
Network Printer Interface for 3Com 3 + Open Networks

Administrator's Guide



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Conventions

The following conventions are used throughout this guide:

- *Italic* type is used to show the result of a previous action. It is also used for emphasis.
- COMPUTER type indicates what you should type on the computer keyboard.
- **Bold** type indicates screen menu selections.
- Display type indicates printer display messages.
-  indicates a computer keyboard or printer control panel key.

Note



Notes contain important information that you need to consider.

Caution



Caution messages indicate procedures which, if not observed, could result in damage to equipment or loss of data.

Warning



Warning messages indicate that when a specific procedure or practice is not followed correctly, personal injury could occur.

How To Use This Guide

This guide contains a blend of information from Hewlett-Packard and 3Com, Inc. The HP Network Printer Interface is a Hewlett-Packard printer accessory that allows direct-to-network printer connection on 3Com 3+Open Networks. Use this guide to install and configure the HP Network Printer Interface and LAN Manager software for network printing. This guide also contains troubleshooting information to help you isolate and solve network printing problems on your LAN Manager network.

Before You Begin

If you are not familiar with 3Com 3+Open LAN Manager, you may find it useful to spend some time familiarizing yourself with how it works before continuing with this guide. The guide assumes that you:

- Have used the LAN Manager NET ADMIN utility.
- Have access to the administrative account.
- Are the Network Administrator for your network.

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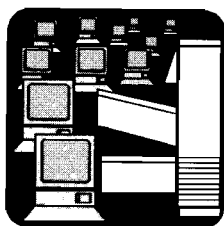
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Introducing the HP Network Printer Interface

Overview



This chapter explains what the HP Network Printer Interface is and how it fits into your 3Com local area network (LAN). This chapter provides the following information:

- Product overview.
- Capabilities.
- Basic Concepts.
- Supported links.
- Software requirements.
- What you need before you begin.

Product Overview

The HP Network Printer Interface consists of the HP Network Printer Interface adapter card, this guide, and the software diskettes. Refer to figure 1-1.

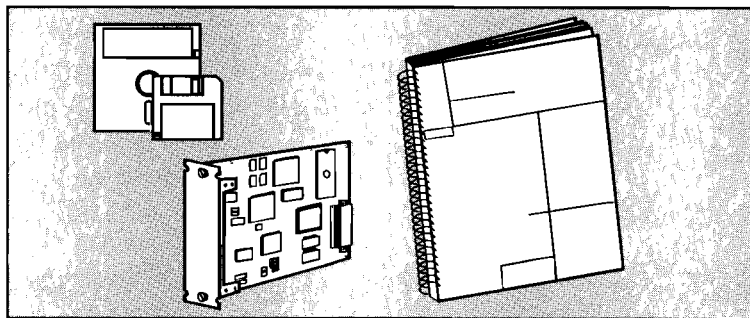


Figure 1-1. The HP Network Printer Interface Kit

Capabilities

The HP Network Printer Interface enables you to attach an HP LaserJet IIISi printer directly to your 3Com 3+ Open LAN Manager Network, at any location. In addition, the HP Network Printer Interface provides increased printer performance.

The ability to place the HP LaserJet IIISi printer anywhere on the network eliminates the need to attach the printer directly to a server or workstation. This enables you to place the HP LaserJet IIISi printer closer to your network users. The 3Com 3+ Open network allows you to share up to seven printers on each server.

Basic Concepts

To understand how a file is printed on a LAN Manager network, you must first understand the following concepts.

A *shared print queue* holds print jobs at the LAN Manager server until they are ready to be printed on the printer.

Network *resources*, like printers and disk directories, must be assigned *sharenames* to make them available to network users. The sharename for a network printer on 3+ Open version 1.1f refers to the queue that services the printer. Sharenames are typically created by the network administrator using 3COM's ADMIN interface or by using the NET SHARE command.

However, when you use the HP NPCONFIG utility to configure the LAN Manager server to communicate with the HP LaserJet IIISi printer, a sharename is automatically created for clients to use on the network. Users on the network then use the NET USE command to access the printer.

When a user at a workstation prints a document, the print data does not go immediately to the printer. Instead, the data follows the path illustrated by Figure 1-2. First the user prints the job at the workstation (A). The job travels to the LAN Manager server (B) where it is stored in a print queue. When the printer is ready to print a job, the LAN Manager server moves the print job to the printer (C) where it prints.

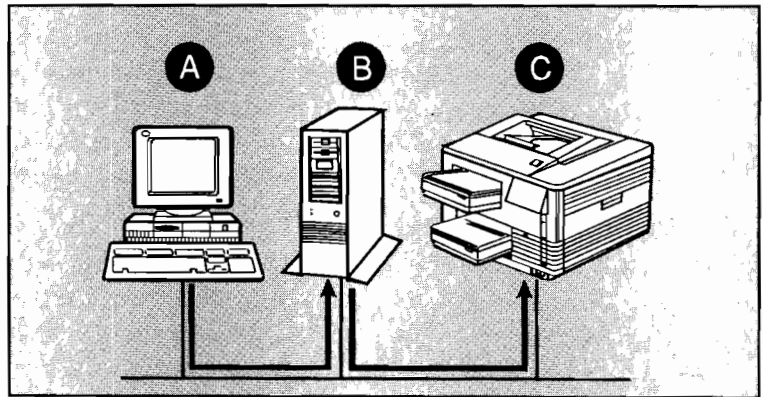


Figure 1-2.
The HP Network Printer Interface Network Printing Environment

Supported Links

The HP Network Printer Interface will operate on the following links and protocols:

- Ethernet/802.3
 - Thin Ethernet cabling (thin coax)
 - Standard Ethernet cabling (thick coax)
- Token Ring/802.5
 - Shielded twisted-pair cabling (4 Mbps and 16 Mbps)
 - Unshielded twisted-pair cabling (4 Mbps only)

Note



To attach the HP Network Printer Interface to your network using Ethernet/802.3 over unshielded twisted-pair (UTP) cable, you will need to purchase the Hewlett-Packard EtherTwist transceiver from Hewlett-Packard (Product #28685A). UTP is supported through the EtherTwist transceiver.

To attach the HP Network Printer Interface to your network using Token Ring over unshielded twisted-pair cable, you will need to purchase a Type 3 Media Filter.

Software Requirements

In order to use the HP Network Printer Interface with your LAN Manager network, you need the following products:

- Microsoft Operating System/2, Version 1.1
- 3Com 3+ Open LAN Manager Server, Version 1.1f.

If you do not have these products, you need to obtain them before continuing. Your network must be correctly installed and functioning properly before you can continue with the installation of the HP Network Printer Interface.

Before You Begin

Before installing the HP Network Printer Interface in your HP LaserJet III Si printer, you must have installed all other options (such as the duplexing unit), and set up the printer according to the instructions in the *HP LaserJet III Si Printer Getting Started Guide*.

Note

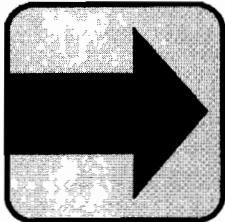


This guide explains how to set up your HP LaserJet III Si printer for PCL printing. If you have Postscript option installed in your HP LaserJet III Si printer, you must first follow the PCL setup instructions listed in this guide to install the HP Network Printer Interface. You will then be referred to *Network Notes for the LaserJet III Si Printer* for instructions on setting up the HP LaserJet III Si printer's optional printing capabilities, such as PostScript printing and language switching.

To install the HP Network Printer Interface, you need the following in addition to this guide:

- Access to administrator privileges on LAN Manager.
- A HP LaserJet III Si printer. The HP LaserJet III Si printer must already be set up according to the instructions in the *HP LaserJet III Si printer Getting Started Guide*.
- Cabling appropriate for attaching the printer to your network.
- The "Installation and Configuration Utilities" diskette, located in the back of this guide.
- A small flat-blade screwdriver.

What's Next?



This manual contains instructions for both the advanced and novice Network Administrator. If you are an advanced Network Administrator familiar with setting up printers, continue with chapter 2, “HP Network Printer Interface Quick Guide.” This chapter will help you get your HP Network Printer Interface up and running fast.

If you are a novice Network Administrator, start with chapter 3, “Installing the Adapter Card.” Continue following the instructions through chapter 4, “Installing and Configuring the Software.” These chapters provide step-by-step instructions for installing the HP Network Printer Interface.

HP Network Printer Interface Quick Guide

Overview



The *Quick Guide* chapter is for those advanced users who want to get going fast. Try this section first - *it may be all you need to read.*

If you are not an advanced Network Administrator, or if you find you need more information than is presented in this chapter, use chapters 3 and 4 which describe all the installation and configuration steps in detail.

This chapter contains information about:

- Installing the adapter card.
- Installing the HP Network Printer Interface software with the INSTALL utility.
- Configuring the HP Network Printer Interface software with the NPCONFIG utility.
- Adding permissions.
- Testing the connection between server and printer with the NPDIAG (Network Printer Diagnostics) utility.
- Configuring the printer.
- Sending a file from a workstation on the network to the HP LaserJet III Si printer.

Installing the Adapter Card

You must install either the Token Ring or Ethernet adapter card into your HP LaserJet IIISi printer. You must then configure your printer for the HP Network Printer Interface. To install the adapter card in your printer, follow these steps.

Caution



The HP Network Printer Interface adapter card contains electrical components that can be easily damaged by small amounts of static electricity. You need to take precautions such as using grounding devices. Maintain contact with any bare sheet metal surface on the printer while handling the adapter card. Handle the adapter card carefully at all times. Avoid touching adapter card components or circuit paths.

Note



Detailed instructions on installing the adapter card are located in chapter 3.

1. Make sure the printer is on, on-line, and is displaying `00 PCL READY`.
2. Turn the printer off and unplug the power cord from the printer.
3. Configure the card.

If you have the Ethernet adapter card, configure the card for either a BNC or AUI connection by moving the jumper block. (See Figure 2-1.) **The Ethernet card's default configuration is for BNC port enabled.**

If you have the Token Ring adapter card, make sure the card is properly configured for either a 4 Mbps or 16 Mbps data rate. **The default configuration is for a 4 Mbps data rate.**

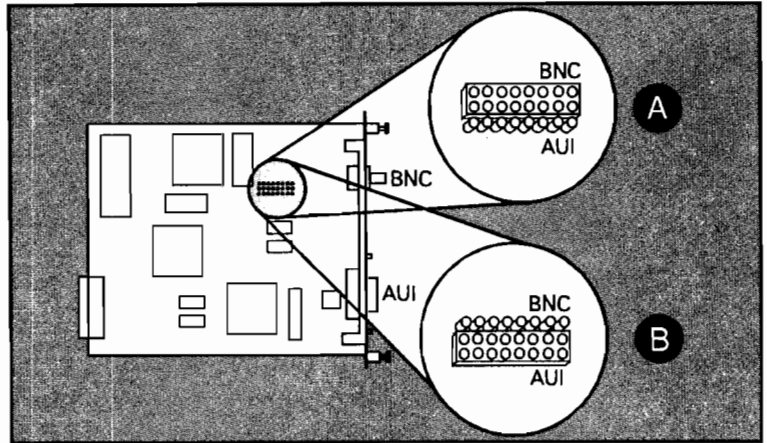


Figure 2-1. Configuring the Ethernet Card

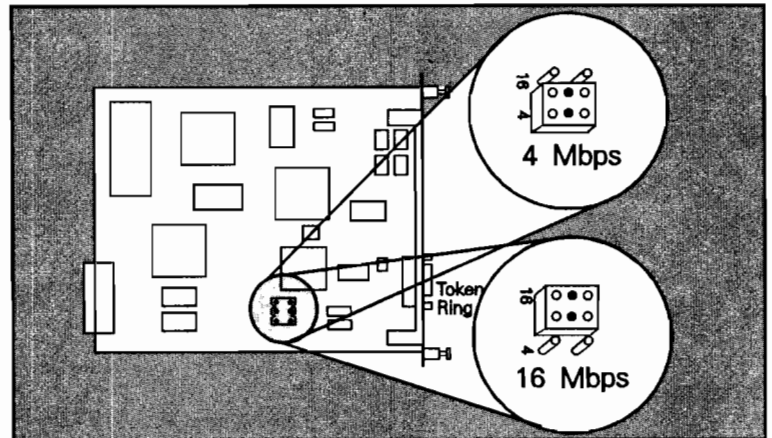


Figure 2-2. Configuring the Token Ring Card

4. Remove the existing adapter card (if any) from the printer and store it in the anti-static bag in which your adapter card was shipped. See Figure 2-3.

