information, see "Reporting Problems to Your HP Support Contact" in the introduction of this manual.

PRO0022: Unspecified failure in binding *<variable>* **to** *<variable>*.

CAUSE An internal error message has occurred.

ACTION If previous errors were displayed while the network software was loading, look up the error message. If no other errors were displayed, prior to this one, call your HP support contact. For more information, see "Reporting Problems to Your HP Support Contact" in the introduction of this manual.

PRO0023: Cannot find Protocol Manager.

CAUSE The Protocol Manager failed during its initialization and hence was not installed.

ACTION Correct the Protocol Manager initialization error and try again.

PRO0025: Failed to bind *<variable>* **to** *<variable>*.

CAUSE Inconsistency exists between the binding lists and the module names in the PROTOCOL.INI file.

ACTION Review the PROTOCOL.INI file to make sure the module names specified in binding lists match a module name enclosed in brackets [ ].

PRO0026: MAC not initialized in binding *<variable>* **to** *<variable>*.

CAUSE The adapter driver failed to load due to a problem detected at initialization time. This previous failure is now causing the bind to fail.

ACTION Reboot your computer. When the adapter driver fails to load, a more detailed error message should be generated. The network administrator should call your HP support contact. For more information, see "Reporting Problems to Your HP Support Contact" in the introduction of this manual.

PRO0027: Hardware not found in binding *<module1>* **to** *<module2>*.

CAUSE A network interface card must be installed before installing and using the network software.

ACTION Verify that you have a network interface card installed on your PC workstation. Also verify that each software module, such as TCP/IP, is specified to bind to the correct hardware.

PRO0028: Hardware failure in binding *<variable>* **to** *<variable>*.

CAUSE The adapter driver detected an error with the network interface card. If the adapter driver did not load, an error message should have been displayed.

ACTION Interface cards from some companies have their own diagnostics. If this is true for your card, run the diagnostics to determine the problem with your interface card.

PRO0029: Configuration failure in binding *<variable>* **to** *<variable>*.

CAUSE Certain configuration parameters are unacceptable to either of the two modules. A more detailed error message should have been displayed.

ACTION Correct the error and retry.

PRO0030: Interrupt conflict in binding *<variable>* **to** *<variable>*.

CAUSE Two adapter drivers are using the same interrupt channel number. The interrupt channel number can be specified in the PROTOCOL.INI file, or can be configured on the interface card.

ACTION Check the PROTOCOL.INI file or check the hardware settings on the interface cards.

PRO0031: Incompatible MAC in binding <*variable*> to <*variable*>.

CAUSE An internal software error has occurred. You have incompatible versions of protocol manager and the adapter driver.

ACTION Contact your network administrator. The administrator should call your HP support contact. For more information, see "Reporting Problems to Your HP Support Contact" in the introduction of this manual.

PRO0032: Initialization failed in binding <*variable*> to <*variable*>.

CAUSE A previous error occurred which is now causing the bind to fail.

ACTION Reboot your PC workstation. A more detailed error message should be issued when the network module in trouble fails to load. If the problem persists, contact your network administrator. The administrator should call your HP support contact. For more information, see "Reporting Problems to Your HP Support Contact" in the introduction of this manual.

PRO0033: No network driver binding was performed.

CAUSE Either a protocol driver failed during system startup or a protocol driver has incorrect binding information.

ACTION If it is caused by a failed driver, a more detailed error message should have been displayed. Correct the problem and retry.

PRO0041: Cannot open PROTMAN.DOS.

CAUSE PROTCFG/PROTCHK failed to open the PROTMAN.DOS driver executable file.

ACTION Make sure that PROTMAN.DOS is placed under a subdirectory of the current drive or the subdirectory specified in the `/I:` option.

PRO0042: Cannot read PROTMAN.DOS.

CAUSE An error occurred while trying to read the PROTMAN.DOS file.

CAUSE If the file is being read from a flexible disk, make sure the disk is inserted in the disk drive. If the problem persists, try restoring a backup copy of the file. If the problem continues, have the network administrator call your HP support contact. For more information, see "Reporting Problems to Your HP Support Contact" in the introduction of this manual.

PRO0043: PROTMAN.DOS becomes too large.

CAUSE The code size combined with the parsed PROTOCOL.INI image became too large.

CAUSE Reduce the size of the PROTOCOL.INI file and retry.

PRO0044: Cannot write to PROTMAN.DOS.

CAUSE An error occurred while trying to write to the PROTMAN.DOS file.

CAUSE If the file is being written to a flexible disk, make sure the disk is inserted in the disk drive and is not write protected. If the problem persists, try restoring a backup copy of the file. If the problem continues, have the network administrator call your HP support contact. For more information, see "Reporting Problems to Your HP Support Contact" in the introduction of this manual.

PRO0045: Cannot close PROTMAN.DOS.

CAUSE An error occurred while trying to close the PROTMAN.DOS file.

CAUSE If the file resides on a flexible disk, make sure the disk is inserted in the disk drive.

RCP1000 - RCP5000

This section contains a list of error messages that you may receive when using the RCP (Remote Copy Protocol) service.

RCP1000: Unrecognized option: *<option>*.

CAUSE This implementation of RCP does not recognize this option. This error occurs when an invalid option is specified on the command line when starting RCP.

ACTION Make sure the option is supported, then retype the command. Refer to the *User's Guide -- HP ARPA Services 2.1/MS-DOS* to determine supported options.

RCP1001: Local username is undefined; define ARPAUSER environment variable.

CAUSE A local username was not defined in the environment variable *arpauser*. A local username is required to connect to the remote RCP service.

ACTION Make sure the *arpauser* variable is defined as appropriate in the environment, and then retype the command. Refer to the *User's Guide -- HP ARPA Services 2.1/MS-DOS* for more information on configuration for the RCP command.

RCP1002: Target pathname *<pathname>* **is not a directory.**

CAUSE The target *<pathname>* on the command line was expected to be a directory. Either the target does not exist or the target is not a directory.

ACTION Make sure the target exists and that it is a directory. Then retype the **RCP** command so the target is a directory.

RCP1003: Directory *<pathname>* **not copied; '-r' option not specified.**

CAUSE A directory was specified as a source path in the **RCP** command, but the **-r** option was not specified.

ACTION This message acts as an information message. If the directory specified by *<pathname>* is to be copied, retype the **RCP** command using the **-r** option.

RCP2000: Unable to open local file <*filename*>.

CAUSE A local file <*filename*> could not be opened. This could be caused by improper spelling, improper path specification, or an attempt to open a read-only file for writing.

ACTION Check the spelling, pathname syntax, and protections for the specified filename.

RCP2001: Unable to read from local file <*filename*>.

CAUSE A local file <*filename*> could not be read. Currently, this error can happen only if the file is locked by some other program.

ACTION Determine if another program has the file open. If the error persists, reboot the computer to reset all of the open files.

RCP2002: Unable to write to local file <*filename*>.

CAUSE A write was attempted to a read-only file, or the disk is full.

ACTION Check file protections on <*filename*>. Also, verify that the disk to which the file was being written is not full.

RCP2003: Unable to set timestamp on local file <*pathname*>.

CAUSE An attempt to modify the timestamp on <*filename*> failed. This error will occur only when the **-p** option is used in the **RCP** command. The error occurs if <*pathname*> already exists and the file is open with read-only privilege or if too many files are already open in the system.

ACTION If the timestamp on the <*pathname*> is not important, retry the **RCP** command without the **-p** option. If the timestamp must be maintained, verify that <*pathname*> does not exist already as read-only and other programs are not holding files open in the system.

RCP2004: Unable to create directory <*pathname*>.

CAUSE An attempt to create directory <*pathname*> failed. Either the <*pathname*> was incorrectly specified or the <*pathname*> is already specified as a filename.

ACTION Check the <*pathname*> specification to verify that such a directory could be created. Also, verify that <*pathname*> does not already exist as a filename.

RCP2005: Filename too long: <*pathname*>.

CAUSE The extended filename <*pathname*> was too long for internal buffers. This can happen when transferring directories recursively from remote systems with deeply nested directory trees.

ACTION Reenter **RCP** commands that transfer smaller portions of the directory trees from the remote system.

RCP3000: Network software not loaded.

CAUSE The network transport or the sockets interface has not been loaded prior to attempting to run RCP.

ACTION Verify that both the transport and the sockets interface are loaded. Then try to run RCP.

RCP3001: Internal networking error (<*errmsg*> - <*number*>**).**

CAUSE An attempt to interact with the network has failed. <*errmsg*> is a text message describing the type of networking error that has occurred. <*number*> is an internal error code number that may be useful when calling your HP support contact.

ACTION The connection will be aborted, and in most cases, the RCP application will also be aborted. Try rebooting and reloading the network. If the error persists, contact your network administrator. The network administrator should follow the suggestions in the "Using ARPA Services" troubleshooting checklist in chapter 3.

RCP3002: Invalid or unknown host: <*hostname*>.

CAUSE RCP was unable to match <*hostname*> to an IP address. This may be caused by improper spelling of the hostname, or by a hostname which has not been registered on the network (or listed in a host file).

ACTION If the host file is being used for name-to-IP address resolution, check the spelling of the hostname and ensure that the hostname is included in the host file. If the hostname does not work, try using the IP address in the command. For information about IP addresses and hostnames, refer to the *User's Guide -- HP ARPA Services 2.1/MS-DOS*.

RCP3003: Unable to connect to <*host*> (<*reason*>).

CAUSE RCP was unable to initiate a connection to the specified host. <*reason*> is a text message indicating the cause of the failed connection. The reason for the failed connection may be one of the following:
- The connection timed out. For example, a time out expired before the connection was established.
- The host is unreachable. For example, the host is not running or its IP address is configured incorrectly.
- Insufficient network resources on the network or local PC.

ACTION Try to connect later. If the error persists, contact your network administrator. The network administrator should follow the suggestions in the "Using ARPA Services" troubleshooting checklist in chapter 3.

RCP3004: Unexpected loss of session.

CAUSE The session with the remote host has been unexpectedly lost.

ACTION Retry the **RCP** command to reestablish a connection to the remote host. If this fails, reboot and retry the command. If this also fails, contact your network administrator. The network administrator should follow the suggestions in the "Using ARPA Services" troubleshooting checklist in chapter 3.

RCP4000: Remote error: *<errmsg>*.

CAUSE The remote side of the RCP session has encountered an error condition described by *<errmsg>*.

ACTION Because RCP can connect to many different kinds of remote hosts, no specific action can be described. If the text in *<errmsg>* does not clearly indicate what must be done to correct the error, contact the administrator for the host system to which RCP is connecting.

RCP4001: Protocol violation by remote host: *<reason>*.

CAUSE The remote side of the RCP session has transmitted data to the local RCP side that violates the RCP protocol. More detailed information on the violation is given in *<reason>*.

ACTION This error cannot be corrected locally. Contact the system administrator of the remote host to determine why that system is generating invalid RCP protocol messages.

RCP5000: Out of memory.

CAUSE RCP tried to allocate memory for its internal data and failed.

If recursive copy (that is, the **-r** option) is used, the error may be caused by directories that are nested too deeply.

ACTION If possible, reduce the memory used for other programs in the system and try the command again.

If the **-r** option was used, try to copy part of the source directory using multiple RCP commands.

RSH1000 - RSH4000

This section contains a list of error messages that you may receive when using the RSH (Remote Shell) service.

RSH1000: Remote username must be specified after -l.

CAUSE The **-l** option was specified on the **RSH** command line, but no remote username was specified after the option.

ACTION Reissue the command with the appropriate username immediately following the **-l** option.

RSH1001: Local username is undefined; define ARPAUSER environment variable.

CAUSE A local username was not defined in the environment variable *arpauser*. A local username is required to connect to the remote RSH service.

ACTION Make sure the *arpauser* variable is defined as appropriate in the environment, and then retype the command. Refer to the *User's Guide -- HP ARPA Services 2.1/MS-DOS* for more information on configuration for the **RSH** command.

RSH1002: A remote command must be specified.

CAUSE No command was specified for execution on the remote host.

ACTION Reissue the **RSH** command with a remote command line.

RSH3000: Network software not loaded.

CAUSE The network transport or the sockets interface has not been loaded prior to attempting to run RSH.

ACTION Verify that both the transport and the sockets interface are loaded. Then try to run RSH again.

RSH3001: Internal networking error (<*errmsg*> - <*number*>).

CAUSE An attempt to interact with the network has failed. <*errmsg*> is a text message describing the type of networking error that has occurred. <*number*> is an internal error code number that may be useful when calling your HP support contact.

ACTION The connection will be aborted, and in most cases, the RSH application will also be aborted. Try rebooting and reloading the network. If the error persists, contact your network administrator. The network administrator should follow the suggestions in the "Using ARPA Services" troubleshooting checklist in chapter 3.

RSH3002: Invalid or unknown host: <*hostname*>.

CAUSE RSH was unable to match <*hostname*> to an IP address. This may be caused by improper spelling of the hostname, or by a hostname which has not been registered on the network (or listed in a host file).