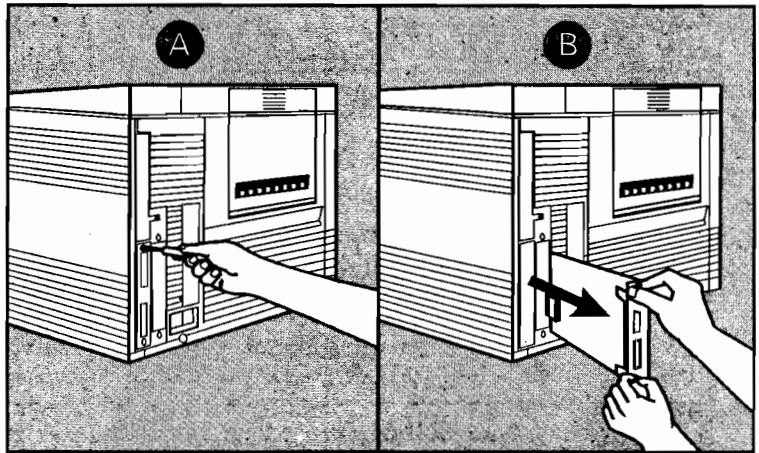


Figure 2-3. Removing the Existing Card

5. Install the HP Network Printer Interface adapter card into the accessory slot in the rear of the printer.
6. Connect the HP LaserJet III Si printer to your network.
7. Plug the printer's power cord back in and turn the printer on.
8. Wait for the 00 PCL READY message to appear in the printer's display window.
9. Press the **ON LINE** key to take the printer off-line.
10. Run the printer's self test by pressing the **TEST** key until 05 SELF TEST appears on the printer's front control panel (approximately 5 seconds). A self test page is printed out.
11. Make sure that the third column of the self test page reads I/O CARD READY. If the self test page has a message other than I/O CARD READY, refer to chapter 8 for troubleshooting information.
12. Keep the self test page. You will need it later in the software configuration process.

Configuring the Printer (Optional)

Hewlett-Packard recommends that you set the HP LaserJet IIISi printer's front control panel AUTO CONTINUE setting to ON. This enables the printer to resume normal operation after certain network errors or faults have been corrected.

To set AUTO CONTINUE to ON, follow these steps:

1. Hold down **MENU** until PCL CONFIG MENU appears. Within a few seconds, the display changes to read SYS=HP-PCL*.

Note



If the display reads SYS=POSTSCRIPT*, you must change it to SYS=HP-PCL by pressing the **+** key and then the **Enter** key. You must follow the instructions in this guide to first set up and install the adapter card for PCL printing. To enable advanced capabilities such as language switching and PostScript printing (if you have the PostScript option installed in your printer), you will be referred to the *Network Notes for the LaserJet IIISi Printer*.

2. Press **MENU** twice and AUTO CONT=OFF* is displayed.
3. Press **+** and AUTO CONT=ON is displayed.
4. Press **ENTER** to save your change. An asterisk (*) appears in the display.
5. Press **ON LINE** to return the printer on-line. The printer displays the 00 PCL READY message.

You have now completed setting up the network printer hardware. Continue with the next section to configure the network software.

Installing the HP Network Printer Interface Software

Note



To install the HP Network Printer Interface software, you must use Hewlett-Packard's INSTALL utility. This section describes how to run INSTALL.

To use the HP Network Printer Interface product, you must be running the 3Com 3+Open LAN Manager, version 1.1f.

To install the HP Network Printer Interface software, follow these steps:

1. Insert the *Installation and Configuration Utilities* diskette into your floppy disk drive.
2. Type A: at the OS/2 command line to switch to the A: drive.
3. Type INSTALL and press **Enter**.
4. Read the Welcome screen and press **Enter**.
Files are copied to the network directory on your hard disk.
5. Press **Esc**. The program makes backup copies of the CONFIG.SYS, PROTOCOL.INI, LANMAN.INI, and SRVESHARE.PRO files.
6. Press **Esc** to exit the program.
7. Type C: and press **Enter** to switch to drive C: after the HP Network Printer Interface software is installed.
8. Remove the floppy diskette from the disk drive.
9. Stop the server.
10. Reboot the server.



Configuring the Server

To configure your server, you must use the NPCONFIG utility. Before you configure the HP Network Printer Interface software, be sure the following items are true:

- The adapter card has been installed in the printer.
- The printer is attached to the network.
- The printer is turned on.
- You have a copy of the printer self test page.
- You have installed the network printer software using the INSTALL utility.

To configure the HP Network Printer Interface software, follow these steps:






1. Make sure the server is running OS/2 and LAN Manager, and that you are at the OS/2 command line.
2. Type NPCONFIG and press **Enter**.
The Main Menu appears, which contains a list of actions from which to choose.
3. Choose **Add network printer** and press **Enter**.
The "Select Adapter Card Address" screen appears. The "Select Adapter Card Address" screen contains one or more 12-digit hexadecimal addresses.

Note



If the Card Address listed on your printer self test page does not appear as a choice, the HP Network Printer Interface adapter card is not communicating with the server. Refer to chapter 8, "Troubleshooting" for information on checking your adapter card. You cannot proceed with the installation until the correct adapter Card Address appears as a choice on the screen.

4. Select the Card Address that corresponds with the 12-digit Card Address listed on your printer self test page and press **Enter**.
The "Specify Printer Name" screen appears.

5. Enter a name for the HP LaserJet IIISi printer. The name can be up to seven characters long and may only contain letters and numbers. For example, to name your printer PRINT1, type PRINT1 and press . *The Verify Configuration Screen appears.*
6. Record the name and address of the network printer you have configured, and the name of the shared print queue in the Network Administrator's Worksheet (located on the inside of the back cover of this guide).
7. Press  to confirm the configuration, or press  to cancel the configuration. *The Main Menu appears.*
8. Press . The program makes backup copies of the CONFIG.SYS, PROTOCOL.INI, LANMAN.INI, and SRVESHARE.PRO files, and the *Modifying configuration files* message appears.
9. Press  to exit the NPCONFIG program.
10. Stop the server.
11. Reboot the server.

Connecting to a Shared Queue

To use the HP LaserJet IIISi printer from a workstation, you must connect to one of the print queues which have been shared by the server.

To connect to a shared queue from a workstation using the OS/2 or DOS command line, use the NET USE command. The syntax of the NET USE command follows:

```
NET USE devicename \\servername\sharename
```

where: *devicename* is either LPT1:, LPT2:, or LPT3:.
servername is the name of the server.
sharename is the name of the shared queue.

For example, to connect to a shared queue, choose a *devicename* that is not already in use at the workstation, for example LPT1:, identify the name of the server, SERVE1, and identify the name of the print queue's *sharename*, HPPRINT. Then type:

```
NET USE LPT1: \\SERVE1\HPPRINT
```

Printing From a Workstation

To verify that you have installed the HP Network Printer Interface correctly, copy a file from the workstation to the printer, using the printer name.

For example, you could send the CONFIG.SYS file to the printer: Type `COPY C:\CONFIG.SYS devicename` where *devicename* is the name chosen when the connection was made at the workstation (either LPT1:, LPT2:, or LPT3:). If the CONFIG.SYS file is printed on the printer, you have correctly installed and configured your HP Network Printer Interface.

Correcting Problems

If the file does not print, check the following:

- Is the printer on and on-line?
- Have you rebooted the server after completing the installation program?
- Is the adapter card seated in the printer properly? (The fit should be snug.)
- Is the network cable damaged or improperly connected?
- Is there a break in the cable, or is the cable damaged?
- Is the workstation properly connected to the shared queue?

To view all the shared resources a workstation can use, from the workstation, type: `NET USE`.

If you have checked these items and still cannot get the printer to print, refer to chapter 8 for detailed troubleshooting information.

Adding Permissions

If your server uses user-level security, you need to verify that your network users have access to the network printer. To do so, follow these steps:

1. Type NET ADMIN and press **Enter** at the OS/2 command line prompt.
2. Select the **Accounts Dialog box** by pressing **Alt** A.
3. Choose **Other Permissions** by pressing 0.
4. Use the arrow keys to highlight the *\print sharename* of the printer you just added to the network, or just highlight *\print* if the sharename does not appear.
5. Choose the **Change** option by pressing **Alt** C.
6. Verify that all users who should have access to the printer you just added to the network are in the "Permitted" box.

If you wish to add a user to the "Permitted" box, do the following:

- a. Press **Alt** 0 to select from the "Not permitted" box.
 - b. Use the arrow keys to highlight the user you wish to add to the "Permitted" box.
 - c. Press **Alt** V to move that user to the "Permitted" box.
 - d. Repeat steps A-C for each user you wish to add.
 - e. Press **Tab** repeatedly to select <OK>.
 - f. Press **Enter**.
7. Press **Esc** and then **F3** to exit NET ADMIN.

Verifying Server to Printer Connection

To verify that the server can communicate with the network printer, run the Network Printer Diagnostics utility (NPDIAG). The NPDIAG utility gives you information about the state of the connection between the server and the printer.

To run NPDIAG, follow these steps:

1. Make sure the server is running OS/2 and LAN Manager and that you are at the OS/2 command line.
2. Type NPDIAG and press **Enter**.
The Select Printer screen appears.
3. Select the card name and address of the printer you just installed and press **Enter**.
The Connection State screen is displayed. This screen should look like the following:

Printer Name	(User defined)
Printer Adapter Address	(12-digit hexadecimal number)
Printer Connection State	Connected to this server
Printer Line State	On-line
Server Connection State	Connected to printer

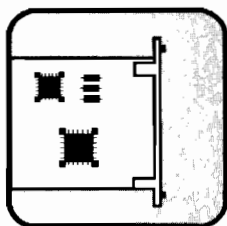
If this is not the status between the server and the HP LaserJet IIISi printer, read the information in the NPDIAG utility to find out how to solve the problem.

4. Press **Esc** twice to exit NPDIAG.

For more information about the NPDIAG utility, refer to appendix B, "Using the NPDIAG Utility."

For more information about troubleshooting, refer to chapter 8, "Troubleshooting."

Installing the Adapter Card



This chapter describes how to install either the HP Network Printer Interface Ethernet or Token Ring adapter card in your HP LaserJet III Si printer. There are a few significant differences in installing the cards. Therefore, this chapter is divided into two sections:

- Installing the Ethernet adapter card.
- Installing the Token Ring adapter card.

Before you begin to install the adapter card into your HP LaserJet III Si printer, read the following sections to get an overview of the installation process and the materials you will need. Then skip to the installation instructions provided for the adapter card you purchased.

Overview

Installing a HP Network Printer Interface adapter card consists of the following steps:

1. Verifying that the printer is set up correctly.
2. Configuring and installing the adapter card.
3. Attaching the printer to the LAN.
4. Verifying that the adapter card is working.

Before You Begin

You need the following materials in addition to this manual to install an adapter card:

- The HP Network Printer Interface adapter card for 3Com 3+ Open networks. (The Ethernet adapter card's part number is C2059B. The Token Ring adapter card part number is C2059D.)
- The Network Administrator's Worksheet (located on the inside back cover of this guide.)
- Cabling appropriate for attaching the printer to your LAN.
- A small flat-blade screwdriver.

Verifying Printer Setup

Before attempting to install the adapter card into the printer, you must make sure that the printer was initially set up properly. To do so, complete the following steps:

1. Turn the printer on.
2. Make sure the printer is on-line. The green On-line indicator should be on.
3. Make sure that the control panel is displaying `00 PCL READY` (or `00 PS READY` if you have the Postscript option installed in your HP LaserJet IIISi printer.)

Note



Your printer must display `00 PCL READY` (or `00 PS READY`) before you can continue installing the adapter board. If your printer displays a message other than a `READY` message, refer to chapter 7 of your *HP LaserJet IIISi Printer User's Reference Manual* to find out what the message means and what you need to do in order to cause the printer to display the `READY` message.

Installing the Ethernet Adapter Card

This section describes how to configure and install the Ethernet adapter card into your HP LaserJet IIISi printer, and connect the printer to your network. If you have a Token Ring network, skip to the next section, "Installing the Token Ring Adapter Card".

Caution



Because the adapter card contains parts that are easily damaged by small amounts of static electricity, you need to take precautions such as using grounding devices and maintaining contact with any bare sheet metal surface on the printer while handling the adapter card. Handle the adapter card carefully at all times. Avoid touching adapter card components or circuit paths.

Configuring the Adapter Card

To install the adapter card in your printer, follow these steps:

1. Get the adapter card. The part number for the Ethernet adapter card is C2059B. Refer to Figure 3-1.

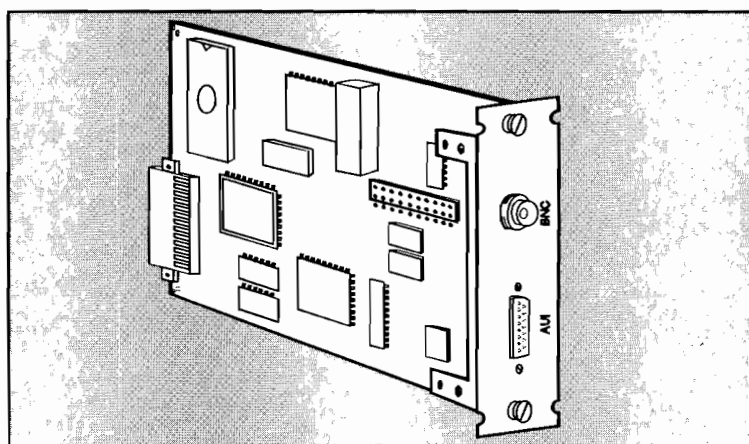


Figure 3-1. Identifying the Ethernet Adapter Card

2. Gather the appropriate connectors to connect the adapter card to your network. If you are connecting the printer to a thin coaxial cable (ThinLAN network), you must use the BNC connection. If not, you must use the AUI (Attachment Unit Interface) connection.