ACTION If the host file is being used for name-to-IP address resolution, check the spelling of the hostname and ensure that the hostname is included in the host file . If the hostname does not work, try using the IP address in the command. For information about IP addresses and hostnames, refer to the *User's Guide -- HP ARPA Services 2.1/MS-DOS*.

RSH3003: Unable to connect to <*host*> (<*reason*>).

CAUSE RSH was unable to initiate a connection to the specified host. <*reason*> is a text message indicating the cause of the failed connection. The reason for the failed connection may be one of the following:
- The connection timed out. For example, a time out expired before the connection was established.
- The host is unreachable. For example, the host is not running or its IP address is configured incorrectly.
- Insufficient network resources on the network or local PC.

ACTION Try to connect later. If the error persists, contact your network administrator. The network administrator should follow the suggestions in the "Using ARPA Services" troubleshooting checklist in chapter 3.

RSH3004: Unexpected loss of session.

CAUSE The session with the remote host has been unexpectedly lost.

ACTION Retry the **RSH** command to reestablish a connection to the remote host. If this fails, reboot and retry the command. If this also fails, contact your network administrator. The network administrator should follow the suggestions in the "Using ARPA Services" troubleshooting checklist in chapter 3.

RSH4000: Remote error: *<errmsg>*.

CAUSE The remote side of the RSH session has encountered an error condition described by *<errmsg>*.

ACTION Because RSH can connect to many different kinds of remote hosts, no specific action can be described. If the text in *<errmsg>* does not clearly indicate what must be done to correct the error, contact the system administrator for the host to which RSH is connecting.

3

Initial Troubleshooting Checklists

Chapter Overview

If you cannot resolve a problem from the error message text, follow the suggestions in this chapter. To help you isolate the cause of a problem, this chapter has the following sections:

- "Using the Troubleshooting Checklists" contains information about how to use the checklists in this chapter and what to do before using them.
- "Using HP ARPA Services " has checklists to help you isolate problems using FTP, RCP, RSH, and TELNET.
- A summary matrix of the troubleshooting checklists.

Using the Troubleshooting Checklists

If you have a network problem that you cannot resolve from the error message text, you must first find the cause of the problem. The troubleshooting checklists help you isolate the cause of the problem. To use the checklists do the following:

1. Go to the checklist that describes the task you were doing when the problem occurred.
2. Check each item in the checklist.

Before Using the Troubleshooting Checklists

Troubleshooting is a process of elimination which allows you to isolate the cause of a problem. If something worked before but no longer does, consider what has changed. For example:

- Has any hardware been moved or added? This could be an added PC workstation, changed cabling, or a new PC interface card.
- Have any software applications been added?
- Have any configuration files been modified?

Concentrate your troubleshooting efforts on what has recently changed. This often solves the problem.

Note If you see an error message, refer to chapter 2, "Error Messages," before using the troubleshooting checklists.

Using ARPA Services

Refer to this section when you have problems using the HP ARPA Services, which include FTP, RCP, RSH, or TELNET. Possible problems include the following:

- Cannot start the service.
- Cannot connect to a remote computer.
- Cannot log on a remote computer.

In order to use FTP, RCP, RSH, or TELNET, the network software and the HP ARPA Services must be correctly installed, configured, and operating on the PC workstation. The remote computer that you are trying to reach must also be running the appropriate service. The following checklists help you isolate the cause of the problem.

- Go to the "Using FTP, RCP, or RSH" checklist when you have problems using these services.
- Go to the "Using TELNET" checklist when you have problems using TELNET to log on remote computers.

Remember, if something has changed since the last time the network worked correctly, investigate that item first.

Note

For problems that occur while using HP ARPA 2.1 for NetWare, refer to appendix A.

For problems that occur while using HP ARPA 2.1 over a Microsoft LAN Manager 2.1 client PC, refer to appendix B.

For problems that occur while you are using a Windows application that was not developed by Hewlett-Packard, but which requires HP ARPA Services 2.1 for network support, contact the vendor of the application or refer to the application's documentation.

Using FTP, RCP, or RSH

Check that the value entered for Socket Sessions in Netsetup is greater than zero.

The range for this field is 0-22, but configuring Socket Sessions for zero disables it.

Check that the transport loads successfully.

Before you can use FTP, RCP, or RSH, the transport (TCPTSR.EXE) and the BSD sockets interface (SOCKETS.EXE) must be loaded. Reboot or reload and check if the transport loads successfully.

a. If errors occur (the loading process will pause if an error is encountered) and one or more error messages are displayed, look them up in chapter 2. If several messages are displayed, be sure to look up all of them.

b. If the transport loads successfully, continue with the next item in this checklist.

Check the FTP, RCP, or RSH command syntax.

Make sure you are using the correct command syntax, and that the command does not contain illegal characters. Also, check that you are using the correct login name and password, and that the command is implemented on the remote computer.

Check that the computer name or IP address of the remote computer is correct.

You can identify a remote computer either by specifying a hostname or by using an IP address of the remote computer in the command. If you specify a hostname, the system first uses an ARPA domain name and an NS domain name in an attempt to resolve the name entered to find its matching IP address.

If the ARPA domain and NS domain are not configured correctly in PROTOCOL.INI or if the system is not able to resolve the name on the network, the system tries to resolve the name using a host table file. Depending on whether you use a hostname or an IP address, check the following:

- If you are using a hostname, check the following in the order specified.

  a. **Check the ARPA domain name and NS domain name.** Make sure the domain name exactly matches that of the remote computer. Because the system uses both ARPA domain and NS domain in an attempt to resolve the hostname on the network, you must check both.

  b. **Check the host table file** (if the PC workstation is using a host table file). Make sure that the host table file, called HOSTS, is present in the directory specified by the NETFILES parameter in the TCPGLOBAL section of PROTOCOL.INI. (If NETFILES is not specified in PROTOCOL.INI, the system looks for the host table file in the C:\ETC directory.) Also make sure that the hostname and IP address in the host table file match those of the remote computer.

  If the system still cannot resolve the name after you have checked the ARPA domain, NS domain, and host table file, try using the IP address in the command.

- If you are using the IP address of the remote computer in the command, make sure the IP address is entered correctly.

Verify that the values for the IP address, subnet mask, and default gateway for your PC workstation are correct.

For more information about these values, refer to chapter 2 of the *Installation Guide – HP ARPA 2.1 Services/MS-DOS*.

Check the PC configuration files.

- If you installed HP ARPA Services as a standalone product, or over an HP LAN Manager PC, make sure the following lines are in your NET_STRT.BAT file:

```
NETBIND
UMB
TCPTSR
DNRTSR
PROBE
SOCKTSR
```

  The TCPTSR and SOCKTSR lines may have optional parameters on their lines. DNR and PROBE are optional services that attempt to resolve the name on the network.

- If you installed HP ARPA Services on a Microsoft LAN Manager PC, make sure the following message is displayed when the transport loads:

```
TCP/IP successfully loaded
```

After the transport loads, verify that CONFIG.SYS contains the following lines:

```
DEVICE=PROTMAN.DOS
DEVICE=NEMM.SYS
DEVICE=ELNK.DOS
DEVICE=TCPDRV.DOS
```

These lines should appear regardless of the type of HP ARPA installation. The NDIS driver may have a different name than `ELNK.DOS`.

Check the Windows 3.x configuration.

Running HP ARPA Services from Windows 3.*x* requires proper configuration of Windows.

If you are having problems running under *real* or *standard* mode, be sure that you are running in full screen mode and are running the application in the foreground only. It is best to run all network applications using the provided PIF files.

If you are having problems running under *enhanced* mode, make sure that your Windows SYSTEM.INI configuration file is set up properly for support of the network. Check that your Windows directory is included in your path so that automatic configuration will properly modify SYSTEM.INI.

Try to use FTP, RCP, or RSH from another PC workstation.

If you can use the FTP, RCP, or RSH from an alternate PC workstation to the same server, the problem may be the configuration of your PC workstation or the remote computer may be denying access to you in particular. Check and compare the differences between the NET_STRT.BAT, CONFIG.SYS, and PROTOCOL.INI configuration files of your PC workstation and the PC workstation that works. If the configurations are identical, the problem may be on the remote computer.

If you cannot use the FTP, RCP, or RSH from the alternate PC workstation, the network may be down. Go to chapter 4, "Troubleshooting Networks."

Check that the remote computer is running the appropriate service.

Contact the system administrator for the remote computer to verify the following:

- Make sure that the remote computer is up and that it is running the appropriate service.
- Make sure that a valid account exists on the remote computer.
- Make sure that the maximum number of sessions are not exceeded.
- Make sure that your LAN is connected to the gateway. (Only necessary if a gateway exists between the local and host computer.)
- Make sure that a `.rhosts` file is set up on the user account on the host. (For RCP and RSH only)
- Make sure the remote computer can determine the hostname of the PC by using the PC's IP address (for example, by using a host table file). Refer to the *User's Guide – HP ARPA Services 2.1/MS-DOS* (for RCP and RSH only).

Continue troubleshooting in chapter 4.

If you cannot solve the problem through the solutions in this checklist, you may have a problem with the network hardware or incompatible configurations. To continue troubleshooting, go to chapter 4, "Troubleshooting Networks." Chapter 4 explains how to isolate a problem to a particular segment of the network.

Using TELNET

Check that the value entered for Telnet Sessions in Netsetup is greater than zero.

The range for this field is 0-22, but configuring `Telnet Sessions` for zero disables TELNET.

Check that the transport loads successfully.

Before you can use TELNET, the transport must be loaded and HP ARPA Services must be running. Reboot or reload, and check if the transport loads successfully.

a. If errors occur (the loading process will pause if an error is encountered), reference them in chapter 2. If you see several messages, be sure to look up all of them.

b. If no errors occur but the transport does not load, run the WHAT.EXE utility that comes with your HP PC networking software. This utility tells you the software version that you are running. Note this information and then call your HP support contact.

c. If the transport loads successfully, continue with the next item in this checklist.

Check that the computer name or IP address of the remote computer is correct.

You can identify a remote computer either by specifying a hostname, or by using an IP address of the remote computer in the command. If you specify a hostname, the system first uses an ARPA domain name and NS domain name in an attempt to resolve the name entered to find its matching IP address.

If the ARPA domain and NS domain are not configured correctly in PROTOCOL.INI or if the system is not able to resolve the name on the network, the system tries to resolve the name using a host table file. Depending on whether you use a hostname or an IP address, check the following:

- If you are using a hostname, check the following:

  1. Check the ARPA domain name and NS domain name. Make sure the domain name exactly matches that of the remote computer. Because the system uses both ARPA domain and NS domain in an attempt to resolve the hostname on the network, you must check both.

  2. Check the host table file (if the PC is using a host table file). Make sure that the host table file, called `HOSTS`, is present in the directory specified by the `NETFILES` parameter in the `TCPGLOBAL` section of PROTOCOL.INI. (If `NETFILES` is not specified in PROTOCOL.INI, the system looks for the host table file in the C:\ETC directory.) Also, make sure that the hostname and IP address in the host table file match those of the remote computer.

  If you change (or add) the `NETFILES` parameter after the BAPI interface has been loaded, either unload and reload BAPI, or reboot your PC. This enables your system to recognize the new `NETFILES` value.

  There is no local host table file support for the CVT interface.

  If the system still cannot resolve the name after you have checked the ARPA domain, NS domain, and host table file, try using the IP address in the command.

- If you are using the IP address of the remote computer in the command, make sure the IP address is entered correctly.

Check that the values for the IP address, subnet mask, and default gateway for your PC workstation are correct.

For more information about these values, refer to chapter 2 of the *Installation Guide – HP ARPA 2.1 Services/MS-DOS*.

Check the PC configuration files.

- If you have installed HP ARPA as a standalone product, or over an HP LAN Manager PC, make sure the following lines are in your NET_STRT.BAT file:

```
NETBIND
UMB
TCPTSR
DNRTSR
PROBE
TN
BAPI
CVT
```

  TELNET uses two interfaces: BAPI and CVT. The BAPI interface is installed by default with Netsetup. BAPI is needed even if CVT is used. CVT is installed only if you select `yes` for the `AdvanceLink for DOS` option in Netsetup.

  `DNR` and `PROBE` are services that attempt to resolve the name on the network.

- If you installed HP ARPA Services on a Microsoft LAN Manager PC, make sure the following message is displayed when the TCP transport loads:

```
TCP/IP successfully loaded
```

For any service that has been installed, verify that the parameters in the appropriate section of PROTOCOL.INI are correct.

Check the Windows 3.x configuration.

Running HP ARPA Services from Windows 3.*x* requires proper configuration of Windows.

If you are having problems running under *real* or *standard* mode, be sure that you are running in full screen mode and are running the application in the foreground only. It is best to run all network applications using the provided PIF files.

If you are having problems running under *enhanced* mode, make sure that your Windows SYSTEM.INI configuration file is set up properly for support of the network. Check that your Windows directory is included in your path so that automatic configuration will properly modify SYSTEM.INI.

Try to use TELNET from another PC.

If you can use the TELNET service from an alternate PC to the same server, the problem may be the configuration of your PC, or the remote computer may be denying access to you in particular. Compare the differences between the NET_STRT.BAT, CONFIG.SYS, and PROTOCOL.INI configuration files of your PC and the PC that works. If the configurations are identical, the problem may be on the remote computer.