To use the ThinLAN (BNC) port, you need a BNC “T” connector (A), the ThinLAN cable, and an insulating cover for the “T” connector. You may also need a 50-ohm terminator (B), depending on your cabling scheme.

To use the Attachment Unit Interface (AUI) port, you need the appropriate transceiver with either an AUI cable (C) or a transceiver with an integrated AUI connector (D). The AUI connector will be be either on the transceiver or on the AUI cable.

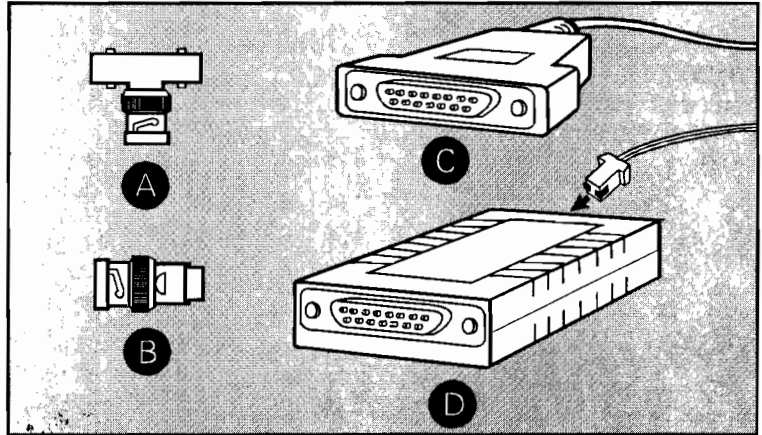


Figure 3-2. Gathering the Appropriate Connectors

3. Configure your Ethernet adapter card to use either the ThinLAN BNC port or the AUI port, by moving the jumper block to the appropriate position. Ⓐ in Figure 3-3 shows the BNC port setting. Ⓑ in Figure 3-3 shows the AUI port setting. **The factory default setting on the Ethernet adapter card is BNC port enabled.**

Record the jumper setting on the Network Administrator's Worksheet, located on the inside back cover of this guide.

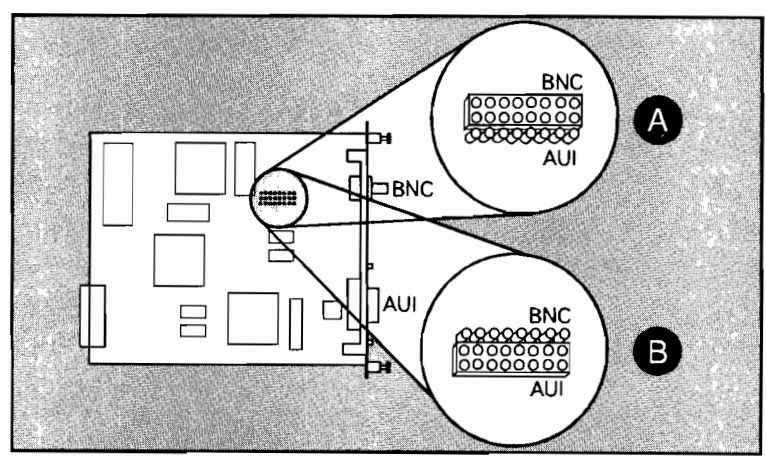


Figure 3-3. Configuring the Ethernet Adapter Card



Installing the Adapter Card

To install the adapter card into your HP LaserJet IIISi printer, follow these steps:

1. Turn the printer off and unplug the power cord from the printer. See Figure 3-4.

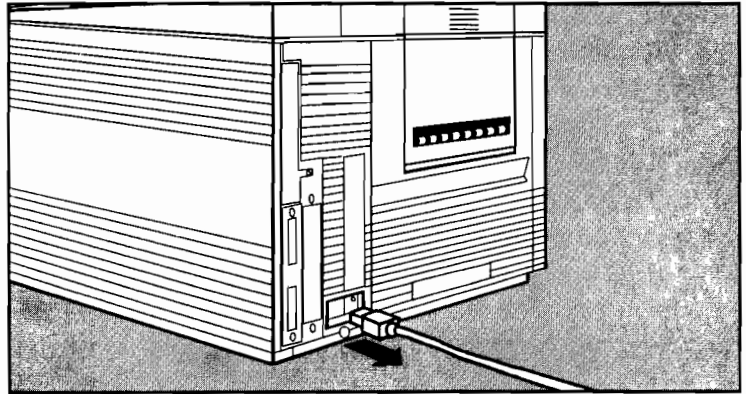


Figure 3-4. Unplugging the Printer

2. Locate the accessory slot at the rear of the printer on the lower, left-hand side. See Figure 3-5.

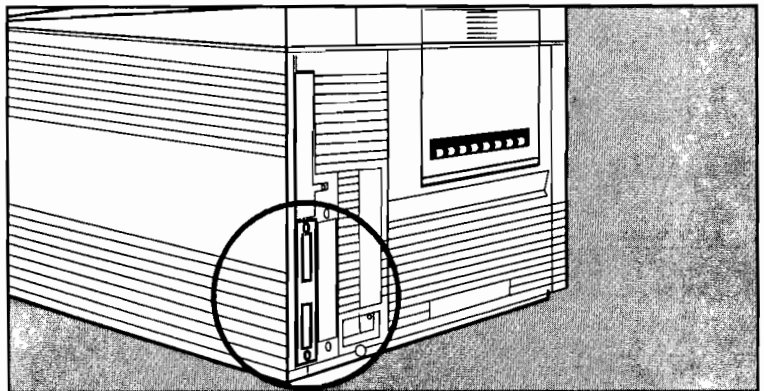


Figure 3-5. Locating the Accessory Slot

3. Remove the existing adapter card (if any) from the accessory slot at the rear of the printer by following these steps:
 - a. Completely loosen the two captive thumbscrews on the installed adapter card using a small flat head screwdriver. See (A) in Figure 3-6.
 - b. Remove the existing adapter card by pulling firmly on both of the card's thumbscrew posts. See (B) in Figure 3-6. Store the card in the antistatic bag in which your Ethernet adapter card came.

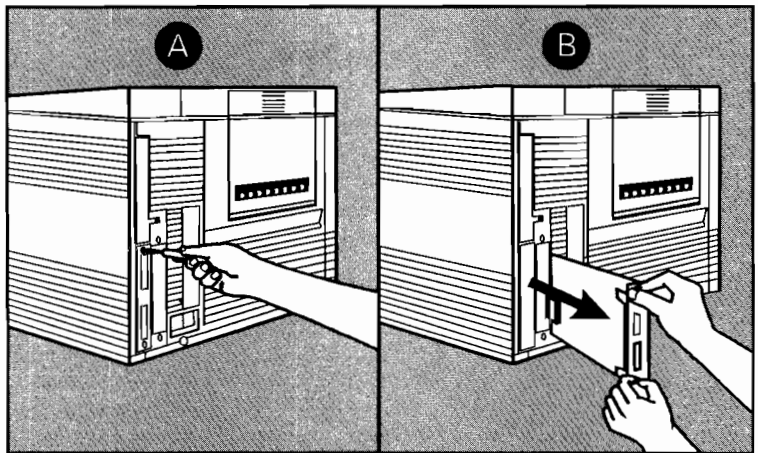


Figure 3-6. Removing the Existing Adapter Card

4. Install the adapter card into the HP LaserJet III Si printer.
 - a. Hold the adapter card by its thumbscrew posts with the BNC connector on the top, as illustrated by Ⓐ in Figure 3-7. Push the adapter card firmly into the accessory slot.
 - b. Tighten each thumbscrew a little at a time, alternating between the top and bottom screws until the screws are fully tightened. See Ⓑ in Figure 3-7. Tightening each screw a little at a time prevents possible damage to the card's backplane connector.

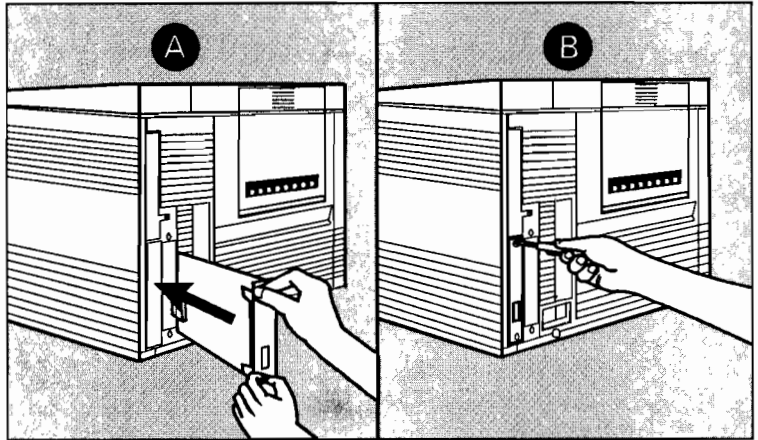


Figure 3-7. Installing the Ethernet Adapter Card

Attaching the Network Cable

How you connect the adapter card to your network depends on the type of connector you plan to use. This section is divided into two parts:

- Using BNC connectors.
- Using AUI connectors.

Refer to the section appropriate for the type of connector you are using.

Using BNC Connectors

If you are using the BNC port, follow these steps to connect the HP LaserJet IIISi printer to the network. If you are using the AUI port, skip to the next section, "Using AUI Connectors."

1. Attach one section of your ThinLAN cable to one side of the BNC "T" connector.
2. Attach another ThinLAN cable section or a 50-Ohm terminator to the other side of the BNC "T" connector. If you are attaching the HP LaserJet IIISi printer in the middle of your network, you must use another ThinLAN cable section. See Ⓐ in Figure 3-8. If you are attaching the printer to the end of your network, you must use a 50-Ohm terminator. See Ⓑ in Figure 3-8.

3. Attach the BNC "T" connector to the Ethernet adapter card's BNC port. If the cables and "T" connector described in steps 1 and 2 are already installed on your network cable, attaching the BNC "T" connector to the adapter card's BNC port will not disrupt your network's operation.

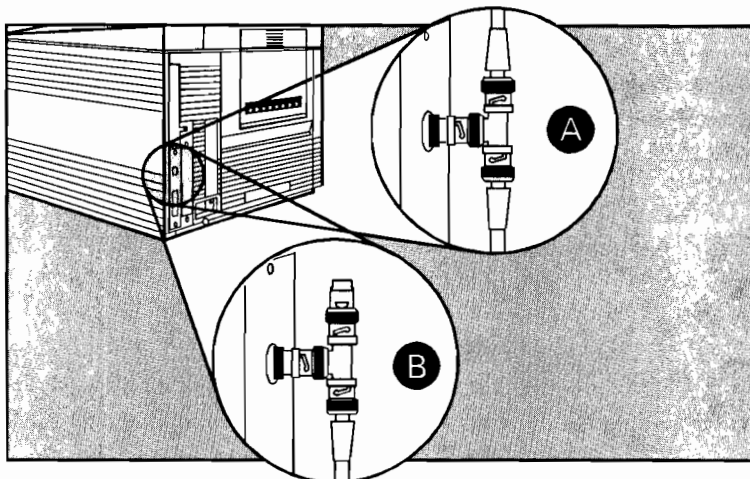


Figure 3-8. Connecting the Printer to the Network

4. Place an insulating cover (such as an HP 1252-1650) over the connection. The insulating cover protects the adapter card from ESD damage.
5. Reattach the printer's power cord.
6. Turn the printer on. The printer will display 05 SELF TEST, 02 WARMING UP, and then 00 PCL READY or 00 PS READY.

This completes the installation of the Ethernet adapter card. Continue to the next section to configure the HP LaserJet IIISi printer control panel for the HP Network Printer Interface.

Using AUI Connectors

If you are using the AUI port, follow these steps to connect the HP LaserJet IIISi printer to your network.

1. If you are using a transceiver with an AUI cable, plug the AUI cable (C) through the retainer (B) into the AUI port (A) and tighten the AUI retainer screws.
2. If you are using a transceiver without an AUI cable, plug the transceiver (F) through the retainer (E) into the AUI port (D).

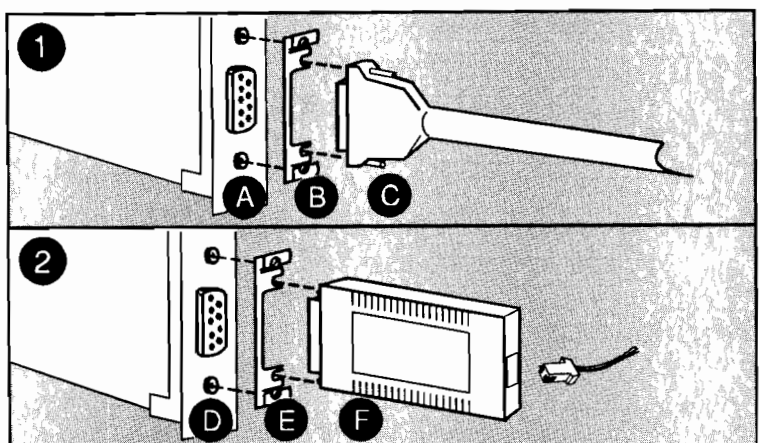


Figure 3-9. Connecting the Printer to the Network

3. Attach the transceiver to the network.
4. Reattach the printer's power cord.
5. Turn the printer on. The printer will display 05 SELF TEST, 02 WARMING UP, and then 00 PCL READY or 00 PS READY.

This completes the installation of the Ethernet adapter card. Continue to the next section to configure the HP LaserJet IIISi printer control panel.

Configuring the Printer (Optional)

Hewlett-Packard recommends that you set the printer's front control panel AUTO CONTINUE setting to ON. Setting AUTO CONTINUE to ON enables the printer to resume normal operation after certain network errors or faults have been corrected.

For example, if AUTO CONTINUE is ON and the printer temporarily loses its connection to the print server, the printer will automatically begin printing again when it regains its connection with the print server. If AUTO CONTINUE were OFF, you would have to press **CONTINUE** on the printer's control panel for the printer to resume printing.



When you set AUTO CONTINUE to ON, any recoverable printer errors are shown on the printer's front panel display for approximately 10 seconds. The current job is then terminated and the printer redisplay its Ready message after the error has been corrected. This ensures that errors pertaining to a single print job do not delay subsequent print jobs.




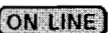
To set AUTO CONTINUE to ON, follow these steps:

1. Make sure the printer is on and is displaying 00 PCL READY or 00 PS READY. (When you first turn the printer on it will display 05 SELF TEST, 02 WARMING UP, and then 00 PCL READY.)
2. Press the **ON LINE** key to take the printer off-line.
3. Hold down **MENU** until PCL CONFIG MENU appears (approximately five seconds). Within a few seconds, the display will change to read SYS=HP-PCL*.

Note



If the display reads SYS=POSTSCRIPT*, you must change it to SYS=HP-PCL by pressing the  key and then the  key. You must follow the instructions in this manual to first set up and install the HP Network Printer Interface for PCL printing, and then you will be referred to the *Network Notes for the LaserJet III Si Printer* guide to set up your HP LaserJet III Si printer for PostScript printing.

4. Press  twice and AUTO CONT=OFF* is displayed. (If AUTO CONT=ON* is displayed, skip to step 7.)
5. Press  and AUTO CONT=ON is displayed.
6. Press  to save your change. An asterisk (*) will appear in the display.
7. Press  to return the printer on-line.

You have now completed configuring the printer. Continue with the next section to verify that the adapter card is installed correctly.

Verifying the Adapter Card Installation

To verify that the adapter card is installed correctly, follow these steps.

1. Make sure the printer is displaying the 00 PCL READY message. If any other message appears, refer to appendix A for self test page troubleshooting information.
2. Take the printer off-line by pressing the **ON LINE** button.
3. Press and hold the **TEST** button until 05 SELF TEST appears in the printer's display window (approximately 5 seconds). The printer will perform a self test on its controller and its installed adapter card and print out a self test page.

Note



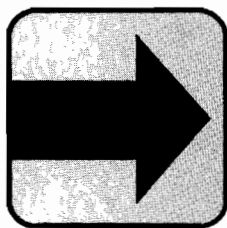
If you hold the **TEST** button down longer than 5 seconds, the printer will start its continuous self test. Press the **ON LINE** button to end the continuous self test and return the printer on-line.

4. Make sure the third column of the self test page reads I/O CARD READY.

If a message other than I/O CARD READY appears, refer to chapter 8 for information on troubleshooting the adapter card.

5. Keep the self test page. You will need to refer to the self test page to complete the software configuration described in chapter 4.
6. Press the **ON LINE** button to return the printer to the on-line state. The printer will display 00 PCL READY.

What's Next?



You have now verified that the adapter card in your printer is installed correctly. Continue with the next chapter for instructions on installing and configuring the HP Network Printer Interface software.

Installing the Token Ring Adapter Card

This section describes how to configure and install the HP Network Printer Interface Token Ring adapter card into your HP LaserJet IIISi printer, and connect the printer to your network. In addition, this section describes how to verify that the printer is correctly connected to your network. If you have an Ethernet network, go back to the previous section, "Installing the Ethernet Adapter Card".

Caution



Because the adapter card contains parts that are easily damaged by small amounts of static electricity, you need to take precautions such as using grounding devices and maintaining contact with any bare sheet metal surface on the printer while handling the adapter card. Handle the adapter card carefully at all times. Avoid touching adapter card components or circuit paths.

Installing the Adapter Card

To install the adapter card in your printer, follow these steps:

1. Get the adapter card. The part number for the Token Ring adapter card is C2059D. See Figure 3-10.

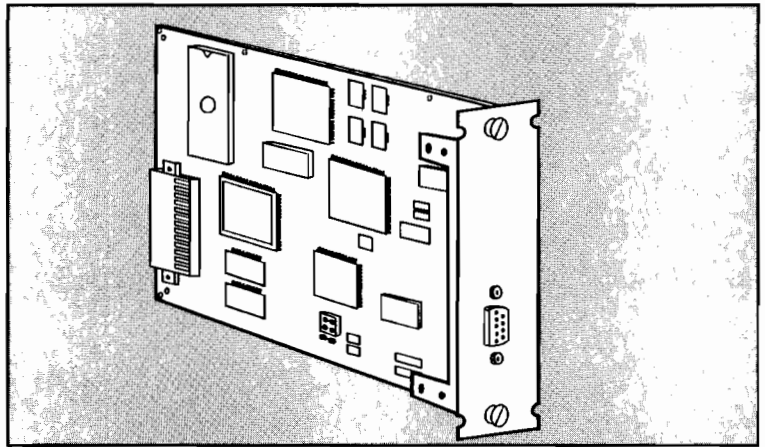


Figure 3-10. Identifying the Token Ring Adapter Card

2. Determine the type of connection you want to use to connect your adapter card to your network and get the appropriate cable. See Figure 3-11.
 - a. To attach to a shielded twisted-pair network, you will need a shielded twisted-pair cable. See (A).
 - b. To attach to an unshielded twisted-pair network, you will need a Type 3 Media Filter. See (B).

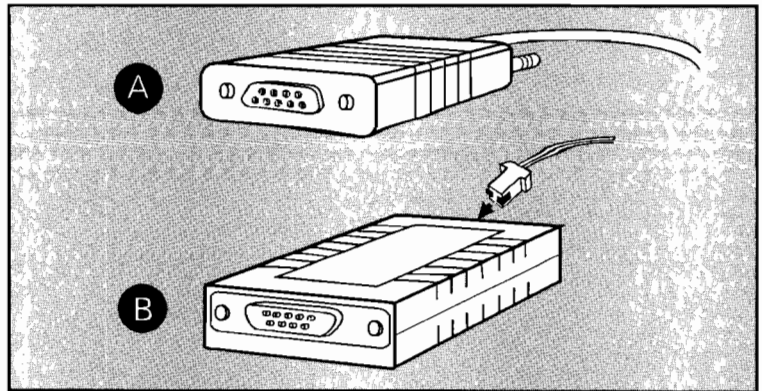


Figure 3-11. Determining the Connection Type

3. Configure your Token Ring adapter card for either a 4-Mbps or 16-Mbps data rate by moving the jumper block. See Figure 3-12. This should be the same setting as the other adapter cards on your network. **The factory default setting is 4 Mbps.**

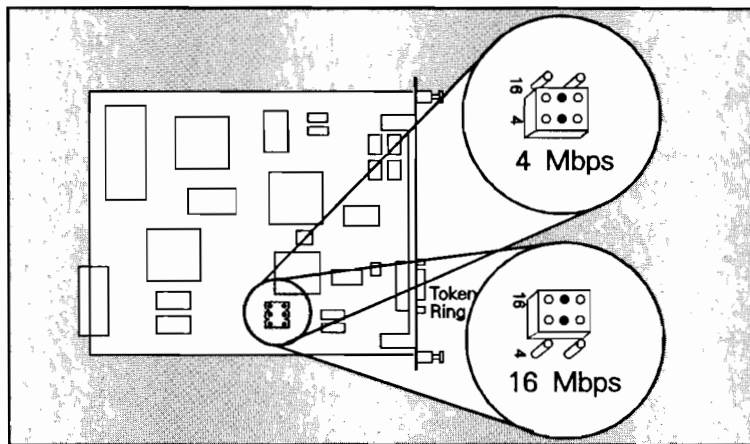


Figure 3-12. Configuring the Token Ring Adapter Card

4. Turn the printer off and unplug the power cord the rear of the printer. See Figure 3-13.

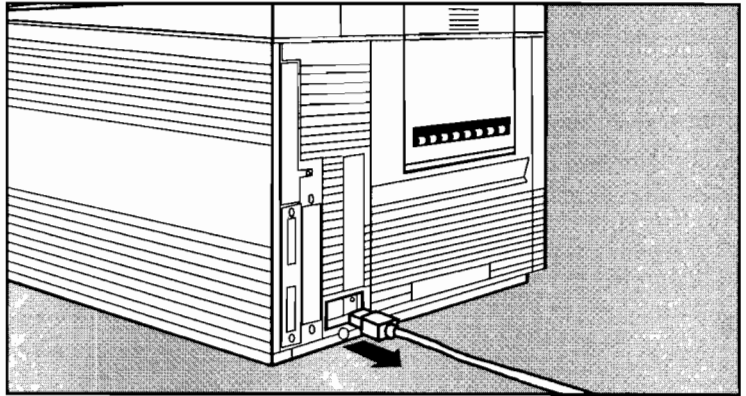


Figure 3-13. Unplugging the Printer

5. Locate the accessory slot at the rear of the printer on the lower, left-hand side. See Figure 3-14.

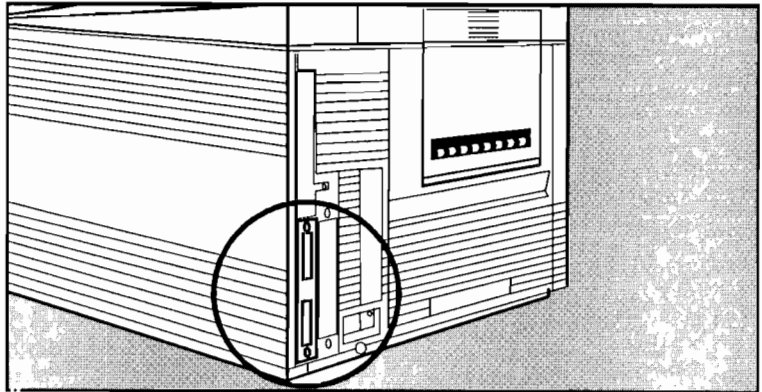


Figure 3-14. Locating the Accessory Slot

6. Remove the existing adapter card (if any) from the accessory slot at the rear of the printer by following these steps:
 - a. Completely loosen the two captive thumbscrews from the installed adapter card. See (A) in Figure 3-15.
 - b. Remove the existing adapter card from the HP LaserJet IIISi printer by pulling on the card's thumbscrew posts. Store the card in the antistatic bag in which your Token Ring card came. See (B) in Figure 3-15.

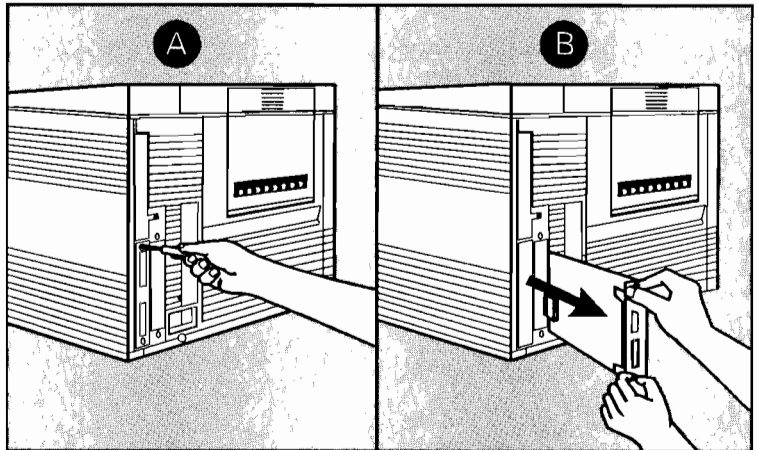


Figure 3-15. Removing the Existing Adapter Card

7. Install the Token Ring card into the HP LaserJet IIISi printer.
 - a. Hold the adapter card by its thumbscrews with the Token Ring (DB-9) connector on the bottom, as illustrated in (A) in Figure 3-16. Push the adapter card firmly into the accessory slot.
 - b. Tighten each thumbscrew a little at a time, alternating between the top and bottom screws until the screws are tight. See (B) in Figure 3-16. Tightening each screw a little at a time prevents damage to the card's backplane connector.