If you cannot use TELNET from the alternate PC, the network may be down. Go to chapter 4, "Troubleshooting Networks."

Make sure the remote computer is running the appropriate service.

Contact the system administrator for the remote computer to verify the following:

- Make sure the remote computer is up and is running the appropriate TELNET services.
- Make sure that your LAN is connected to the gateway (if a gateway exists between the local and host computer).

Continue troubleshooting in chapter 4.

If you cannot solve the problem through the solutions in this checklist, you may have a problem with the network hardware or incompatible configurations. To continue troubleshooting, go to chapter 4, "Troubleshooting Networks." Chapter 4 explains how to solve a problem with the network hardware or an incompatible configuration.

Summary of the Troubleshooting Checklists

The matrix shown in Table 3-1 summarizes the troubleshooting checklists in this chapter. Once you are familiar with the checklists, you can use the matrix as a quick reference guide.

Table 3-1. Summary of HP ARPA Checklists

ACTION	ftp/rcp/rsh	telnet
Check that the transport loads successfully.	x	x
Check the command syntax.	x	
Check that the computer name or IP address of the remote computer is correct.	x	x
Check the configuration files.	x	x
Try to use the service from another PC.	x	x
Check that the remote computer is running the appropriate service.	x	x

4

Troubleshooting PC Networks

Chapter Overview

Before you start this chapter, we assume you have tried the solutions offered in chapter 2, "Error Messages" or chapter 3, "Initial Troubleshooting Checklists." If the solutions in those chapters did not work, you probably have either a problem with network hardware or incompatible configurations.

This chapter begins with a description of how to isolate a problem to an individual physical network segment. A large network may comprise several physical network segments. These physical network segments are referred to in this chapter as segments.

Once you have isolated a faulty segment, follow the troubleshooting procedures in the documentation for your specific network.

Network Problems

If you have tried the solutions in chapters 2 and 3 and you have not been able to resolve the problem, you probably have identified two computers on the network that are not communicating properly. For example, a local PC cannot access a remote computer that has HP ARPA Services available.

The procedures in this chapter direct you to use these two computers (referred to as the "problem" computers) whenever possible to expedite troubleshooting. For example, a procedure step may ask you to select two computers on the network and attempt communication between them. In these cases, use the two "problem" computers whenever possible.

Note Use at least one of the two computers (used to originally identify a problem) for the procedures in this chapter.

Problem Segments

If you have several segments on you network, your first step is to identify the segment causing the problem. If your network does not have multiple segments, skip the following sections and go directly to the troubleshooting procedure in this chapter for your specific network.

Figure 4-1 shows an example of a network with three segments.

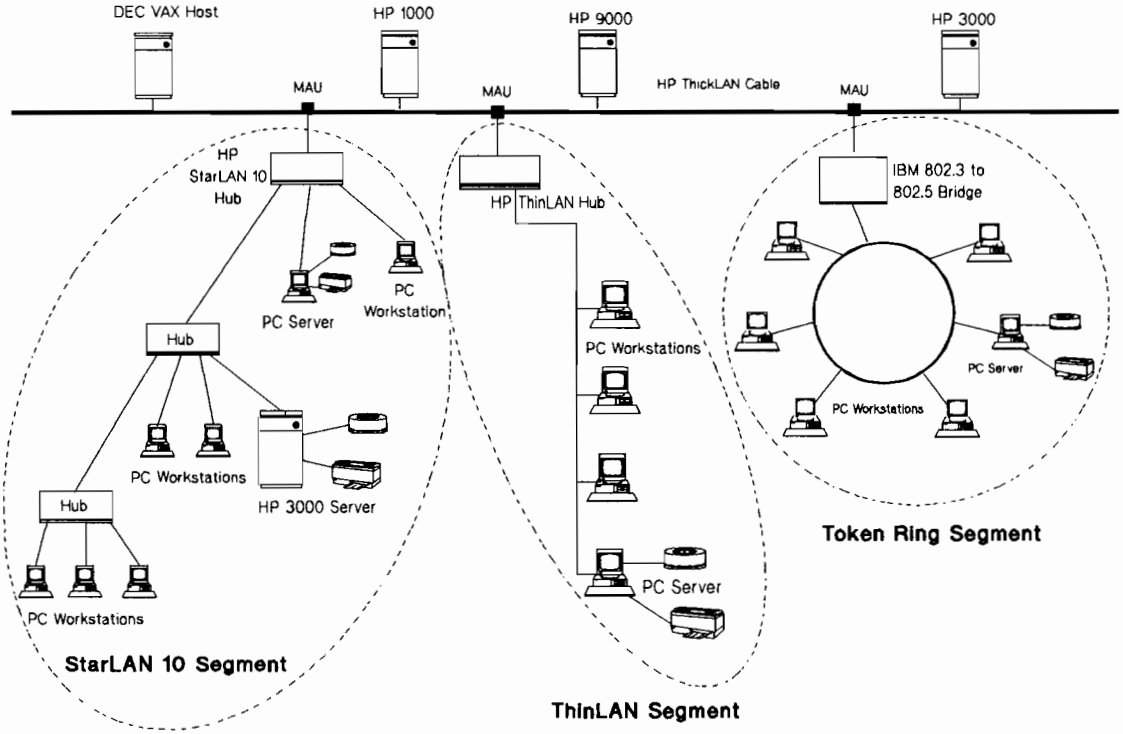

Figure 4-1. Example of a Network with Multiple Segments

A segment is defined as follows:

- A StarLAN 10/Ethernet segment consists of all computers connected directly (or indirectly via intermediate hubs) to a single head hub via unshielded twisted-pair cables.
- A ThinLAN segment consists of all computers connected to a single thin coaxial cable segment that consists of one or more cable sections.
- A Token Ring segment consists of all computers connected directly to a single hub or bridge via fiber optics or twisted-pair cable.

The steps to troubleshoot a LAN with several segments are as follows:

1. **Isolate the faulty segment.**

   Use the steps explained in "Identifying the Faulty Segment," which starts on the next page, to isolate the faulty segment. If both of the original problem computers are on the same segment, that segment is clearly faulty. Go to the next step.

2. **Go to the troubleshooting procedure in this chapter for your specific network.**

   Use the troubleshooting procedure in the documentation for your specific network to isolate the fault to an individual component on the network such as interface cards, interconnecting cable, or hub.

Identifying the Faulty Segment

The flowchart shown in figure 4-2 gives an overview of the procedure designed to isolate a faulty segment. The flowchart is explained in detail on the next six pages. The numbers on the top left of the boxes correspond to the steps used in the procedure. Once you are familiar with the procedure steps, use the flowchart as a quick reference guide. If you are unfamiliar with any terms, see the glossary.

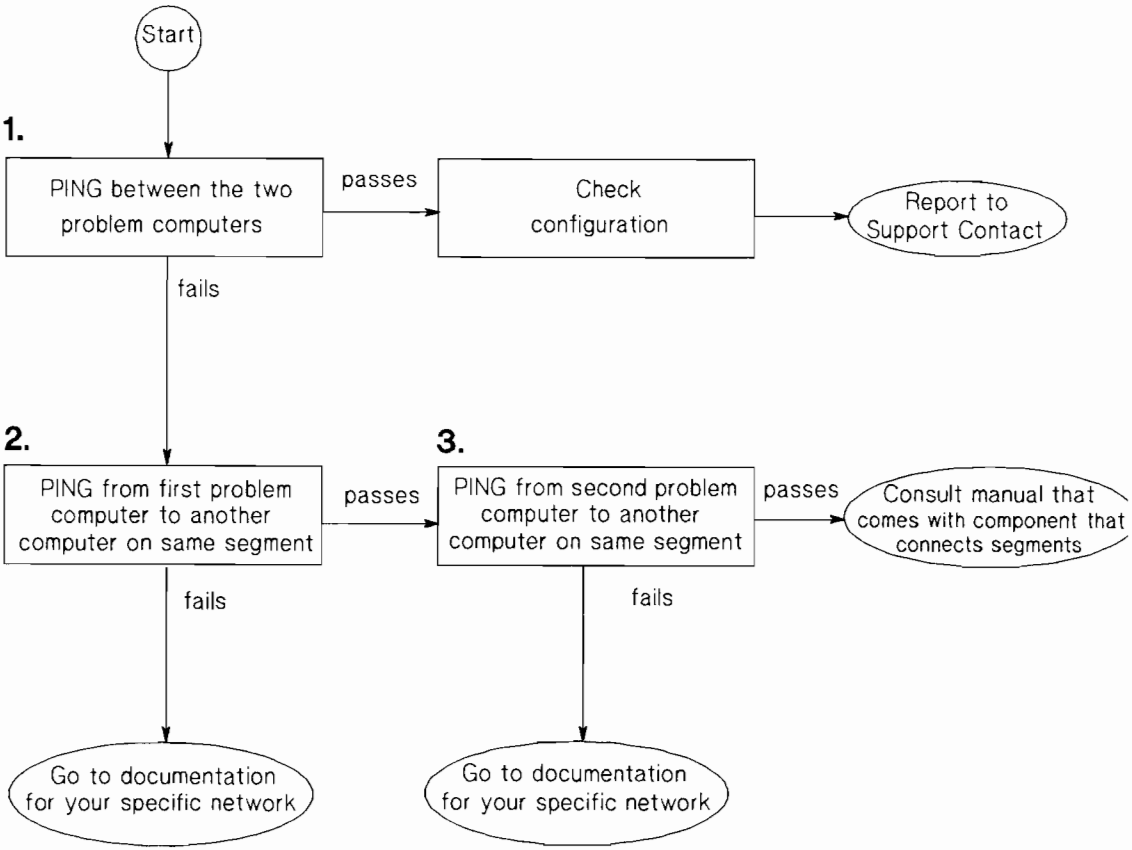

Figure 4-2. Segment Troubleshooting Flowchart

Use the procedure to isolate a faulty segment if your network consists of multiple segments, and you don't know which segment is the cause of the problem. The procedure tries to isolate a faulty segment by testing each segment until you find the problem segment. When you have identified the problem segment, go to the troubleshooting procedure in the documentation for your specific network. In order to make it easier for the troubleshooting procedure to refer to a given segment, designate one of the segments as the first segment and the other segment as the second segment. See figure 4-3 for an illustration.

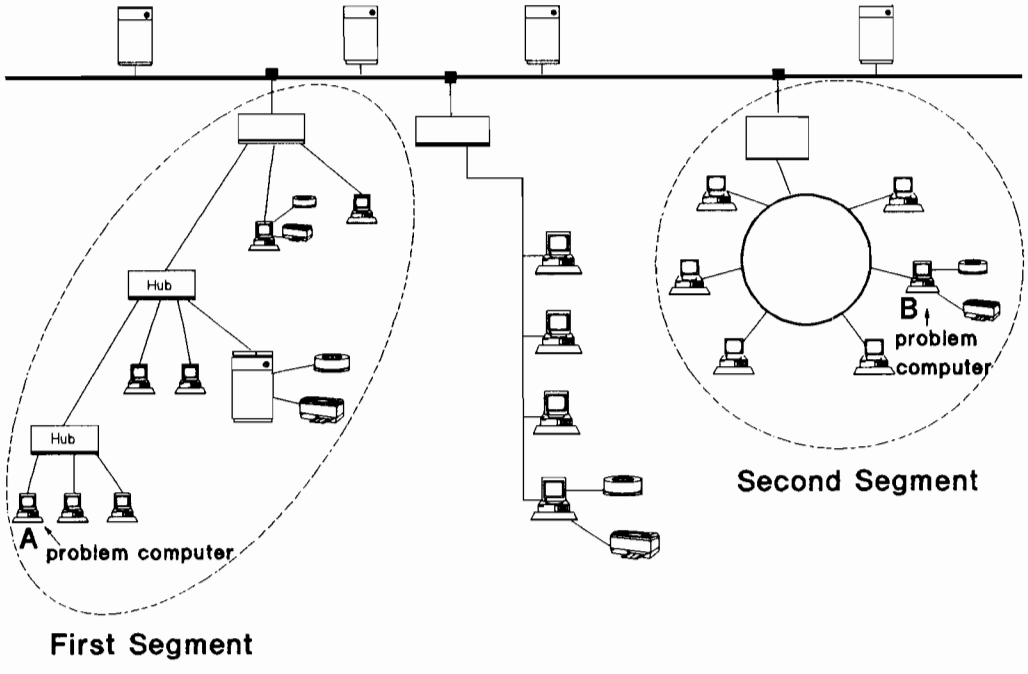

Figure 4-3. Example of Two Segments

1. **Test the network connection between the two problem computers.**

   Select the two computers that you suspect are not working properly and run the NetDiag PING Connectivity Test. The PING Connectivity Test is a quick and easy test to verify whether the two computers can communicate. NetDiag instructions are in chapter 5, "Diagnosing Problems with NetDiag."

   Figure 4-4 shows an example of the path between the two problem computers.