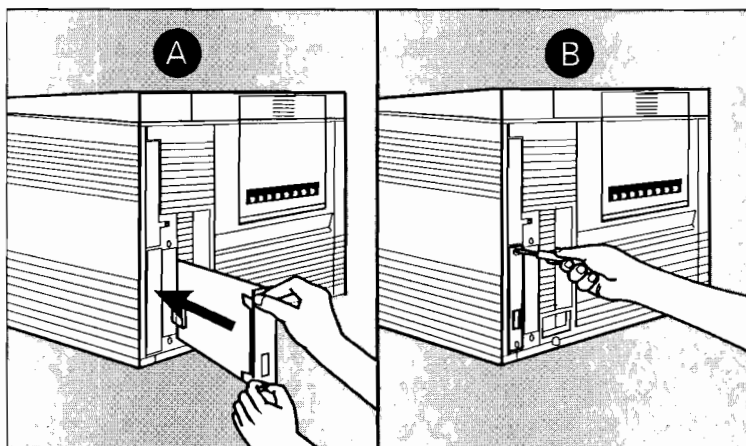


Figure 3-16. Installing the Token Ring Adapter Card

Attaching the Network Cable

To attach your HP LaserJet IIISi printer to your network, follow these steps:

1. Connect the printer to the network. To connect the printer, plug the Token Ring adapter cable from the adapter card's 9-pin DB-9 port to the Token Ring wiring concentrator on the network.
 - a. If your network uses shielded twisted-pair cable, use an adapter cable which supports both 4 and 16 Mbps. See (A).
 - b. If your network uses unshielded twisted-pair media, use a Type 3 Media Filter cable or its equivalent that supports 4 Mbps. The LAN connector only supports the 4 Mbps data rate over unshielded twisted-pair media. See (B).

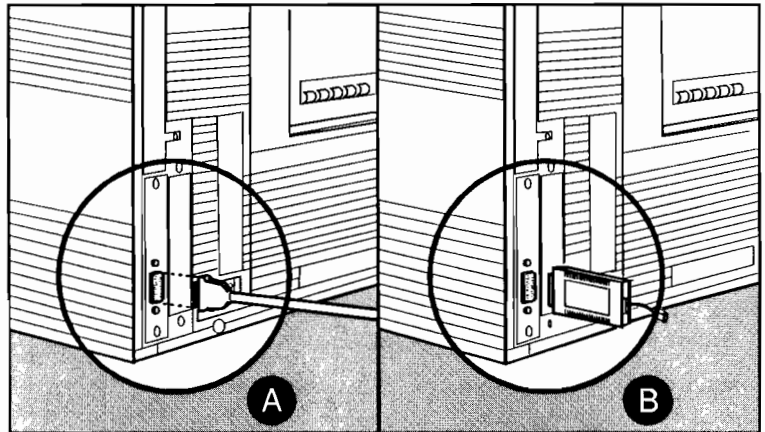


Figure 3-17. Connecting the Printer to the Network

2. Reattach the printer's power cord.
3. Turn the printer on. The printer will display 02 WARMING UP, 05 SELF TEST, and then 00 PCL READY or 00 PS READY.

This completes the installation of the Token Ring adapter card. Continue to the next section to configure the HP LaserJet III Si printer.

Configuring the Printer (Optional)

Hewlett-Packard recommends that you set the HP LaserJet III Si printer's front control panel AUTO CONTINUE setting to ON. Setting AUTO CONTINUE to ON enables the printer to resume normal operation after certain network errors or faults have been corrected.

For example, if AUTO CONTINUE is set to ON and the printer temporarily loses its connection to the print server, the printer will automatically begin printing again when it regains its connection with the print server. If AUTO CONTINUE were set to off, you would have to press the **CONTINUE** on the printer's control panel before the printer would resume printing.

When you set AUTO CONTINUE to ON, any recoverable printer errors are shown on the printer's front panel display for approximately 10 seconds. The current job is then terminated and the printer redisplay its ready message. Setting AUTO CONTINUE to ON ensures that errors pertaining to a single print job will not delay subsequent print jobs.



To set AUTO CONTINUE to ON, follow these steps:

1. Make sure the printer is on and is displaying 00 PCL READY or 00 PS READY. (When you first turn the printer on it will display 05 SELF TEST, 02 WARMING UP, and then 00 PCL READY or 00 PS READY).
2. Press the **ON LINE** key to take the printer off-line.
3. Hold down **MENU** until PCL CONFIG MENU appears. In approximately five seconds, the display will change to read SYS=HP-PCL*.

Note



If the display reads SYS=POSTSCRIPT*, you must change it to SYS=HP-PCL by pressing the **+** key and then the **ENTER** key. You must follow the instructions in this manual to first set up and install the HP Network Printer Interface for PCL printing, and then you will be referred to the *Network Notes for the LaserJet IIISi Printer* guide to set up your HP LaserJet IIISi printer for PostScript printing.

4. Press **MENU** twice and AUTO CONT=OFF* is displayed. (If AUTO CONT=ON* is displayed, skip to step 7.)
5. Press **+** and AUTO CONT=ON is displayed.
6. Press **ENTER** to save your change. An asterisk (*) will appear in the display.
7. Press **ON LINE** to return the printer on-line. The printer displays 00 PCL READY.

You have now completed configuring the printer. Continue with the next section to verify that the adapter card is installed correctly.

Verifying the Adapter Card Installation

To verify that the adapter card is installed correctly, follow these steps.

1. Make sure the printer is displaying 00 PCL READY. If a message other than 00 PCL READY appears, refer to appendix A for self test page troubleshooting information.
2. Take the printer off-line by pressing the **ON LINE** button.
3. Press and hold the **TEST** button until 05 SELF TEST appears in the printer's display window (approximately 5 seconds). The printer will perform a self test on its controller and its installed adapter card and print out a self test page.

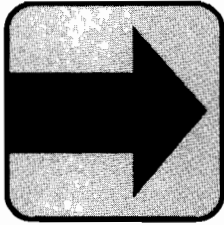
Note



If you hold the **TEST** button down longer than 5 seconds, the printer will start its continuous self test. Press the **ON LINE** button to end the continuous self test and return the printer on-line.

4. Make sure the third column of the self test page reads I/O CARD READY.
If a message other than I/O CARD READY appears, refer to chapter 8 for information on troubleshooting the adapter card.
5. Keep the self test page. You will need to refer to the self test page to complete the software configuration described in chapter 4.
6. Press the **ON LINE** button to return the printer to the on-line state. The printer displays 00 PCL READY.

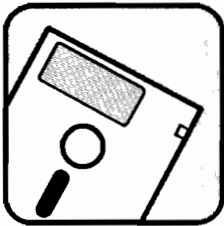
What's Next?



You have now verified that the adapter card in your printer is installed correctly. Continue with the next chapter for instructions on installing and configuring the software.

Installing and Configuring the Software

Overview



This chapter describes how to install and configure the HP Network Printer Interface software on your server to communicate with your HP LaserJet III Si printer.

This chapter shows you how to do the following:

- Install the HP Network Printer Interface software on your server using the INSTALL utility.
- Configure the HP Network Printer Interface software on your server to communicate with your HP LaserJet III Si printer and to share a print queue to workstations using the NPCONFIG utility.
- Add the appropriate permissions to your server.
- Verify your server is communicating with your HP LaserJet III Si printer by using the NPDIAG utility.
- Connect to a shared print queue from a LAN Manager workstation.
- Send files from workstations to the HP LaserJet III Si printer via the shared print queue.

At the end of this chapter, you will have a HP LaserJet III Si printer to which workstations on the network can print.

Note



To use the HP Network Printer Interface product, you must be running the 3Com 3+Open LAN Manager, version 1.1f.

Installing the Software

To install the HP Network Printer Interface software on the server, you must do the following:

- Use HP's INSTALL utility.
- Stop the server.
- Reboot the server.

To install the HP Network Printer Interface software, follow these steps:

1. Insert the "Installation and Configuration Utilities" diskette into your A: floppy disk drive.
2. At the OS/2 command line, type A: to switch to the A: drive.
3. From the A: prompt, type INSTALL .
The Welcome screen appears.
4. Read the Welcome screen and press .
The network printer software is copied to the following directory path on your hard disc:
3OPEN\SERVER\LANMAN\HPNETPRN In addition, the program makes backup copies of the CONFIG.SYS, PROTOCOL.INI, LANMAN.INI, and SRVESHARE.PRO files.
5. Type C: and press .
6. Press to exit the program.
7. Remove the floppy diskette from the disk drive.
8. Stop the server. To do so, at the OS/2 command line, type NET STOP SERVER and press .
9. Reboot the server using OS/2 Task Manager. To do so, follow these steps:
 - a. Switch to Task Manager by pressing and .
 - b. Select the Shutdown menu and choose the Shutdown Now command. Task Manager asks you if it is ok to shut down each application.
 - c. Click yes for each question. When applications are shut down, you are given the choice to turn off your computer, or re-enter Task Manager.

- d. Turn off the computer, and turn it back on, or hold down **Ctrl** and **Alt** and press **Del**. The computer reboots.

Configuring the Server

To configure your server, you must use the NPCONFIG utility. Before you configure the HP Network Printer Interface software, be sure the following items are true:

- The adapter card has been installed in the printer.
- The printer is attached to the NETWORK.
- The printer is turned on.
- ▣ You have a copy of the printer self test page (for the adapter Card Address).
- You have installed the network printer software with the install utility.

To configure the HP Network Printer Interface software on the server, you must do the following:

- ▣ Run the HP Network Printer Interface NPCONFIG utility.
- Select the printer's adapter Card Address by matching the adapter card address that is listed on the printer self test page with the adapter Card Address listed on the NPCONFIG screen.
- ▣ Enter a name for the printer.
- Note the printer name, adapter Card Address, and name of the print queue.

To configure the HP Network Printer Interface software, follow these steps:

1. Make sure the server is running OS/2 and LAN Manager and that you are at the OS/2 command line.
2. Type NPCONFIG **Enter**
The Main Menu appears, which contains a list of actions from which to choose.
3. Choose **Add network printer** and press **Enter**.
The Select Adapter Card Address screen appears. The Select Adapter Card Address screen contains one or more 12-digit hexadecimal addresses.

Note



If the adapter Card Address listed on your printer self test page does not appear as a choice, the HP Network Printer Interface adapter card is not communicating with the server. Refer to chapter 8, "Troubleshooting" for information on checking your HP Network Printer Interface adapter card. You cannot proceed with the installation until the correct adapter Card Address appears as a choice on the screen.

4. Select the address that corresponds with the 12-digit number listed on your printer self test page and press **Enter**.
The Specify Printer Name screen appears.
5. Enter a name for the HP LaserJet III Si printer and press **Enter**. The name can be up to 7 characters long and may only contain letters and numbers. For example, to name your printer, PRINT1, type PRINT1 and press **Enter**.
The Verify Addition screen appears.
6. Record the name and address of the network printer you have configured on the Network Administrator's Worksheet (located on the inside of the back cover of this guide), and the name of the shared print queue.
7. Press **Enter** to confirm the configuration, or press **Esc** to cancel the configuration.
The Main Menu appears.
8. Press **Esc**. The program makes backup copies of the CONFIG.SYS, PROTOCOL.INI, LANMAN.INI, and SRVESHARE.PRO files, and the *Modifying configuration files message appears.*
9. Press **Esc** to exit the NPCONFIG program.
10. Stop the server. To do so, at the OS/2 command line, type NET STOP SERVER **Enter**.
11. Reboot the server using OS/2 Task Manager. To do so, follow these steps:
 - a. Switch to Task Manager by pressing **CTRL** and **Esc**.

- b. Select the Shutdown menu and choose the Shutdown Now command. Task Manager asks you if it is ok to shut down each application.
- c. Click yes for each question. When applications are shut down, you are given the choice to turn off your computer, or re-enter Task Manager.
- d. Turn off the computer, and turn it back on, or hold down **Ctrl** and **Alt** and press **Del**. The computer reboots.

Adding Permissions

If your server uses user-level security, you need to verify that your network users have access to the network printer. To do so, follow these steps:

1. Type NET ADMIN and press **Enter** at the OS/2 command line prompt.
2. Select the **Accounts Dialog box** by pressing **Alt** A.
3. Choose **Other Permissions** by pressing 0.
4. Use the arrow keys to highlight the `\print sharename` of the printer you just added to the network, or just highlight `\print` if the sharename does not appear.
5. Choose the **Change** option by pressing **Alt** C.
6. Verify that all users who should have access to the printer you just added to the network are in the "Permitted" box.

If you wish to add a user to the "Permitted" box, do the following:

- a. Press **Alt** 0 to select from the "Not permitted" box.
 - b. Use the arrow keys to highlight the user you wish to add to the "Permitted" box.
 - c. Press **Alt** V to move that user to the "Permitted" box.
 - d. Repeat steps A-C for each user you wish to add.
 - e. Press **Tab** repeatedly to select <OK>.
 - f. Press **Enter**.
7. Press **Esc** and then **F3** to exit NET ADMIN.

You have now permitted the users on your network to use the new printer. Continue with the next section, "Verifying Server to Printer Connection."

For more information about user permissions, refer to the *3COM 3+ Open MS LAN Manager Administrator's Guide*.

Verifying Server to Printer Connection

To verify that the server can communicate with the network printer, run the Network Printer Diagnostics utility (NPDIAG). The *NPDIAG utility* gives you information about the state of the connection between the server and the printer. To run NPDIAG follow these steps:

1. Make sure the server is running OS/2 and LAN Manager and that you are at the OS/2 command line.
2. Type NPDIAG and press **Enter**.
The Select Printer screen appears.
3. Select the card name and address of the printer you just installed and press **Enter**.
The Connection State screen is displayed. This screen should look like the following:

Printer Name	(User defined)
Printer Adapter Address	(12-digit hexadecimal number)
Printer Connection State	Connected to this server
Printer Line State	On-line
Server Connection State	Connected to printer

The previous status shows a successful connection. If this is not the status of the connection between the server and the HP LaserJet IIISi printer, read the information in the NPDIAG utility to find out how to solve the problem.

4. Press **Esc** twice to exit NPDIAG.

For more information about the NPDIAG utility, refer to appendix B, "Using the NPDIAG utility."

For more information about troubleshooting, refer to chapter 8, "Troubleshooting."

Connecting to a Shared Print Queue

To use the HP LaserJet IIISi printer from a workstation, you must connect to the shared print queue that is shared by the server. To connect to a shared print queue from a workstation using the OS/2 or DOS command line, use the NET USE command. The syntax of the *NET USE command* follows:

```
NET USE devicename \\servername\sharename
```

where: *devicename* is either LPT1:, LPT2:, or LPT3:
servername is the name of the server.
sharename is the name of the shared print queue.

For example, to connect to a shared print queue, choose a *devicename* that is not already in use at the workstation, (for example, LPT1:) identify the name of the server (for example, SERVE1) and identify the name of the shared print queue's *sharename* (for example, HPPRINT). Then type:

```
NET USE LPT1: \\SERVE1\HPPRINT .
```

Printing From the Workstation

To verify that you have installed the HP Network Printer Interface correctly, copy a file from the workstation to the printer, using the printer device name.

For example, you could send the CONFIG.SYS file to the printer, type:

```
COPY C:\CONFIG.SYS devicename
```

where *devicename* is the name chosen when the connection was made at the workstation (either LPT1:, LPT2:, or LPT3:).

If the CONFIG.SYS file is printed on the printer, you have correctly installed and configured your HP Network Printer Interface.

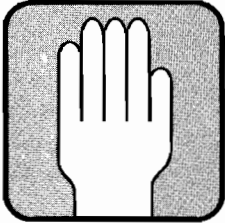
Correcting Problems

If the file does not print, check the following:

- Is the printer turned on and on-line?
- Have you rebooted the server after completing the installation program?
- Is the adapter card seated in the printer properly? (The fit should be snug.)
- Is the cable broken at any place?
- Did the file arrive at the shared print queue on the server?
- Is the workstation properly connected to the shared print queue? To view all network connections, type: NET USE.

If you have checked these items and still cannot get the printer to print, refer to chapter 8 for detailed troubleshooting information.

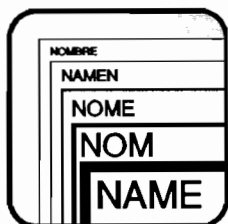
What's Next?



You have now successfully installed and configured your HP Network Printer Interface. The following chapter describes how to change the name assigned to your printer.

Changing Your Printer Name

Overview



This chapter describes how to change the printer name. The printer name is the name used by the LAN Manager server to recognize the printer. To change the name of your printer, you must perform the following tasks:

- Make sure the shared queue for the old printer name is empty. When you finish renaming your printer, the old shared queue is deleted and a new one is created.
- Run the NPCONFIG utility and change the printer name.
- Stop the server.
- Reboot the server.
- At workstations, connect to the new shared queues.

Before You Begin

Before you begin to change the HP Network Printer Interface configuration, you need to know either the printer name previously assigned to your printer or the address of the adapter card that is in the printer. This address is listed on the printer's self test page.

Changing the Printer Name

Before you change the printer name of you network printer, make sure the shared queue associated with the network printer is empty. It will be removed when you change the printer name of your network printer. To change the printer name , follow these steps:

1. Type NPCONFIG and press **Enter** at the OS/2 prompt. *The Main Menu appears*, which contains a list of actions from which to choose.
2. Choose the **Change printer name** entry and press **Enter**. *The Select Printer screen appears*.
3. Select the printer name you want to change. *The Specify New Printer Name screen appears*. The printer name may be up to 7 characters which consist of letters or numbers.
4. Enter the printer name and press **Enter**. *The Verify Changed Printer Name screen appears*.
5. Record the new printer name and the new shared print queue name in the Network Administrator's Worksheet (located on the inside of the back cover of this guide).
6. Press **Enter** to confirm the configuration, or **Esc** to cancel. *The Main Menu appears*.
7. Press **Esc**. The program makes backup copies of the CONFIG.SYS, PROTOCOL.INI, LANMAN.INI, and SRVESHARE.PRO files, and the *Modifying configuration files message appears*.
8. Press **Esc** to exit the NPCONFIG program.
9. Stop the server. To do so, at the OS/2 command line, type NET STOP SERVER **Enter**.
10. Reboot the server using OS/2 Task Manager. To do so, follow these steps:
 - a. Switch to Task Manager by pressing **CTRL** and **Esc**.
 - b. Select the Shutdown menu and choose the Shutdown Now command. *Task Manager asks you if it is ok to shut down each application*.

- c. Click yes for each question. When applications are shut down, you are given the choice to turn off your computer, or re-enter Task Manager.
- d. Turn off the computer, and turn it back on, or hold down **Ctrl** and **Alt** and press **Del**. The computer reboots.

You have now changed the name of your HP LaserJet III Si printer. Refer to the next section for instructions on testing your HP LaserJet III Si printer.

Verifying Server to Printer Connection

To verify that the server can communicate with the network printer, run the Network Printer Diagnostics utility (NPDIAG). The NPDIAG utility gives you information about the state of the connection between the server and the printer. To run NPDIAG follow these steps:

1. Make sure the server is running OS/2 and LAN Manager and that you are at the OS/2 command line.
2. Type NPDIAG and press **Enter**.
The Select Printer screen appears.
3. Select the card name and address of the printer you just installed and press **Enter**.
The Connection State screen is displayed. This screen should look like the following:

Printer Name	(User defined)
Printer Adapter Address	(12-digit hexadecimal number)
Printer Connection State	Connected to this server
Printer Line State	On-line
Server Connection State	Connected to printer

The previous status shows a successful connection. If this is not the status of the connection between the server and the HP LaserJet IIISi printer, read the information in the NPDIAG utility to find out how to solve the problem.

4. Press **Esc** twice to exit the NPDIAG.

For more information about the NPDIAG utility, refer to appendix B, "Using the NPDIAG utility."

For more information about troubleshooting, refer to chapter 8, "Troubleshooting."

Connecting to a Shared Print Queue

To use the HP LaserJet IIISi printer from a workstation, you must connect to the shared print queue that is shared by the server. To connect to a shared print queue from a workstation using the OS/2 or DOS command line, use the NET USE command. The syntax of the NET USE command follows:

```
NET USE devicename \\servername\sharename
```

where: *devicename* is either LPT1:, LPT2:, or LPT3:
servername is the name of the server.
sharename is the name of the shared print queue.

For example, to connect to a shared print queue, choose a *devicename* that is not already in use at the workstation, (for example, LPT1:) identify the name of the server (for example, SERVE1) and identify the name of the shared print queue's *sharename* (for example, HPPRINT). Then type:

```
NET USE LPT1: \\SERVE1\HPPRINT
```

Printing From the Workstation

To copy a file from the workstation to the printer, use the printer name. For example, you could send the CONFIG.SYS file to the printer, type:

```
COPY C:\CONFIG.SYS devicename
```

where *devicename* is the name chosen when the connection was made at the workstation (either LPT1:, LPT2:, or LPT3:).

If the CONFIG.SYS file is printed on the printer, you have correctly installed and configured your HP Network Printer Interface.

Correcting Problems

If the file does not print, check the following:

- Is the printer turned on and on-line?
- Have you rebooted the server after completing the installation program?
- Is the adapter card seated in the printer properly? (The fit should be snug.)
- Is the cable broken at any place?
- Did the file arrive at the shared queue on the server?
- Is the workstation properly connected to the shared queue?

To view all network connections, type: NET USE.

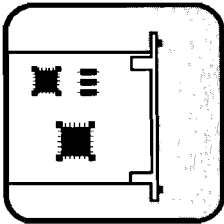
If you have checked these items and still cannot get the printer to print, refer to chapter 8 for detailed troubleshooting information.

What's Next?

You have now successfully changed the name of your HP LaserJet IIISi printer. The following chapter describes how to replace your adapter card.

Replacing the Adapter Card

Overview



This chapter describes how to change the HP Network Printer Interface adapter card. To replace a HP Network Printer Interface adapter card, you must follow these steps:

- Stop the server.
- Replace the adapter card.
- Run NPCONFIG to assign the new adapter Card Address to your HP LaserJet III Si printer.
- Reboot the server.

Before You Begin

Before you change the HP Network Printer Interface adapter card, you need the following in addition to this guide:

- A new HP Network Printer Interface adapter card.
- The printer name previously assigned to your network printer.
- The adapter Card Address of the new HP Network Printer Interface adapter card that you installed in the printer. The adapter Card Address is printed on the printer's self test page.

Replacing the HP Network Printer Interface Adapter Card

Replace the HP Network Printer Interface adapter card following the instructions for installing the adapter card listed in chapter 3.

When you have installed the new adapter card in your printer, refer to the next section for instructions on changing the adapter Card Address assigned to the printer's device name.

Changing the Card Address

To change the adapter Card Address assigned to your printer's device name, follow these steps:

1. Make sure the printer is on and on-line after you have replaced the adapter card.
2. Run the NPCONFIG utility by typing NPCONFIG at the OS/2 prompt and pressing **Enter**.
The Main Menu appears, which contains a list of options from which to choose.
3. Choose **Change adapter card address**.
The Select Printer screen appears.
4. Select the name of the network printer which contains the new HP Network Printer Interface adapter card and press **Enter**.
The Select Adapter Card Address screen appears.
5. Select the adapter Card Address that matches the adapter Card Address listed on the printer's self test page and press **Enter**.
The Verify Changed Adapter Card Address screen appears.
6. Check to make sure the printer name and adapter Card Address are correct.
7. Press **Enter** to verify, or press **Esc** to cancel. *The Main Menu appears.*

8. Press **Esc**. The program makes backup copies of the CONFIG.SYS, PROTOCOL.INI, LANMAN.INI, and SRVESHARE.PRO files, and the *Modifying configuration files message* appears.
9. Press **Esc** to exit NPCONFIG.
10. Stop the server. To do so, at the OS/2 command line, type NET STOP SERVER **Enter**.
11. Reboot the server using OS/2 Task Manager. To do so, follow these steps:
 - a. Switch to Task Manager by pressing **CTRL** and **Esc**.
 - b. Select the Shutdown menu and choose the Shutdown Now command. Task Manager asks you if it is ok to shut down each application.
 - c. Click yes for each question. When applications are shut down, you are given the choice to turn off your computer, or re-enter Task Manager.
 - d. Turn off the computer, and turn it back on, or hold down **Ctrl** and **Alt** and press **Del**. The computer reboots.

You have now changed the adapter Card Address assigned to your printer's device name. Refer to the next section for instructions on testing your HP LaserJet IIISi printer.

Printing From the Workstation

To verify that you have installed the HP Network Printer Interface correctly, copy a file from the workstation to the printer, using the printer device name.

For example, you could send the CONFIG.SYS file to the printer, type:

```
COPY C:\CONFIG.SYS devicename
```

where *devicename* is the name chosen when the connection was made at the workstation (either LPT1:, LPT2:, or LPT3:). If the CONFIG.SYS file is printed on the printer, you have correctly installed and configured your HP Network Printer Interface.

Correcting Problems

If the file does not print, check the following:

- Is the printer turned on and on-line?
- Have you rebooted the server after completing the installation program?
- Is the adapter card seated in the printer properly? (The fit should be snug.)
- Is the cable broken at any place?
- Did the file arrive at the shared queue on the server?
- Is the workstation properly connected to the shared queue?

To view all network connections, type: NET USE.

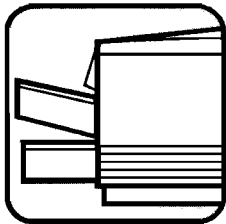
If you have checked these items and still cannot get the printer to print, refer to chapter 8 for detailed troubleshooting information.

What's Next?

You have now successfully replaced the HP Network Printer Interface adapter card. The next chapter describes how to remove a previously installed HP LaserJet IIISi printer from your network.

Removing HP LaserJet IIISi printers

Overview



Note



This chapter describes how to remove a previously installed HP LaserJet IIISi printer. Removing a HP LaserJet IIISi printer consists of the following steps:

- Removing the HP LaserJet IIISi printer from the network.
- Removing the HP Network Printer Interface drivers from the server with the NPCONFIG.

You can only remove one HP LaserJet IIISi printer from your network at a time. If you have to remove more than one HP LaserJet IIISi printer, you must remove them one at a time, following the instructions listed in this chapter for each printer you wish to remove from your network.