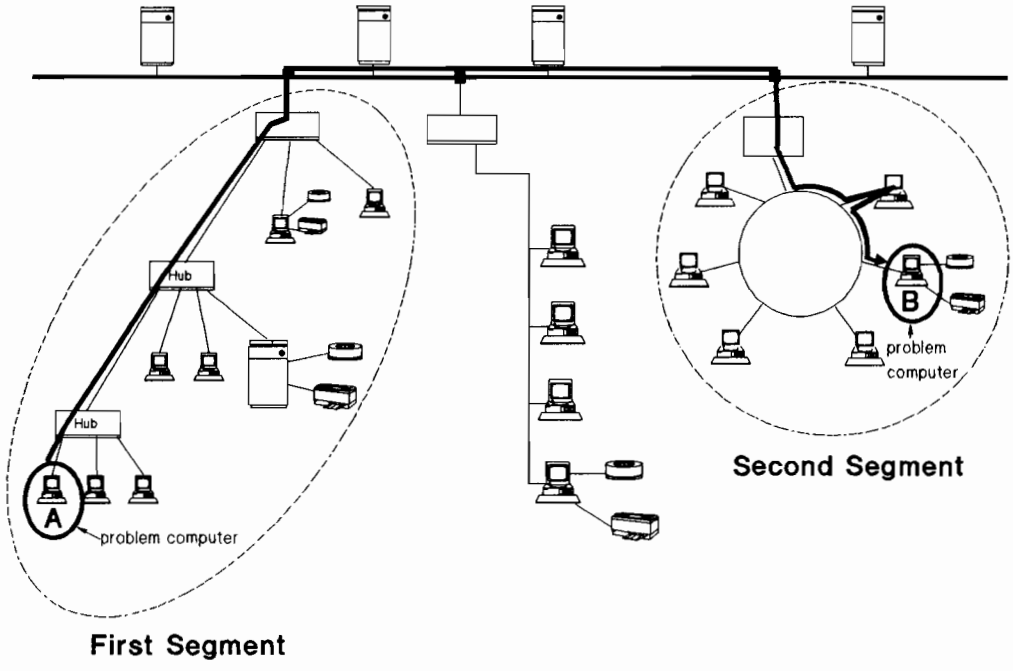

Figure 4-4. Example of Path Between Two Problem Computers

If the PING Connectivity Test passes, the problem is most likely either in the PROTOCOL.INI configuration file or with the IP addresses.

Check the following in the PROTOCOL.INI configuration file:

- Check the following parameters in the TCPIP section:
  - `TCPCONNECTIONS=`. Check that the maximum number of connections set up for TCP/IP are not exceeded.
  - `TCPWINDOWSIZE=`. Check that the maximum amount of data accepted by the station in a single packet is within the valid range.

For information about PROTOCOL.INI, refer to the *Installation Guide – HP ARPA Services 2.1/MS-DOS*.

Check the following IP address items:

- Check that the PC workstation and the host/server have the same IP address class. For information about IP address classes, refer to the *Installation Guide – HP ARPA Services 2.1/MS-DOS*.
- Check that the Subnet Mask is set correctly.
- Check that there are no duplicate IP addresses on the network. For example, someone else may be using the IP address assigned to you.
- If two computer are communicating through a gateway, make sure the IP address for the default gateway is configured.

If you still have problems after checking PROTOCOL.INI and IP addresses, call your HP support representative. For more information, see "Reporting Problems to Your HP Support Representative" in the introduction of this manual.

If the PING Connectivity Test fails, verify that the IP address is correct. If the problem is not with the IP address, the problem may be with a physical network segment or the interconnecting components (cables, bridges, MAUs, hubs, gateways). To further isolate the fault, go to the next step.

2. **Select one of the segments to troubleshoot first.**

   Select two computers on the first segment. One of the computers should be a problem computer. Run the PING Connectivity Test to see if the two computers can communicate. If the first segment has only one computer, use the Link Self Test to determine whether that computer can communicate over the network.

Note If you select two computers on a StarLAN 10 segment that has more than one hub, make sure the path goes through the head hub.

Figure 4-5 shows an example of the path between two computers on the first segment.

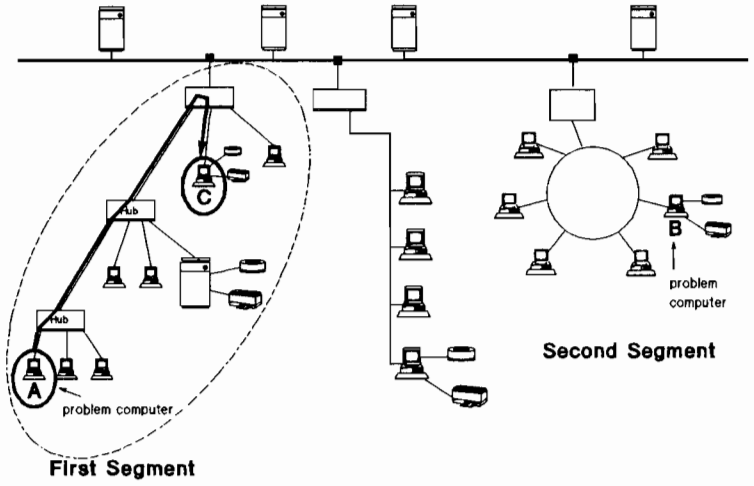

Figure 4-5. Example of Path on the First Segment

If the PING Connectivity Test passes, the problem is on the second segment or the interconnecting components (cables, bridges, MAUs, hubs, gateways). Go to the next step.

If the PING Connectivity Test fails, this segment is faulty. Go to the appropriate troubleshooting procedure in the documentation for your network.

3. **Determine whether the computers on the second segment can communicate.**

Select two computers on the second segment. One of the computers should be a problem computer. Run the PING Connectivity Test from the problem computer on the second segment to another computer on the same segment to see if the two computers can communicate. If the second segment has only one computer, use the Link Self Test to determine if that computer can communicate over the network.

Figure 4-6 shows an example of the path between two computers on the second segment.

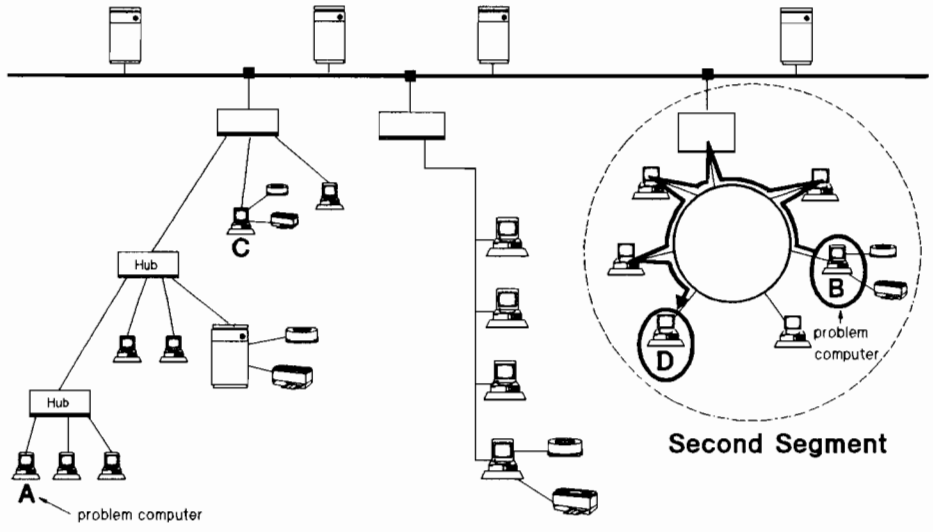

Figure 4-6. Example of Path on the Second Segment

If the PING Connectivity Test passes, the problem lies with the component(s) that connect the segments. Check the following items:

- Check that switches on hubs and MAUs are set for normal operation.
- Check that LEDs on hubs and MAUs indicate that power is being supplied to the devices.
- Check that the cable connecting the segments is intact.

For more information about how to check and diagnose connecting components, such as cables, bridges, MAUs, gateways, and hubs, refer to the appropriate hardware manual for the component.

If the PING Connectivity Test fails, this segment is faulty. Go to the appropriate troubleshooting procedure in the documentation for your network.

Troubleshooting Your Specific Network

After you have isolated a faulty segment, use the troubleshooting procedures in the documentation for your specific network to further isolate the fault to an individual component on the network. Components include LAN interface cards, interconnecting cable, hubs, or bridges.

If you have network hardware from Hewlett-Packard, the *Error Messages and Troubleshooting Guide: HP LAN Manager* contains hardware troubleshooting procedures for segments of HP ThinLAN, HP StarLAN 10, and token ring networks. Hardware troubleshooting procedures for HP EtherTwist networks are described in the *Technical Reference Guide for Site LANs and Multisite LANs*.

5

Diagnosing Problems with NetDiag

Chapter Overview

This chapter describes the NetDiag utility and how you can use it to resolve problems with network connections. It includes the following information:

- A general description of the NetDiag utility.
- The procedure for using the NetDiag utility.
- An explanation of how and when to use the NetDiag Status and Test menus.

Figure 5-1 gives an overview of the items covered in this chapter.

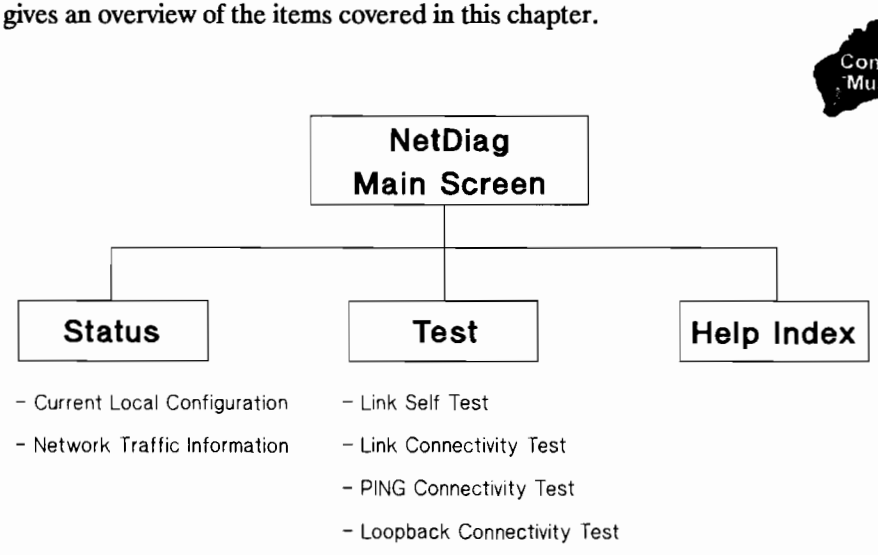

Figure 5-1. NetDiag Overview

What Does NetDiag Do?

NetDiag is a diagnostic utility that runs on any PC workstation using the TCP/IP transport. NetDiag enables you to do the following:

- Get network status information to help you monitor a PC workstation's performance.
- Test the network hardware and check the network transport software connection between a PC workstation and a remote computer.

The remote computer you are testing can be another personal computer used as a PC workstation; an HP 1000, HP 3000, or HP 9000; a DEC VAX computer; or a computer running ARPA Services.

Running the NetDiag Utility

Using NetDiag involves loading the software, starting the utility, and selecting and executing the desired diagnostic options.

The NetDiag utility is provided in compressed form on the *HP ARPA 2.1 Supplemental* flexible disk. Before using this utility, you must copy the utility to your hard drive and decompress it. To do this, complete the following instructions:

1. Copy the NETDIAGA.EXE file from the \DIAG directory on the *HP ARPA 2.1 Supplemental Disk* to your hard disk.

2. From the DOS prompt, type:

   ```
   netdiaga
   ```

   Executing the `netdiaga` command constructs the NetDiag utility on your hard disk. Now you can run the NetDiag utility directly from your hard disk.

3. From the DOS prompt, type:

   ```
   netdiag
   ```

   The main menu is displayed.

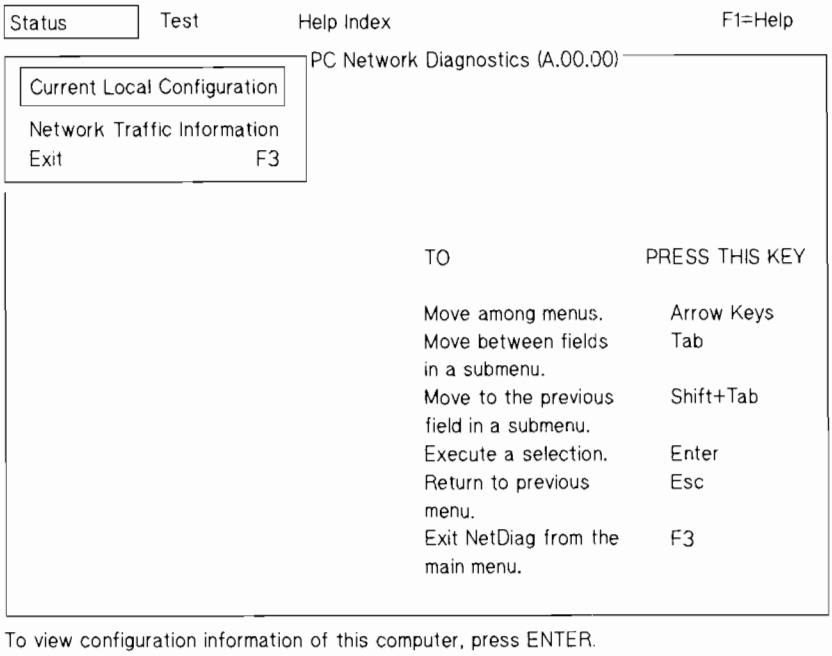

Figure 5-2. NetDiag Main Menu Screen

Figure 5-2 shows the Main menu screen of the NetDiag utility. The screen has the following menus:

- Status.
- Test.
- Help Index.

Select the Status menu when you want information about your configuration status or network statistics. Select the Test menu when you want to test the network. The next two tables explain each item of the Status and Test menus. Select the Help Index menu when you want help information.

Table 5-1. Information Available through the Status Menu

Select the Status menu item	To find out about
Current Local Configuration	Configuration parameters on your computer such as network status, computer name, software version number, IP address, subnet mask, and interface card address.
Network Traffic Information	Statistics that indicate network performance and some error conditions.

Table 5-2. Tests Available in the Test Menu

Select the Test menu item	To check whether
Software Version Test	This test is not supported with HP ARPA Services 2.1. To check the version of your networking software, use the WHAT.EXE utility on the ARPA *Installation* disk.
Link Self Test	The network cable connection and interface card of your computer are operating correctly.
Link Connectivity Test	Your computer can connect directly to the remote computer you are trying to contact. Run this test to verify that you can communicate with the remote computer. (Data link level test)
PING Connectivity Test	Your computer can communicate directly with the remote computer using the network software. Run this test to find out possible problems with incompatible IP addresses. (IP level test)
Loopback Connectivity Test	Your computer can communicate directly with the remote computer using the network software. This is a backward compatibility test. That is, you run this test when you want to test a computer running HP ARPA Services (TCP level test).

Note

You can get Current Local Configuration information without the network loaded. However, the network must be loaded to run the Link Self Test, Link Connectivity Test, PING Connectivity Test, and Loopback Connectivity Test.

How to Navigate

Table 5-3 shows how to move between screens, make menu selections, and run tests.

Table 5-3. How to Navigate in the NetDiag Utility

Use this key	To perform this action
Arrow keys	Select a menu item
F1 key	Get help
Tab key	Move between fields in a submenu
Esc key	Return to previous screen
Enter key	Execute a selection
F3 key	Exit NetDiag from the main menu

The rest of this chapter provides detailed explanations of each of the NetDiag menu items.

Getting Status Information

The Status menu has two menu items:

- `Current Local Configuration.`
- `Network Traffic Information.`

The `Current Local Configuration` menu item provides information about your current configuration parameters such as software version number, computer name, IP address, and interface card address. You need to know this information in order to run the NetDiag utility tests. Table 5-4 has a detailed description about how and when to use the information of each menu item of the `Current Local Configuration` screen.

The `Network Traffic Information` menu item monitors network performance. You would check this menu item, for example, to see if packets can successfully be sent or received over the network.

Current Local Configuration Screen

Table 5-4. Current Local Configuration Screen

Label	How it helps
Network status	Indicates whether the network software is loaded. The network software must be loaded before you can run the Link Self Test, Link Connectivity Test, PING Connectivity Test, or Loopback Connectivity Test. The Software Version Test is not supported with HP ARPA 2.1.
Computer name	Indicates the name of your computer. Before you run the Loopback Connectivity Test and the PING Connectivity Test, you need to know the computer name of the remote computer you are trying to contact. If the remote computer is a PC, you can obtain the correct computer name by running NetDiag on the remote computer. If the remote computer is not a PC, contact the administrator in charge of that computer.
Software version	This feature is not supported with ARPA Services 2.1. To verify the version of your networking software, use the WHAT.EXE utility on the ARPA *Installation* disk.
IP address	Indicates the IP address. Before you run the PING Connectivity Test, you need to know the IP address of the remote computer you are trying to contact. If the remote computer is a PC, you can obtain the correct IP address by running NetDiag on the remote computer. If the remote computer is not a PC, contact the administrator in charge of that remote computer.
Subnet mask	Indicates the subnet mask associated with your computer's IP address. To verify the subnet mask, see the *Installation Guide – HP ARPA 2.1 Services/MS-DOS*.
Interface address	Indicates the interface card address. Before you run the Link Connectivity Test, you need to know the interface card address of the remote computer you are trying to contact. If the remote computer is a PC, you can obtain the correct interface card address by running NetDiag on the remote computer. If the remote computer is not a PC, contact the administrator in charge of that remote computer.

Network Traffic Information Screen

The `Network Traffic Information` menu item provides statistics on the following:

- Network hardware.
- Internet Control Message Protocol (ICMP).
- Internet Protocol (IP).
- Transmission Control Protocol (TCP).
- User Datagram Protocol (UDP).

Network statistics indicate the amount of traffic on the network or if packets of data can be sent or received. To interpret the statistics, you need to know the TCP/IP protocols. For information about specific statistics, refer to **RFC (Request for Comments)** number 1066, *Management Information Base for Network Management of TCP/IP-based Internets.*

Testing the Network

The Test menu has five menu items. A description of each test available from the menu, and diagrams showing what each test is checking follow.

Software Version Test

The Software Version Test is not supported for HP ARPA Services 2.1. If you try to run it, it will either not work at all, or will report potentially incorrect results.

Link Self Test

The Link Self Test checks whether the network cable connection and interface card of your computer are operating correctly.

Note If you have an HP StarLAN 10 interface card, you must set the LOOPBACK switch to the test position before you run the Link Self Test. Refer to the documentation included with your StarLAN 10 interface card.

The shaded area in figure 5-3 shows the components checked by the Link Self Test.

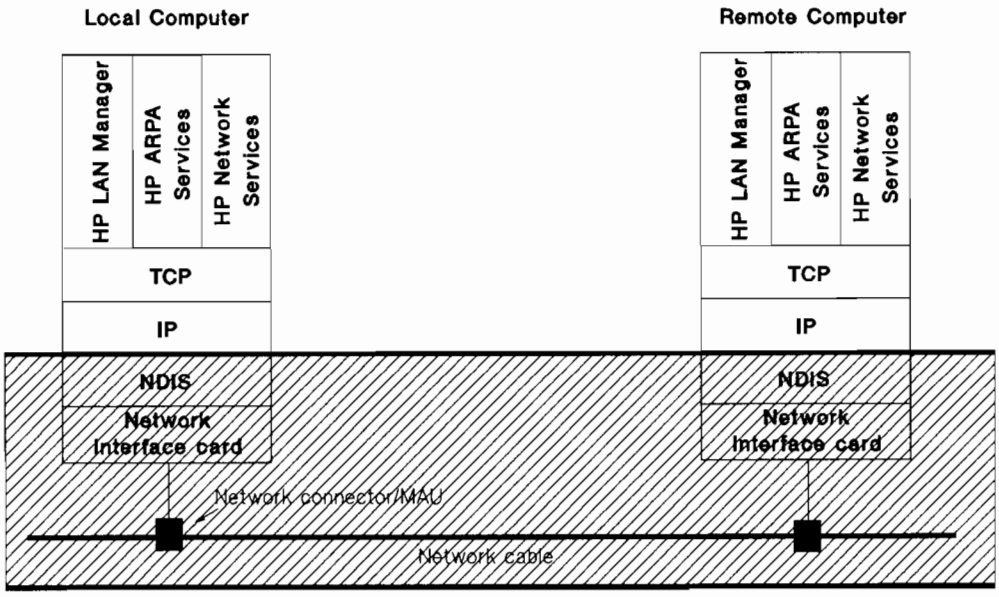

Figure 5-3. Link Self Test

To run the Link Self Test, from the NetDiag main menu, highlight `Link Self Test`, press Enter, and follow the instructions on the screen. Refer to the online help to interpret the test results.

Link Connectivity Test

The Link Connectivity Test checks whether your computer can connect directly to the remote computer at the data link level.

The shaded area in figure 5-4 shows the components checked by the Link Connectivity Test.

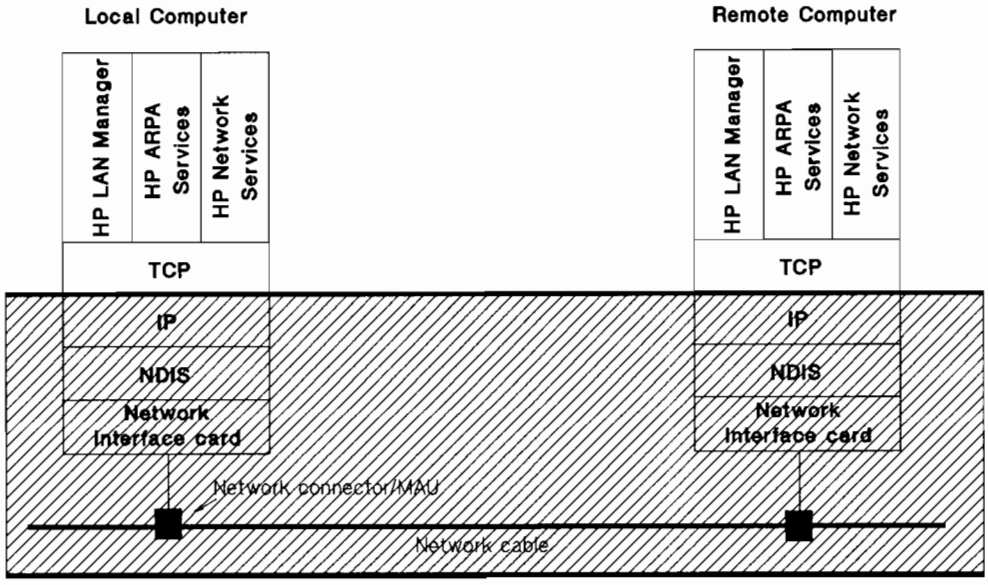

Figure 5-4. Link Connectivity Test

To run the Link Connectivity Test, from the NetDiag main menu, highlight `Link Connectivity Test`, press Enter, and follow the instructions on the screen. Refer to the online help to interpret the test results.

`Set Options` allows you to test several computers on the network at the same time and to change the roundtrip timeout, the size of the test packets, the number of times the test is repeated, and save addresses to a file. If you want to test several computers, see "Testing Several Computers at the Same Time" later in this chapter.

PING Connectivity Test

The PING Connectivity Test checks whether your computer can communicate directly with the remote computer at the IP level using the network software. The shaded area in figure 5-5 shows the components checked by the PING Connectivity Test.

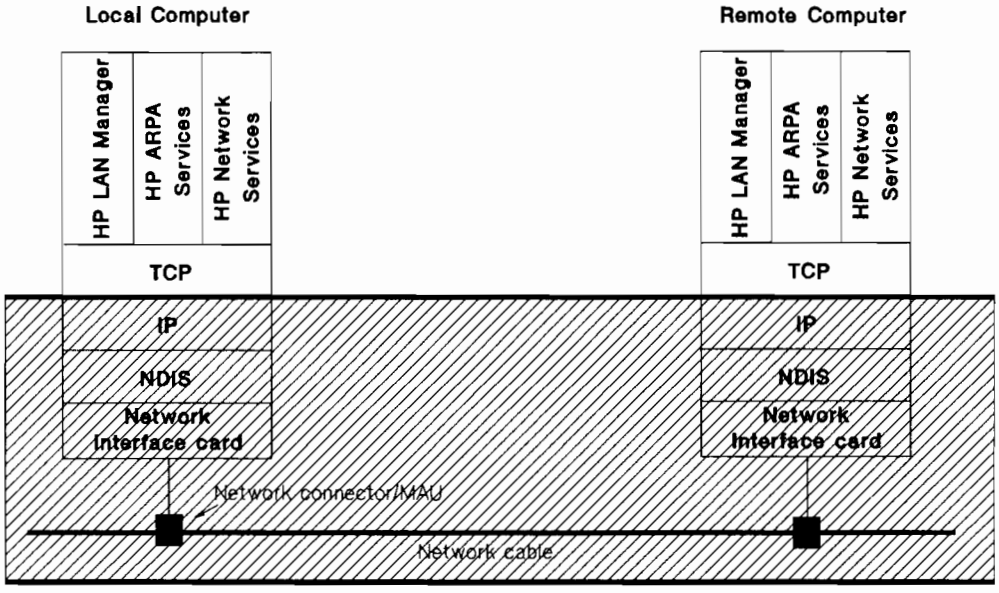

Figure 5-5. PING Connectivity Test

To run the PING Connectivity Test, from the NetDiag main menu, highlight `PING Connectivity Test`, press [Enter], and follow the instructions on the screen. Refer to the online help to interpret the test results.

Computernames are resolved by using a hosts file or domain naming (if it is configured). Computernames are not resolved with NS domain naming.

`Set Options` allows you to test several computers on the network at the same time and to change the roundtrip timeout, the size of the test packets, the number of times the test is repeated, and save addresses to a file. If you want to test several computers, see "Testing Several Computers at the Same Time" later in this chapter.