Before You Begin

To remove a HP LaserJet IIISi printer from the network, you need to know the name assigned to the printer when it was originally installed.

Removing the Printer

To remove the HP LaserJet IIISi printer from the network, follow these steps:

1. Turn off the printer.
2. Disconnect the network cable from the back of the printer.

Caution



Do not detach the Ethernet cable from the BNC "T" connector. Detaching the cable causes network problems.

You have now removed the HP LaserJet IIISi printer from your network. Continue with the next section to remove the HP Network Printer Interface drivers from your server.

Removing the HP Network Printer Interface Drivers

The final step in removing a HP LaserJet IIISi printer from your network is to remove the HP Network Printer Interface drivers from your server. To remove the HP Network Printer Interface software from your server, follow these steps:

1. Make sure the server is running OS/2 and LAN Manager and that you are at the OS/2 command line.
2. Type `NPCONFIG` and press **Enter**.
The Main Menu appears, which contains a list of options from which to choose.
3. Choose **Remove printer** and press **Enter**.
The Select Printer screen appears.
4. Select the name of the printer you want to remove and press **Enter**.
The Verify Removal screen appears.
5. Record the printer name, address, and the name of the shared print queue on the Network Administrator's Worksheet (located on the inside of the backcover of this guide).
6. Press **Enter** to verify, or press **Esc** to cancel.
The Main Menu appears.
7. Press **Esc**. The program makes backup copies of the `CONFIG.SYS`, `PROTOCOL.INI`, `LANMAN.INI`, and `SRVESHARE.PRO` files, and the *Modifying configuration files message appears.*
8. Press **Esc** to exit `NPCONFIG`.
9. Stop the server. To do so, at the OS/2 command line, type: `NET STOP SERVER` and press **Enter**.



10. Reboot the server using OS/2 Task Manager. To do so, follow these steps:
 - a. Switch to Task Manager by pressing **CTRL** and **Esc**.
 - b. Select the Shutdown menu and choose the Shutdown Now command. Task Manager asks you if it is ok to shut down each application.
 - c. Click yes for each question. When applications are shut down, you are given the choice to turn off your computer, or re-enter Task Manager.
 - d. Turn off the computer, and turn it back on, or hold down **Ctrl** and **Alt** and press **Del**. The computer reboots.

Note



You must reboot your server so that the printer driver is removed from your server. You have now finished removing the HP LaserJet IIISi printer from your network.

What's Next?

The following chapter describes how to troubleshoot your HP Network Printer Interface.

Troubleshooting

Overview



This chapter describes how to troubleshoot any problems you may have with your HP LaserJet III Si printer and HP Network Printer Interface.

Before You Begin

You need the *HP LaserJet III Si Printer User's Reference Manual* in order to troubleshoot your HP LaserJet III Si printer and HP Network Printer Interface:

- The *HP LaserJet III Si Printer User's Reference Manual*
- HP's NPDIAG utility (installed automatically when you ran the HP Network Printer Interface INSTALL program)

Troubleshooting Overview

For the purpose of troubleshooting, your HP LaserJet IIISi printer falls into one of two categories. Either it has never worked before, or it has worked in the past but it currently does not work.

If your HP LaserJet IIISi printer has never worked before, follow the troubleshooting instructions in this chapter in the order in which they are presented.

If your HP LaserJet IIISi printer worked before but now does not work, you need to consider what has changed on your network. For example:

- Has any hardware been moved or added to your network. This includes installing or removing any workstations, changing any cabling, or adding new peripherals, such as printers.
- Have any software applications been added to the network?
- Have any configuration files been modified?

If you know that something has been changed on your network, or suspect that something has been changed on your network, recheck the changes that have been made.

If the HP LaserJet IIISi printer still does not work after you check any recent changes to your network, follow the troubleshooting instructions in this chapter in the order in which they are presented.

Troubleshooting Strategy

To troubleshoot your HP LaserJet IIISi printer, check all of the network parts illustrated in Figure 8-1 in the order in which they are presented.

1. Printer.
2. Server.
3. Network connection between the printer and the server.
4. Workstation.
5. Network connection between the workstation and the server.

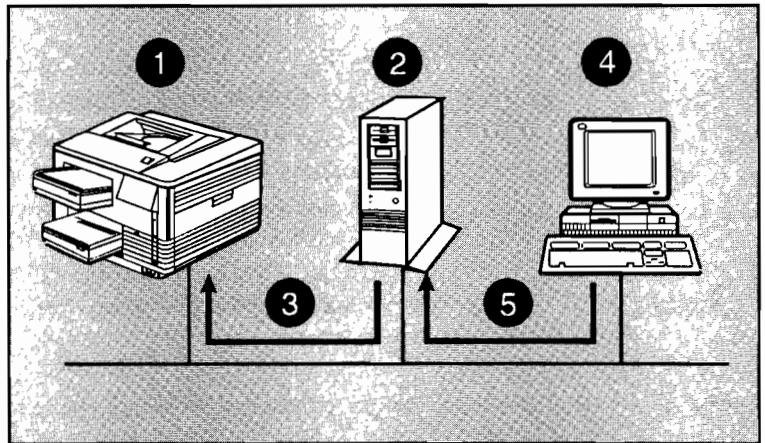


Figure 8-1. Parts of a Local Area Network

For example, first you would check the printer, then the server, and then the connection between the printer and the server. By checking all of the network components in order, you are most likely to be able to isolate the printing problem.

This chapter provides comprehensive lists of items you should check in order to ensure that each part of your network is functioning properly. The basic strategy is as follows:

1. Ensure that the printer is functioning properly.
2. Ensure that the server is running the network software.
3. Ensure that the server and printer are communicating with each other.
4. Ensure that the workstation is running the network software and that any software applications are configured properly.
5. Ensure that the workstation is communicating with the server and the workstation is connected to the shared queue for the network printer.

If your HP LaserJet III Si printer and HP Network Printer Interface has never worked before, check the parts of your network in the order presented in this chapter. If you suspect that a specific part of your network is causing the problem, skip to the checklist for that part. If you cannot solve the problem, recheck all parts of the network in the order listed in this guide. If the problem persists, refer to appendix D for information on customer support.

Network Printer Checklist

Check the following items to ensure that your printer is installed and configured correctly:

- Is the printer plugged in and turned on?

Make sure that the power cord is firmly attached to the printer and is plugged into a power outlet. Make sure that the printer is turned on.

- Is the printer on-line?

The green On Line light should be lit. If it is not, press the **On Line** button to place the printer on-line.

- Does a 23 I/O CARD NOT READY error message appear in the printer's control panel display?

Check that the card is connected to the network. Try to run a printer self test by making sure the printer is off-line and pressing and holding the printer's **TEST** button until 05 SELF TEST appears in the printer's display window. The printer will then print a self test page.

If the self test page does not print, remove the HP Network Printer Interface adapter card from the printer and turn the printer on again. Retry the printer self test.

If the self test still does not print out, something is wrong with your printer. Refer to chapter 5 in the *HP LaserJet IIISi Printer User's Reference Manual* for information on repairing the HP LaserJet IIISi printer.

If a self test prints out when the adapter card is removed from the printer, but does not print out when the adapter card is installed in the printer, the adapter card was either installed improperly, or the adapter card is defective. Try to reinstall the adapter according to the instructions in chapter 3. If the problem persists, the adapter card may be defective. Refer to appendix D, "Customer Support and Warranty Information," for information on replacing the adapter card.

If the self test does print out, analyze the results of the self test using the information in appendix A. Correct any problems as directly by appendix A.

- Does the printer's control panel display one of the following messages:

80 SERVICE 01XX 80 SERVICE 02XX 80 SERVICE 03XX
80 SERVICE 04XX

If so, turn the printer off and then on again. If the message reappears, try reinstalling the adapter card. If the message persists, the problem is with your HP Network Printer Interface and you must replace it. Refer to replacement instructions in appendix D.

- Does the printer's control panel display an 80 SERVICE 00XX message? If so, turn the printer off and then on again. If the message reappears, try reinstalling the adapter card. Also, make sure the HP Network Printer Interface adapter card is firmly plugged into the HP LaserJet IIISi printer. If an 80 SERVICE 00XX message persists, the problem is probably with the HP LaserJet IIISi printer. Refer to HP LaserJet IIISi printer User's Reference Manual for more information.
- Does a 40 ERROR error message appear in the printer's display window?

A 40 ERROR error message indicates that the HP Network Printer Interface adapter card detected a break in the data communications.

A break in communications may result from the physical network connection being disrupted or the server going down. If AUTO CONTINUE is set to ON, the printer resumes normal operations when the network problem is resolved. If AUTO CONTINUE is set to OFF, you must press the **CONTINUE** button on the printer after the communications problem is solved to put the printer back on-line.

- Does any other type of message (other than 00 PCL READY or 00 PS READY) appear in the printer's control panel display?

Refer to chapter 5 in the *HP LaserJet III Si Printer User's Reference Manual* for a complete listing of control panel messages and corrective actions.

- Does 00 PCL READY or 00 PS READY appear in the display? The server may not be configured properly. Check that the card is connected to the network. Try to run a printer self test by making sure the printer is off-line and pressing and holding down the printer's **TEST** button until 05 SELF TEST appears in the printer's display. The printer will then print a self test page.

If on the self test page LLC CONNECTION: is DISCONNECTED and no server address appears, your server is not configured properly. Refer to chapter 4, "Installing and Configuring the Software" for step-by-step instructions on configuring the server.

- Do you have the correct adapter card installed in the HP LaserJet III Si printer?

Print a self test page and make sure the card name listed on the self test page matches the card name listed in appendix A, "Understanding the Self Test Page." If the name does not match, refer to appendix D for information on replacing the adapter card.

- Is the printer connected to the network?

Make sure that the printer is attached to the network using the appropriate adapter card port and cable.

- Is the problem with the print quality or paper jams?

If you are having problems with the print quality, such as copies that are too light, or printing problems such as paper jams, refer to chapter 5 of the *HP LaserJet III Si Printer User's Reference Manual*.

Server Checklist

Check the following items to ensure that your server is configured correctly:

- Is the server running LAN Manager and have the print queues been shared properly?

Check that the shared print queue is operating correctly.

At the OS/2 command prompt, type:

NET SHARE and press **Enter**.

If the queue for the printer is not shared, you can share a queue (for example, a queue named HPPRINT) by typing:

```
NET SHARE HPPRINT /PRINT
```

Refer to the *3COM 3+ Open MS LAN Manager Administrator's Guide* for more information on sharing queues.

- Is the shared queue on hold?

You can also view status information about the shared queue using the LAN Manager NET ADMIN utility. At the OS/2 command prompt, type NET ADMIN and press **Enter**. To view details about a specific share, choose the "View" menu item, followed by "Print Queues." Highlight the queue you're interested in and choose Zoom.

If the status column shows "Queue Held," release the queue by choosing the Release command button and clicking on OK.



Server to Printer Connection Checklist

Check the following items to ensure that your server is communicating with your printer:

- Run NPDIAG to see if the server is communicating with the printer. Refer to appendix B, “Diagnosing Problems with NPDIAG” for information about using NPDIAG.

If data is not being sent to the printer, there may be a problem with the network, server, or configuration. Recheck the adapter card’s jumpers and installation.

- Is the adapter installed and configured correctly?
- Is the adapter card properly attached to your network?

You can also view status information about the shared queue using the LAN Manager NET ADMIN utility. At the OS/2 command prompt, type NET ADMIN and press **Enter**. To view details about a specific share, choose the “View” menu item, followed by “Print Queues.” Highlight the queue you’re interested in and choose Zoom.

Make sure the device name matches the name you choose for the printer. The device name will have a “\$” added to the end of the name.

Workstation Checklist

Check the following items to ensure that your workstation is configured correctly:

- Is the workstation connected to the shared queue? To check this, type: NET USE.

If the connection is down, try to connect to the shared queue. To connect to the shared queue, PRNPCL, at the server, PRN, type:

```
NET USE LPT1: \\PRN\PRNPCL 
```

- Is the cable disconnected?
- Is the workstation running the network software?
- Is the server running LAN Manager?

If the server is not running LAN Manager, run it by typing at the OS/2 command prompt: NET START SERVER. If you cannot load your network software, refer to the documentation shipped with LAN Manager.

- Is the software application you are running configured to print to the correct devicename?

Refer to your network documentation for information on setting up and configuring queues.

Workstation to Server Connection

Check the following items to ensure that your workstation is communicating with your server:

- Is the workstation connected to the shared queue for the network printer?

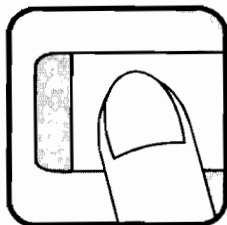
To check this, place the shared queue on hold at the server. Then, copy a file to the shared queue. For example, type:

```
COPY CONFIG.SYS LPT1: 
```

Return to the server and check the shared queue. If the print job appears in the shared queue, the workstation is connected to the server.