Loopback Connectivity Test

The Loopback Connectivity Test checks whether your computer can communicate directly with the remote computer at the TCP level using the network software. To use this test, make sure NetIPC is loaded. To load NetIPC, set `NetIPC Sessions` to a value greater than zero in Netsetup.

Note The Loopback Connectivity Test is used only when you want to test a computer running HP ARPA Services.

The shaded area in figure 5-6 shows the components checked by the Loopback Connectivity Test.

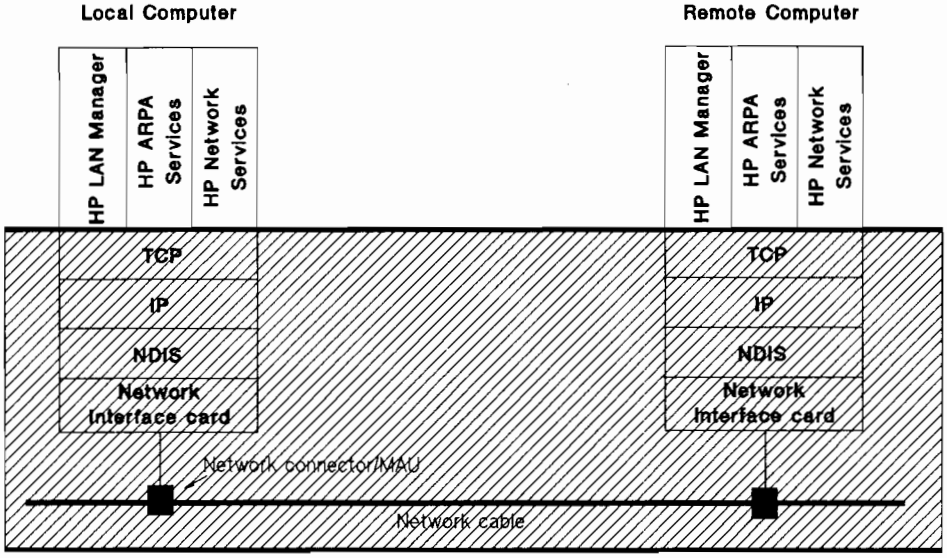

Figure 5-6. Loopback Connectivity Test

To run the Loopback Connectivity Test, from the NetDiag main menu, highlight `Loopback Connectivity Test`, press Enter, and follow the instructions on the screen. Refer to the online help to interpret the test results.

`Set Options` allows you to test several computers on the network at the same time and to change the roundtrip timeout, the size of the test packets, the number of times the test is repeated, and save addresses to a file. If you want to test several computers, see "Testing Several Computers at the Same Time" later in this chapter.

Testing Several Computers at the Same Time

Through Set Options you can test several computers at the same time and change the roundtrip timeout, the size of the test packets, the number of times the test is repeated, and save addresses to a file. To run Set Options, follow the instructions on the screen. Table 5-5 gives a detailed explanation of each field in Set Options.

Table 5-5. Explanation of the Fields in the <Set Options> Screen

Field	What the field means
Roundtrip timeout [] seconds	The value in this field informs NetDiag how long to wait for each message to be echoed from the remote computer. If the sending computer receives no response during the selected amount of time, NetDiag will terminate testing. The minimum value is 1 and the maximum value is 300 seconds. The default is 2 seconds.
Size of test packet [] characters	The number entered in this field denotes the number of characters in each message NetDiag sends to the remote computer. The minimum value is 1 and the maximum value is 1,500 characters. The default is 100 characters.
Repeat the test [] times	This value must be a number from 1 through 9999. It tells NetDiag how many messages it should try to send to the remote computer. The greater the number you select, the longer it takes the computer to finish the test. Small values are recommended unless you want to test network performance or reliability. The default is 1 time.
Use address file [C:\]	If you want to test several computers at the same time, an ASCII file containing the computer names or IP addresses of the computers must be used. You can use an editor to create the file. Procedure steps for how to create a file of computer names or IP addresses follow.
Save address to file [C:\]	If you want to save the IP addresses, computer names, or interface card addresses that you used while running the NetDiag connectivity tests, enter a filename.

Creating Address Files

In order to test several computers at the same time, an ASCII file containing the IP addresses, computer names, or interface card addresses of the computers must be used. To create an address file, follow these steps:

1. Exit the NetDiag utility.
2. Enter a file editor.
3. Type the IP addresses, computer names, or interface card addresses of the computers you want to test.

- If you use IP addresses, enter one IP address per line, up to a maximum of 100 IP addresses of PC workstations or servers. Here is an example:

```
192.000.000.001
192.000.000.002
```

- If you use computer names, enter one computer name per line, up to a maximum of 100 names of PC workstations or servers. Here is an example:

```
SUE
MARK
FINANCE
```

  Make sure there are no blanks or other invalid characters either within the computer name or following it. Valid characters are: A through Z, a through z, 0 through 9, _ (underscore), and - (hyphen). Embedded or trailing blanks or other invalid characters in a computer name are not allowed.

- If you use interface card addresses, enter one interface card address per line, up to a maximum of 100 names of PC workstations or servers. Here is an example:

```
02608c161242
02608c963140
```

4. Save the file.

Checking Addresses

Before you test connectivity to a remote computer, you must know either its interface card address, IP address, or computer name. To get this information follow these steps:

- On a PC workstation:

  a. Load and run the NetDiag utility on the computer you want to contact.

  b. Select `Status -> Current Local Configuration`.

  c. Write down the interface card address, IP address, and computer name.
  This information is entered in the appropriate fields when running the different tests.

- On an HP 9000 Series 300, run the LANDIAG utility, enter the LAN test selection mode, and then run the `display` command. For information on these tests, refer to the *HP 9000 Installing and Administering LAN* manual.
- On an HP 9000 Series 800, run the LANDAD utility. For information on this test, refer to the *HP NS/ARPA/9000 Node Management Reference Manual.*
- On an HP 3000 computer, run the NMMGR utility. For information on this utility, refer to the *Using the Node Management Services Utilities* manual.

Where to Go from Here

If you have questions after trying the measures described in this guide, see "Reporting Problems to Your HP Support Contact" in the introduction of this guide.

A

Troubleshooting HP ARPA Services 2.1 for NetWare

This appendix helps you recognize and solve network problems that may occur when you use the HP ARPA Services 2.1 for NetWare.

To use the troubleshooting measures in this appendix, Novell NetWare and the HP ARPA Services 2.1 for NetWare must be installed and configured on your PC. You should have access to the disks and documentation that come with these products.

Problem-Solving Strategy

If a network problem occurs when you are using HP ARPA 2.1 for NetWare, follow these steps:

1. Characterize the problem.

   Usually the problem on your network will correspond to one of three error conditions. These error conditions are summarized in Table A-1, and are described in more detail in the pages that follow the table. Find the error condition that best describes the problem on your network, and follow the instructions described there.

2. If the first step does not solve the problem, refer to "Other Symptoms" near the end of this appendix.

3. If none of the above steps solves the problem, report it to your HP support contact. Guidelines for reporting a problem are in the introduction of this guide.

Table A-1. Troubleshooting Conditions

You can connect to a NetWare server.	The ARPA Services 2.1 work.	Refer to condition ...
Yes	No	1
No	Yes	2
No	No	3

Condition 1: NetWare Works but ARPA Does Not

If NetWare works properly but an ARPA service does not, check for error messages. If there is a message, first see if it is listed in the next section of this appendix, "Error Messages." This section contains messages that may occur when you use HP ARPA 2.1 for NetWare. If the message is not listed, check chapter 2, "Error Messages." If it is not listed in chapter 2, follow the troubleshooting measures for HP ARPA 2.1 in chapter 3, "Initial Troubleshooting Checklists."

Note HP ARPA Services 2.1 are not working properly if you cannot use the services to establish a connection to a host computer, or you cannot use Ping (an HP diagnostic utility) to reach another computer.

If you complete the ARPA troubleshooting and an ARPA service still does not work, check whether there are any routers between the PC client and the ARPA host you are trying to reach. If there are routers, make sure at least one of the following is true:

- The routers are IP routers. IP routers can handle the type of network traffic required for HP ARPA Services.
- The NetWare server (version 3.11) is configured to route IP traffic on the network. To be configured for IP traffic, the server should have Novell's TCPIP.NLM program loaded and running.

Note If you are referring to Novell documentation, please note that Novell and Hewlett-Packard use the terms **bridge** and **router** differently.

In this guide, a **bridge** refers to a device that connects LANs at the hardware or link level. It forwards all network traffic, regardless of protocol, to computers on a directly attached network.

A **router** refers to a device that connects LANs sharing common transports and/or protocols. It forwards network traffic having specific protocols to remote networks.

According to these definitions, what Novell documentation refers to as a "bridge" is referred to in this guide as a "router."

Condition 2: NetWare Does Not Work But ARPA Does

If you cannot connect to a NetWare server but an ARPA service works properly, first check for error messages. If there is a message, see if it is listed in the next section of this appendix, "Error Messages." If the message is not listed, refer to the troubleshooting measures described in the NetWare documentation.

Note NetWare is not working properly if you cannot attach to or login to a NetWare server.

Condition 3: Neither NetWare Nor ARPA Works

If you cannot connect to a NetWare server and an ARPA service does not work, troubleshoot the ARPA service first.

To troubleshoot an ARPA service, first check for error messages. If there is a message, see if it is listed in the next section of this appendix, "Error Messages." This section contains messages that may occur when using HP ARPA 2.1 for NetWare. If the message is not listed, refer to chapter 2, "Error Messages." If it is not listed in chapter 2, follow the troubleshooting measures for HP ARPA Services described in chapter 3, "Initial Troubleshooting Checklists."

If you complete ARPA troubleshooting and an ARPA service still does not work, check whether there are any routers between the PC client and the ARPA host you are trying to reach. If there are routers, make sure at least one of the following is true:

- The routers are IP routers. IP routers can handle the type of network traffic required for HP ARPA Services.
- Your NetWare server (version 3.11) is configured to route IP traffic on the network. To be configured for IP traffic, the server should have Novell's TCPIP.NLM program loaded and running.

After you get the ARPA service to work, see if you can connect to the NetWare server. If you can connect, you have solved the problem. If you cannot connect, refer to the troubleshooting measures described in the NetWare documentation.

Error Messages

This section describes the error messages that may be displayed after you have installed and configured HP ARPA 2.1 for NetWare.

A file server cannot be found.

CAUSE A PC client with HP ARPA 2.1 for NetWare installed cannot communicate with a NetWare server. The PC client and the NetWare server are not configured correctly for network use.

ACTION The action you take depends on whether you are using an Ethernet/802.3 network or a token ring network. There are separate sections for each type of network.

For Ethernet and 802.3 Networks:

1. Ensure that the configurations of the NetWare server and the problem PC match. To check configurations: If you have a NetWare 286 server, run ECONFIG on both computers. If you have a NetWare 386 server, run MONITOR on the server. When the configurations match, reload IPX.COM and try to reach the server from the problem PC client again. If this does not work, go to step 2. For details on step 1, read the information below .

- Match the configurations. If the PC client and NetWare server are on an Ethernet or 802.3 network, make sure their configurations match. Do this by ensuring that one of the following lines appears in the configurations of both the NetWare server and the PC client:

```
SHELL= Novell ETHERNET        IEEE 802.3 compatible
```

or

```
SHELL=  ETHERNET    Type field: 8137 (Assigned Novell type constant)
```

The line in the PC client's configuration must match the line in the server's configuration.

- **Run ECONFIG.** To check the configurations of a PC client and a NetWare 286 server, run the ECONFIG utility on both computers. The ECONFIG utility, which is fully described in the Novell documentation, is on your SHGEN or WSGEN disk (depending on the version of NetWare you have).

To run the ECONFIG utility on the PC client, type:

```
econfig ipx.com
```

You cannot run the ECONFIG utility directly on the NetWare server. However, you may run it from a remote PC client to the server by typing:

```
econfig <path> net$os.exe
```

The <*path*> variable indicates the path from the remote PC client to NET$OS.EXE on the server.

To change the configuration on the PC client using ECONFIG, type:

```
econfig ipx.com shell:n
```
(for NetWare 802.3 networks)

```
econfig ipx.com shell:e
```
(for NetWare Ethernet II networks)

To change the configuration on the NetWare server, type on the remote PC client that you are using:

```
econfig <path> net$os.exe A:n
```
(for NetWare 802.3 networks)

```
econfig <path> net$os.exe A:e
```
(for NetWare Ethernet II networks)

The <*path*> variable indicates the path from the remote PC client to NET$OS.EXE on the server.

- **Run MONITOR.** The procedures for checking and setting the configuration of a NetWare 386 server differ from those described above for a NetWare 286 server.

To check the driver configuration of a NetWare 386 server, load the MONITOR program by typing:


```
load monitor
```

Then choose `LAN Information` from the menu that is displayed. The screen displays `Driver Information`, including `Frame Type`.

You set the configuration of a 386 server with a command line parameter in AUTOEXEC.NCF similar to the following:

```
load <driver>lan  frame=  ETHERNET_802.3
```
(for NetWare 802.3 networks)

```
load <driver>lan  frame=  ETHERNET_II
```
(for NetWare Ethernet II networks)

The <*driver*> variable indicates the driver used by the server's LAN card.

If you change anything in the PC client's configuration, reload IPX.COM and see if the client and server can communicate.

2. Choose another PC client and troubleshoot between it and the problem PC. If you verify that the PC client and NetWare server are configured the same and the PC client still cannot communicate with the server, choose another PC client on the same local LAN segment and begin troubleshooting between it and the problem client.

- Match the configurations. Make sure both clients have the same configuration. If both clients are running source routing environments, run the ECONFIG utility on both computers as described in step 1.

- Run COMCHECK. After you check the configurations, run COMCHECK (a Novell diagnostic tool) between the two PC clients. If COMCHECK runs successfully, the problem lies with another part of the network, such as a bridge or IPX router. Make sure these devices are working properly.

- Refer to NetWare documentation. If COMCHECK does not run successfully, refer to the NetWare troubleshooting documentation for further troubleshooting procedures. Typical failures on a PC client are caused by a faulty adapter card or LAN connnection.

ACTION *For Token Ring Networks:*

1. Ensure that the source routing environments of the NetWare server and problem PC match. If the PC client and the NetWare server are on a token ring network, make sure both are running (or both are *not* running) source routing environments. If both are running source routing environments, run the following programs (which are described in the Novell documentation):

- ROUTE.COM on the PC client.
- ROUTE.VAP on a NetWare 286 server.
- ROUTE.NLM on a NetWare 386 server.

2. Choose another PC and troubleshoot between it and the problem PC. If you verify that the PC client and the server are configured correctly for source routing, choose another PC client on the same local LAN segment and follow the troubleshooting steps described below.

- Match the source routing environments. Make sure both client PCs have the same environment for source routing. You can check this by running ROUTE.COM on both computers.

- Run COMCHECK. After you check the configurations, run COMCHECK between the two clients. If COMCHECK runs successfully, the problem lies with another part of the network, such as a bridge or IPX router. Make sure these devices are working properly.

- Refer to NetWare documentation. If COMCHECK does not run successfully, refer to the NetWare troubleshooting documentation for further procedures. Typical failures on a PC client are caused by a faulty adapter card or LAN connnection.

DOS IPX resident driver initialization failed

CAUSE The [IPX] section of your PROTOCOL.INI file is missing.

ACTION Make sure the [IPX] section of your PROTOCOL.INI file exists.

IPXDRV.DOS not loaded

CAUSE This message is generated by the IPX.COM file. One of the following has occurred:

- The IPXDRV.DOS line is not in your CONFIG.SYS file. This line looks similar to this:

```
device= c:\hpnet\drivers\protocol\tcpip\ipxdrv.dos
```

- IPXDRV.DOS is in CONFIG.SYS but did not load.

ACTION Make sure IPXDRV.DOS is loaded in CONFIG.SYS. Then check if one of the following error messages has also been displayed:

```
MS DOS LANMANAGER NETBIND failed vx.x.

DOS IPX resident driver initialization failed.
```

If one of these messages has been displayed, look it up in this appendix.

MS DOS LAN MANAGER NETBIND failed vx.x
PRO0025E Failed to bind

CAUSE *If the ARPA Services are working properly:* The stub driver IPXDRV.DOS is not binding to the LAN card driver. The `BINDINGS=` *xxx* line in the [IPX] section of your PROTOCOL.INI file is incorrect.

ACTION Make sure the appropriate driver has loaded correctly.

Change the `BINDINGS=` line in the [IPX] section of your PROTOCOL.INI file so that it points to the correct driver. To do this, find the `BINDINGS=` *xxx* line in the [TCPIP] section of your PROTOCOL.INI file. Then make sure the value for *xxx* in this section is the same as the value used for *xxx* in the `BINDINGS=` *xxx* line of the [IPX] section.

CAUSE *If the ARPA Services are not working properly:* The hardware driver or some other network driver failed to load.

ACTION To troubleshoot the hardware driver, make sure the appropriate driver has loaded correctly. Also check any error messages that were displayed when the LAN hardware driver loaded. If there were any, refer to the documentation that came with your LAN hardware for troubleshooting information.

To troubleshoot error conditions caused by other network drivers, refer to chapter 2 of this guide, "Error Messages."

Unable to initialize LAN card

CAUSE The NETBIND program did not run successfully.

ACTION Make sure you run the NETBIND.EXE program before you run IPX.COM. Verify that there is no NETBIND error.

A simple way to run the NETBIND.EXE program is to choose the `Configure network files for you` option in the NetSetup program during ARPA installation. Choosing this option ensures that NETBIND.EXE is automatically inserted in your AUTOEXEC.BAT file.

Unable to open MAC driver

CAUSE Either the MAC driver or the LAN card for your PC client is not configured correctly.

ACTION Make sure the values in the MAC driver section of your PROTOCOL.INI file (for example, `interrupt=`*xxx*) match those in the hardware configuration for your LAN card.

Also make sure that neither the values in PROTOCOL.INI for the LAN card nor the settings for the card itself (such as the jumpers) conflict with any other PC client hardware configuration.

Other Symptoms

In addition to the error conditions already described, you may encounter the following symptoms when using HP ARPA Services 2.1 for Netware:

- After installing ARPA, your PC workstation hangs when you attempt to use one of the services.
- You lose connections to the host computer.

CAUSE These conditions are probably caused by one of the following:

- The driver values for your LAN card are configured incorrectly.

- Your LAN card configuration is causing a hardware conflict.

ACTION Make sure the driver values in the MAC driver section of your PROTOCOL.INI file match the settings for your LAN card. To do this, find the `interrupt=`*xxx* value in the MAC driver section of your PROTOCOL.INI file. Then make sure this value matches the corresponding setting for your LAN card.

Make sure the settings for your LAN card are not causing a conflict with any other hardware configuration values in the PC client.

Where to Go From Here

If the measures described in this appendix do not solve the problem, report it to your HP support contact. Guidelines for reporting problems are in the introduction of this guide.

B

Troubleshooting HP ARPA Services 2.1 on a Microsoft LAN Manager 2.1 Client PC

This appendix helps you recognize and solve network problems that occur when you are using HP ARPA Services 2.1 on a client PC that has Microsoft LAN Manager 2.1 installed.

To use the troubleshooting measures in this appendix, Microsoft LAN Manager 2.1 and HP ARPA Services 2.1 must be installed and configured on your PC. You should have access to the disks and documentation that come with these products.

Problem-Solving Strategy

If a network problem occurs while you are using HP ARPA 2.1 over Microsoft LAN Manager 2.1, follow these steps:

1. If your PC will not boot, or you get either a protocol or a LAN card error, make sure your LAN card is configured correctly. Refer to the LAN Manager documentation for configuration information.

2. Determine the type of Microsoft LAN Manager 2.1 configuration that your PC has. There are two common configurations:
   - Configuration 1: The Microsoft LAN Manager 2.1 client was originally configured *with* Microsoft's version of TCP/IP.
   - Configuration 2: The Microsoft LAN Manager 2.1 client was originally configured *without* Microsoft's TCP/IP. For example, you installed Microsoft LAN Manager 2.1 to run over Microsoft NetBEUI. When you installed HP ARPA 2.1, you configured the services to run over HP's version of TCP/IP.

   Turn to the section of this appendix that corresponds to the client PC's LAN Manager configuration (for example, Configuration 1). Then find the error condition that best describes the problem on your network, and follow the instructions to troubleshoot it.

3. If none of the above steps solves the problem, report it to your HP support contact. Guidelines for reporting a problem are in the introduction of this guide.

Note

If you do not know which configuration of TCP/IP you are running, you can find out by typing the following:

```
netsetup /d
```

This command will tell you if TCP/IP is configured. To find out if Microsoft TCP/IP is configured, go to your networking directory (usually C:\LANMAN.DOS) and look in the ENVDSCVD.HP file.

Recognizing Problems with the Network Software

This section gives you some simple ways to tell if your network software is working properly.

- HP ARPA 2.1 is working properly if you can use the services to establish a connection to a host computer, or you can use PING (an HP diagnostic utility) to reach another computer.
- The Microsoft LAN Manager software is working properly if your PC can connect to a LAN Manager server using the `net use` command.

Configuration 1: The Microsoft LAN Manager 2.1 client was originally configured with Microsoft's version of TCP/IP.

Usually the problem on your network will correspond to one of the error conditions summarized in Table B-1. Find the error condition that best describes the problem on your network, and follow the instructions to troubleshoot it.

Table B-1. Error Conditions for Configuration 1

You can connect to a TCP/IP server .	HP ARPA 2.1 works.	Refer to ...
Yes	No	1A
No	Does not matter yet	1B

1A: The client PC can connect to a TCP/IP server (either a Microsoft LAN Manager OS/2 or an HP LMX server. The server is not a Resource Sharing server). HP ARPA 2.1 does not work properly.

1. Look up any error messages in chapter 2, "Error Messages." If a message is not listed there, follow the troubleshooting measures for HP ARPA Services 2.1 in chapter 3, "Initial Troubleshooting Checklists."
2. If you complete the HP ARPA troubleshooting in chapter 3 and an ARPA service still does not work, find out if there are any routers between the PC client and the ARPA host you are trying to reach. If there are routers, make sure all of them are IP routers.

1B: The client PC cannot connect to a TCP/IP server (either a Microsoft LAN Manager OS/2 or an HP LMX server. The server is not a Resource Sharing server).

1. Look up any error messages in chapter 2, "Error Messages." If a message is not listed there, check the error messages described in your Microsoft LAN Manager documentation.

2. Answer the following: "Could the Microsoft LAN Manager 2.1 client successfully connect to a TCP server (either a Microsoft LAN Manager OS/2 or HP LMX server) before HP ARPA 2.1 was installed?"

   If the client PC could previously connect to a TCP server, PING to a TCP server. Instructions to run PING are in chapter 5, "Diagnosing Problems with NetDIAG".

   - If PING fails, check the physical connection to the TCP server and verify that the server is running.
   - If PING works and the client PC could previously connect to a TCP server, call your HP support contact.
   - If PING works and the client PC could *not* previously connect to a TCP server, there is probably a problem with the Microsoft TCP transport. Refer to the LAN Manager documentation.

   If you are not sure whether the client PC could previously connect to a TCP server, remove all TCP network software. To remove the TCP network software, use the `Remove` option in LAN Manager's Setup program.

   After you remove the software, reinstall the Microsoft LAN Manager 2.1 software on the client PC. When you are sure the LAN Manager software is working properly, reinstall the HP ARPA 2.1 software and make sure it is working properly as well.

Configuration 2: The Microsoft LAN Manager 2.1 client was originally configured without Microsoft's version of TCP/IP.

An example of this type of configuration is a PC on which Microsoft LAN Manager 2.1 was installed to run over NetBEUI. When you installed HP ARPA Services 2.1, you configured it to run over HP's version of TCP/IP.

The problem on your network will correspond to one of the error conditions summarized in Table B-2. Find the error condition that best describes the problem on your network, and follow the instructions to troubleshoot it.

Table B-2. Error Conditions for Configuration 2

You can connect to a LAN Manager OS/2 server running NetBEUI.	HP ARPA 2.1 works.	Refer to ...
Yes	No	2A
No	Does not matter yet	2B

2A: The client PC can connect to a LAN Manager OS/2 server running NetBEUI. HP ARPA Services 2.1 does not work properly.

1. Look up any error messages in chapter 2, "Error Messages." If a message is not listed there, follow the troubleshooting measures for HP ARPA Services 2.1 in chapter 3, "Initial Troubleshooting Checklists."

2. If you complete the HP ARPA troubleshooting in chapter 3 and an ARPA service still does not work, find out if there are any routers between the PC client and the ARPA host you are trying to reach. If there are routers, make sure all of them are IP routers.

2B: The client PC cannot connect to a LAN Manager OS/2 server running NetBEUI.

1. Look up any error messages in chapter 2, "Error Messages." If a message is not listed there, check the error messages described in your LAN Manager documentation.

2. Answer the following: "Could the client PC successfully connect to a Microsoft LAN Manager 2.1 server before HP ARPA 2.1 was installed?"

   If the client *could* previously connect, try the following:

   - Go to your AUTOEXEC.BAT file and make sure the `load netbeui` command has not been removed or altered.
   - Go to your PROTOCOL.INI file and make sure the `[netbeui.xif]` section has not been removed or altered.
   - If your AUTOEXEC.BAT and PROTOCOL.INI file are unchanged, call your HP support contact.

   If the client *could not* previously connect to a Microsoft LAN Manager 2.1 server, refer to the Microsoft documentation for troubleshooting information.

   If you are not sure whether the client PC could connect to a Microsoft LAN Manager 2.1 server before HP ARPA 2.1 was installed, remove all network software. To remove the network software, use the `Remove` option in LAN Manager's Setup program.

   After you remove the software, reinstall the Microsoft LAN Manager 2.1 software on the client PC. When you are sure the LAN Manager software is working properly, reinstall the HP ARPA 2.1 software and make sure it is working properly as well.

Where to Go From Here

If the measures described in this appendix do not solve the problem, report it to your HP support contact. Guidelines for reporting problems are in the introduction of this guide.

Glossary

Adapter card

See **Interface card.**

Administrator

See **Network administrator.**

AdvanceLink

An HP software package that allows PC workstations to emulate a terminal on the following computers: HP1000, HP3000, HP9000, and DEC VAX computers. AdvanceLink also allows file transfer with an HP 3000 computer.

Application

A program used for a particular kind of work, such as word processing or database management. Also referred to as an application program.

ARPA domain

A portion of the computer name required for computers on the LAN that are using ARPA Services. The domain name can contain as many fields as will fit within 240 characters. See also **ARPA Services.**

ARPA Services

A group of software programs that allows terminal access and file transfer between a PC and an HP 9000, an HP 1000, or a DEC VAX computer. ARPA Services include FTP, TELNET, RSH, RCP, and PING.

BNC connector

The type of ThinLAN cable connector used with HP ThinLAN cable. See also **HP ThinLAN cable.**

Command

A word or phrase that you type at the system prompt to carry out an action when you press the Enter key.

Computer

A PC workstation or host. PC workstations are identified on the network by a computer name. Only one user name at a time may be associated with a given computer name. However, a computer can have multiple aliases associated to it. See also **Alias**, **Computer name**, and **User name**.

Computer name

The name of a PC workstation on a LAN. Computer names can be up to 15 characters in length and cannot be duplicated on the LAN.

Configuration

The way your PC workstation, server, or LAN is set up. This includes both hardware and software. HP ARPA software configuration is stored in the LANMAN.INI and PROTOCOL.INI files.

Configure

To set up your computer system so that the computer and all peripheral devices can work together. If the computer is part of a network, this can also include loading the appropriate software and establishing the necessary hardware and software connections.

Default

A value or option that a utility, such as NetSetup, automatically suggests.

Device driver

A low-level program that provides an interface between a hardware component of the system (for example, an interface card) and the PC's operating system. A program loaded by a DEVICE = command in CONFIG.SYS is an example of such a program.

Diagnostics utility

A program that verifies the operation of network software as well as the network hardware, the operating system, or another program. See also **NetDiag utility**.

Directory

A structure for organizing your files into convenient groups on a particular disk. A directory can contain files and subdirectories of files.

Disk letter

A devicename for a shared directory or a local disk drive. Examples of disk letters are D:, E: and F:.

DOS (Disk Operating System)

The computer software that controls the operation of a personal computer. Examples include MS-DOS and IBM PC DOS.

Drive letter

See **Disk letter.**

File

A collection of related information that is stored on a disk.

Filename

A name used to identify a file.

FTP (File Transfer Program)

An ARPA Service which allows you to transfer files between a PC workstation and a minicomputer such as the HP 9000, HP 1000, or DEC VAX computer.

Gateway

A device that allows routing from one network to various other networks.

Hardware

The equipment that makes up a computer system; not to be confused with the programs (software).

Host computer

A minicomputer on the network that provides network services, such as ARPA and Network Services to PC workstations.

HP 3000 host

An HP 3000 computer that can share HP 3000 resources with PC workstations.

HP 9000 host

An HP 9000 computer that can share HP 9000 resources with PC workstations.

HP ARPA Services

See **ARPA Services.**

HP StarLAN 10 hub

A device that allows the connection of PC workstations, PC servers, and HP 3000, HP 1000, and HP 9000 computers into a StarLAN 10 network. The HP StarLAN 10 hub also directs network traffic, retimes and regenerates network signals, and detects network signal collisions.

HP StarLAN 10 interface card

An interface card installed in a personal computer on the HP StarLAN 10 network for network communication.

HP StarLAN 10 (EtherTwist) network

HP's 10 Mbit twisted-pair local area network (LAN) that provides access to shared resources and HP's network services. It conforms to the IEEE 802.3 type 10BASE-T standard.

HP ThinLAN cable

A thin coaxial cable that conforms to the IEEE 802.3 type 10BASE2 standard. One segment can be up to 185 meters long and can support up to 30 computers.

HP ThinLAN hub

A 10 Mbit multiport repeater for IEEE 802.3 local area networks. An HP ThinLAN hub can interconnect up to four HP ThinLAN cable segments to HP ThickLAN cable. An HP ThinLAN hub can also extend an HP ThinLAN network beyond the limits for a single HP ThinLAN cable segment.

HP ThinLAN network

An HP PC LAN that uses HP's ThinLAN cable to provide access to HP's network services. See also **HP ThinLAN cable**.

HP ThinLAN interface card

The interface card installed in a personal computer on the HP ThinLAN network for network communication.

HP twisted-pair MAU

See **Twisted-pair Medium Attachment Unit**.

HP Vectra

An IBM-PC compatible computer produced by Hewlett-Packard.

Hub

See **HP ThinLAN hub** or **HP StarLAN 10 hub**.

I/O address

Memory locations set aside on a personal computer's I/O (Input/Output) bus for interface cards. An I/O base address is the lowest address for a block of interface card memory locations.

IEEE 802.2, 802.3, 802.5

Standards developed by the Institute of Electrical and Electronics Engineers that define the physical and logical connections at the lowest levels of a local area network.

Interface card

A piece of hardware that attaches to a PC and allows the PC to communicate with other computers on the network. Other names for this card include *network interface card*, and *adapter card*.

Interrupt channel

Circuitry that allows an interface card to signal the computer that it needs the computer's attention. The computer then takes whatever action is necessary to respond to the request from the interface card.

InterProcess Communication (IPC)

The ability of local and remote applications to transfer data and messages among themselves; used to offer services to and receive services from other programs on the network. See also **Sockets**.

IP (Internet Protocol) address

The number that identifies the computer to other computers on the network. Any computer using the TCP/IP protocol on the network must have a unique IP address. See also **Protocol** and **TCP/IP protocol**.

LAN

See **Local Area Network.**

LAN group

The set of computers to which a given computer belongs. A PC workstation can belong to only one LAN group.

Local

Describes any server, PC workstation, or network resource connected to a computer and physically located where the user is working. See also **Remote**.

Local Area Network (LAN)

One or more PC workstations and one or more servers or hosts connected together so they can share files, printers, and plotters.

Local device

A network resource that is directly connected to a computer and is physically located near that computer.

Medium Attachment Unit (MAU)

A device that attaches computers, hubs, and bridges to HP ThickLAN cable. Also called a MAU. See also **Thin Medium Attachment Unit** and **Twisted-pair Medium Attachment Unit**.

Memory

Hardware that can store data recorded in it, and from which the data can be retrieved as needed; usually referred to as the main memory of the computer.

NetDiag utility

An HP LAN Manager utility used to troubleshoot the LAN. See also **Troubleshooting**.

NetSetup utility

An HP utility for installing and configuring the HP ARPA 2.1 Services for MS-DOS on a PC workstation.

Network administrator

An individual responsible for the LAN. This person typically sets up the network, assigns passwords and privileges, and helps users with problems they may have while using the LAN.

Network software

The software that makes it possible for PC workstations and other computers to communicate on the network.

Node

A computer or network component, such as a hub or bridge, connected to the network.

Nodename

The unique portion of the computer name for those computers that are also identified by an NS or ARPA domain. See **ARPA domain** and **NS domain**.

NS domain

A two-field name that is required for a computer running NS Services on the network. The NS domain must be the same for all computers running NS services on a given network. The NS domain is also used by HP PROBE for name resolution.

Operating system

A collection of software programs that translates your commands to the computer and carries them out, helping you perform such tasks as creating files, running programs, and printing documents.

Option

Part of a command whose use is not required. In command syntax statements, options are usually shown in brackets ([ ]).

Path

The course that a message takes from the source computer to the destination computer.

Pathname

A unique sequence of names (the device letter, directory name(s), and file name) that locate a directory or file on a local or shared disc. An example of a pathname format is *B:\work\memo*. This pathname points to the file named *memo* in the *work* directory on the *B:* drive.

PC

Personal computer. Examples of personal computers include HP Vectras and IBM PCs, XTs, ATs, PS/2s, and compatibles.

PC server

A personal computer on the network that manages directories, printers, plotters, and communication devices shared by PC workstation users. A PC server controls and monitors the resource sharing activities of PC workstation users. See also **Server**.

PC workstation

A personal computer running network software that allows the PC to connect to and use network resources.

Physical network segment.

See **Segment.**

PING

An HP ARPA Service that tests whether two computers running ARPA Services on a LAN can communicate with each other. See also **ARPA Services**.

Protocol

A set of rules and procedures that govern communication between a server and a PC workstation.

Random Access Memory (RAM)

A type of memory in which data can be stored and retrieved. See also **Memory**.

Remote

Designates resources that are connected to a computer on the LAN, but are physically located away from the computer you are working on.

Request for Comments (RFC)

One of the series of technical reports containing suggestions, proposals, or specifications for network implementations relating to the Defense Advanced Research Projects Agency (DARPA) internet, and distributed by the Networks Information Center (NIC).

RSH (Remote Shell)

An HP ARPA Service that allows PC workstations to connect to HP-UX or other UNIX hosts or servers and to execute commands. RSH is useful if you need to execute one command or a series of commands in a command script on the host or server.

Run

To start a program or command.

Section

A cable section is a piece of HP ThinLAN cable that, when joined with other cable sections, forms an entire HP ThinLAN network cable (or cable segment). See also **HP ThinLAN cable**, **HP ThinLAN network**, and **Segment**.

Segment

Used to refer to a particular section of the network.

Server

A computer on a LAN that controls access to resources.

Service

Any software program that allows applications such as ARPA to run on the network.

Sockets

A method of interprocess communication between PC workstations and an HP 9000. See also **InterProcess Communication**.

Software

The programs, routines, or instructions written in a computer language that instruct the computer to perform one or more tasks. Some examples of software include operating systems, word-processing programs, and spreadsheet programs.

StarLAN 10

See **HP StarLAN 10 network**.

StarLAN 10 hub

See **HP StarLAN 10 hub**.

StarLAN 10 interface card

See **HP StarLAN 10 interface card.**

StarLAN 10 network

See **HP StarLAN 10 network.**

Subdirectory

A directory within another directory.

Subnet

A group of computers that are a part of a larger network and whose IP address includes a subnet number. See also **Subnet mask.**

Subnet mask

A series of bits used to identify the subnet number portion of an IP address.

T connector

A connector used to join two ThinLAN cable sections to each other, and to connect the ThinLAN cable to the personal computer on the network. If only one piece of cable is attached, a terminator is attached to the other side of the T connector. Also used to connect a ThinMAU to ThinLAN cable. See also **Thin Medium Attachment Unit** and **HP ThinLAN cable.**

TCP/IP

Transmission Control Protocol/Internet Protocol. A protocol originally developed by DARPA, the U.S. Defense Department's Advanced Research Projects Agency. See also **Protocol.**

TELNET

An ARPA Service that allows terminal access between PCs and HP 9000, HP 1000, or DEC VAX computers. See also **ARPA Services.**

Terminal

A device consisting of a keyboard and display screen that is used to communicate with a computer. This device does not perform any processing or storage activity but relies on the host computer instead. You can use your personal computer as a terminal by using AdvanceLink or the HP Terminal Program. See also **AdvanceLink.**

Terminator

A piece of hardware that attaches to the T connector at the end of the network cable segment, and which acts like a cushion to prevent signals from bouncing back from the end of the cable.

ThinLAN

See **HP ThinLAN network.**

ThinLAN cable

See **HP ThinLAN cable.**

ThinLAN hub

See **HP ThinLAN hub.**

ThinLAN network

See **HP ThinLAN network.**

ThinLAN interface card

See **HP ThinLAN interface card.**

ThinMAU

See **Thin Medium Attachment Unit.**

Thin Medium Attachment Unit (ThinMAU)

The device that attaches computers, hubs, and bridges to HP ThinLAN cable.

Token Ring network

A baseband local area network that conforms to IEEE 802.5 and IEEE 802.2 standards (for example, IBM Token Ring Network).

Transport

Used in this manual to refer to a type of protocol. An example of a transport is TCP/IP. See **Protocol.**

Troubleshooting

Tracing and correcting configuration errors or hardware malfunctions in a system.

Twisted-pair

See **Unshielded twisted-pair cable.**

Twisted-pair MAU

See **Twisted-pair Medium Attachment Unit**

Twisted-pair Medium Attachment Unit

A transceiving device that has an 8-pin modular plug for unshielded twisted-pair cable connection. Older MAUs also have an AUI cable. Allows computers to be connected to the HP StarLAN 10 network with unshielded twisted-pair cable. Also called Twisted-pair MAU.

Unshielded twisted-pair cable

The transmission medium by which the nodes and devices on an HP StarLAN 10 network communicate.

User

Someone who uses the LAN.

User name

The name a user types when she or he logs on to a PC workstation. A user name is normally assigned by the network administrator and can be up to 20 characters in length.

Wildcard character

A character that can be included in a filename to indicate any character or group of characters. With LAN Manager and DOS, you can use an asterisk (*) or a question mark (*?*) as wildcards. For example, the filename MARKET.* refers to all files named market with any filename extension. The filename ANNEX?.LST would be equated with filenames like ANNEX1.LST and ANNEX2.LST.

Workstation

See **PC workstation.**

Index

U

W