Understanding the Self Test Page

Overview



The self test page lists information about the printer's configuration and the HP Network Printer Interface configuration. To print a self test page:

1. Take the printer off-line by pressing the **ON LINE** key.
2. Press and hold the printer's **TEST** button until 05 SELF TEST appears in the printer's display window. A printer self test page prints.
3. Return the printer on-line by pressing the **ON LINE** key.

This appendix describes the HP Network Printer Interface configuration information printed on the printer's self test page. Refer to the *HP LaserJet III Si Printer User's Reference Manual* for printer configuration information printed on the self test page.

This chapter is divided into two sections:

- Understanding the Ethernet/802.3 Self Test Page.
- Understanding the Token Ring (802.5) Self Test Page.

Understanding the Ethernet Self Test Page

This section describes the Ethernet/802.3 self test page. Use the information in this section only if you have connected your HP LaserJet IIISi printer to an Ethernet/802.3 network. If you have connected your HP LaserJet IIISi printer to a Token Ring (802.5) network, skip to the next section, "Understanding the Token Ring Self Test Page."

Ethernet Self Test Page Layout

The self test page is divided into five parts, as illustrated by Figure A-1:

1. Printer hardware configuration information (described in detail in the *HP LaserJet IIISi Printer User's Reference Manual*).
2. Adapter card configuration information.
3. 3Com network configuration information.
4. Adapter card status information.
5. Network statistics.

Self Test Page Messages

This section describes each of the messages that can be printed on an Ethernet self test page.

Table A-1.

Field	Description
LLC Type 2 802.3	Indicates the name of the adapter card currently installed in the HP LaserJet III Si printer.
FIRMWARE REVISION: X.XX.XX	Indicates the firmware revision number of the adapter card currently installed in the HP LaserJet III Si printer.
CARD ADDRESS: 08000904B6CA	CARD ADDRESS is the 12-digit hexadecimal network address of the 3Com network card installed in the HP LaserJet III Si printer.
PORT SELECT: BNC PORT AUI PORT, or JUMPER ERROR	Indicates the port on the adapter card that you have selected. Values for port selection are BNC PORT and AUI PORT. The jumper on the adapter card must correspond to the port on the adapter card. If this field displays JUMPER ERROR, the adapter card in the printer has its jumpers set incorrectly for the port being used. Refer to "Configuring Your Adapter Card" in chapter 3 for instructions on changing the jumper.
SERVER INFORMATION:	This portion of the self test page contains information on the server to which this network printer is connected. SERVER INFORMATION consists of the following two fields:

Table A-1. (continued)

Field	Description
<p>LLC CONNECTION:</p>	<p>Indicates the current status of the connection of the adapter card in the network printer. The status may be CONNECTED or DISCONNECTED. CONNECTED indicates that a link level connection exists between the network printer and the server.</p> <p>DISCONNECTED indicates that the connection between the server and the network printer is currently down. A DISCONNECTED state is temporary. After the printer is put back on line following the self-test page printout, the adapter card will be waiting for a server to establish a connection to it. Sending a file to the printer results in a CONNECTED state, since the server will reestablish a connection to the network printer.</p>
<p>SERVER ADDRESS:</p>	<p>Indicates the adapter card address of the server which is currently connected to this network printer. SERVER ADDRESS is a 12-digit hexadecimal number.</p>
<p>I/O CARD READY or I/O CARD NOT READY</p>	<p>Indicates the current status of the adapter card installed in the HP LaserJet IIISi printer. I/O CARD READY indicates that the adapter card is configured correctly and is capable of communicating with the server. However, in order to communicate with the printer, the server must be configured properly. I/O CARD NOT READY indicates that there is a problem with the card or its physical configuration. Following the I/O CARD NOT READY message is a two digit code and a status message. Refer to Table A-2 for a detailed explanation of all status messages. These messages are listed by their code number.</p>

I/O CARD NOT READY Status Messages

This section describes the messages that can appear following the I/O CARD NOT READY status message. The following table lists all of the possible adapter card status messages, listed by their two digit code number:

Table A-2. I/O Card Not Ready Status Messages

Number	Message	Description
03	LAN ERROR - EXTERNAL LOOPBACK	<p>The adapter card is incorrectly connected to your network or is defective. Make sure your adapter card is correctly attached to your network. In addition, check the cabling, port selection, taps, transceivers, and BNC "T" connectors. Also check the adapter card's jumper block to make sure it is configured for the right port. Refer to chapter 3 for information on setting the jumper block.</p> <p>When this message is displayed, up to four lines of further explanation may follow. These messages are as follows:</p>
	BABBLE ERROR	Run the power-on self test by turning the printer off and then on again. If the error persists, replace the adapter card.
	CRC ERROR	Check the network topology and verify all cable segments. Check for damaged cables.
	FRAMING ERROR	Check the network topology and verify all cable segments. Check for damaged cables.
	LATE COLLISION ERROR	Check the network topology and verify all cable segments and make sure no segment is too long.

Table A-3. I/O Card Not Ready Status Messages (continued)

Number	Message	Description
	LOSS OF CARRIER ERROR	Check the AUI cable for damage, shorts, and for faulty transceivers. Also check the adapter card's jumper block to make sure it is set for the correct port. Refer to chapter 3 for information on setting the adapter card's jumper block.
	MEMORY ERROR	Run the power-on self test by turning the printer off and then on again. If the error persists, replace the adapter card.
	OVERFLOW ERROR	Run the power-on self test by turning the printer off and then on again. If the problem persists, replace the adapter card.
	RECEIVE BUFFER ERROR	Run the power-on self test by turning the printer off and then on again. If the problem persists, replace the adapter card.
	RETRY ERROR	Verify that the Ethernet network cable is correctly terminated on both ends. Make sure your adapter card is correctly attached to your network.
	SQE ERROR	The connected transceiver is either an Ethernet 1.0 device, or SQE (Signal Quality Error) is not enabled on the transceiver. Check the transceiver to determine if it is an Ethernet 1.0 device. If it is, replace it with an Ethernet 2.0 device or 10BASE-T device. Also ensure that SQE is enabled on the transceiver. In addition, make sure the adapter card's jumper block is set correctly. Refer to chapter 3 for information on setting the card's jumper block.

Table A-3. I/O Card Not Ready Status Messages (continued)

Number	Message	Description
	TRANSMIT ERROR	Check the network topology and verify all cable segments.
	UNDERFLOW ERROR	Check the cabling, port selection, taps, and BNC "T" connectors. If the problem persists, run the power-on self test by turning the printer off and then on again. If the problem persists, replace the adapter card.
04	LAN ERROR - JUMPER	The jumper block on the adapter card is set incorrectly or is missing. Refer to chapter 3 for instructions on setting the adapter card jumper block.
05	LAN ERROR - AUI POWER FAULT	Either the AUI that attaches your printer to your network or the transceiver is faulty. Check the cable and transceiver for damage and replace them if necessary. If the error persists, replace the adapter card.
06	LAN ERROR - +12V POWER FAULT	The adapter card is not receiving power from the printer. You may have a disconnected or damaged cable in your network, or a faulty transceiver. Check to make sure that the adapter card is attached to the network, that both ends of the network are correctly terminated, the transceivers are working correctly, and that all connections are secure.
07	LAN ERROR - CONTROLLER CHIP	Check the network connections. If the connections are sound, turn the printer off and then on again to run the adapter card's power-on self test. If the error persists, replace the adapter card.

Table A-3. I/O Card Not Ready Status Messages (continued)

Number	Message	Description
08	LAN ERROR - INFINITE DEFERRAL	Your Ethernet network is not correctly terminated. Check to make sure that both ends of the Ethernet cable are terminated correctly, that the adapter card is correctly attached to the network, that you have selected the correct port, and that the adapter card's jumpers are set correctly.
09	LAN ERROR - BABBLE	Check the network connections. If the connections are sound, check for faulty transceivers on your network. If the transceivers are sound, turn the printer off and then on again to run the adapter card's power-on self test. If the error persists, replace the adapter card.
0A	LAN ERROR - NO SQE	The connected transceiver is either an Ethernet 1.0 device, or SQE (Signal Quality Error) is not enabled on the transceiver. Check the transceiver to determine if it is an Ethernet 1.0 device. If it is, replace it with an Ethernet 2.0 device (9 or 10BASET). Also ensure that SQE is enabled on the transceiver. In addition, make sure the adapter card's jumper block is set correctly.
0C	LAN ERROR - RECEIVER OFF	There may be a problem with your network cabling or the adapter card. Check the cabling, port selection, taps, and BNC "T" connectors on your Ethernet network. If you cannot find a problem with your network cabling, turn the HP LaserJet III Si printer off and then on again. This activates the adapter card power-on test. If the error persists after the printer is turned on again, there is a problem with the adapter card. Refer to chapter 3 for information about replacing the adapter card.

Table A-3. I/O Card Not Ready Status Messages (continued)

Number	Message	Description
0D	LAN ERROR - TRANSMITTER OFF	There may be a problem with your network cabling or the adapter card. Check the cabling, port selection, taps, and BNC "T" connectors on your Ethernet network. If you cannot find a problem with your network cabling, turn the HP LaserJet IIISi printer off and then on again. This activates the adapter card power-on test. If the error persists after the printer is turned on again, there is a problem with the adapter card. Refer to chapter 3 for information about replacing the adapter card.
0E	LAN ERROR - LOSS OF CARRIER	Check the adapter card's jumper block setting, the AUI connection, and the AUI cable. Also, try replacing the AUI cable or the transceiver. If this does not work, replace the adapter card. Refer to chapter 3 for information about replacing the adapter card.
10	LAN ERROR - UNDERFLOW	There may be a problem with your network cabling or the adapter card. Check the cabling, port selection, taps, and BNC "T" connectors on your Ethernet network. If you cannot find a problem with your network cabling, turn the HP LaserJet IIISi printer off and then on again. This activates the adapter card power-on test. If the error persists after the printer is turned on again, there is a problem with the adapter card. Refer to chapter 3 for information about replacing the adapter card.
11	LAN ERROR - RETRY FAULTS	There is a problem with your network cabling or external network configuration. Make sure that your Ethernet network cable is correctly terminated on both ends.

Network Statistics

This portion of the self test page lists network statistics gathered by the adapter card. NETWORK STATISTICS consists of the following seven fields. Each field is listed along with the number of times (if any) that the condition occurred. When the printer is turned off and on again, all of the statistic counters are reset to zero.

Table A-3. Ethernet Network Statistics

Field	Description
PACKETS RECEIVED	Total number of frames (packets) received by the adapter card without error.
BAD PACKETS RCVD	Total number of frames (packets) received by the adapter card with errors.
FRAMING ERRORS RCVD	Maximum of CRC (Cyclic Redundancy Check) errors and FRAMING errors. CRC errors are frames received with CRC errors. Framing errors are frames received with alignment errors. A large number of framing errors could indicate a cabling problem with your network.
PACKETS TRANSMITTED	Total number of frames (packets) transmitted without error.
UNSENDABLE PACKETS	Total number of frames (packets) not successfully transmitted because of errors.
XMIT COLLISIONS	Number of frames (packets) not transmitted because of repeated collisions.
XMIT LATE COLLISIONS	Number of frames (packets) not transmitted because a late collision occurred. A large number may indicate a cabling problem on the network.

Understanding the Token Ring Self Test Page

This section describes the Token Ring (802.5) self test page. Use the information in this section only if you have connected your HP LaserJet IIISi printer to a Token Ring (802.5) network. If you have connected your HP LaserJet IIISi printer to an 802.3/Ethernet network, refer to the previous section, "Understanding the Ethernet Self Test Page."

Token Ring Self Test Page Layout

The self test page is divided into five parts, as illustrated by Figure A-2:

1. Printer hardware configuration information (described in detail in the *HP LaserJet IIISi Printer User's Reference Manual*).
2. Adapter card configuration information.
3. 3Com network configuration information.
4. Adapter card status information.
5. Network statistics.

2

<p>PRINTING MENU:</p> <ul style="list-style-type: none"> COPIES = 1 FONT SOURCE = INT (Internal) FONT NUMBER = 0 DUPLEX = OFF TRAY = BOTH OUT BIN = UPPER PAPER = LETTER ORIENTATION = P (Portrait) FORM = 60 LINES MANUAL FEED = OFF SYM SET = ROMAN-8 <p>CONFIGURATION MENU:</p> <ul style="list-style-type: none"> SYS = HP-PCL SYS SWITCH = ON AUTO CONT = ON NET = MEDIUM PAGEPROTECT = LTR 	<p>HIO CONFIGURATION:</p> <ul style="list-style-type: none"> LLC TYPE 2 802.5 FIRMWARE REVISION: 2.12.34 CARD ADDRESS: 100090206047 DATA RATE: 16 Mbps <p>SERVER INFORMATION:</p> <p>LLC CONNECTION: DISCONNECTED</p>	<p>I/O CARD NOT READY: 02</p> <ul style="list-style-type: none"> LAM ERROR - INTERNAL LOOPBACK PHASE: LOBE MEDIA TEST CODE: FUNCTION FAILURE
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1

3

4

5

SELF TEST

RAM size: 5120K bytes
Page Count: 59
Serial Number: 00000000 (28)
Firmware Datecode: d3040v6
Internal Font Datecode: 1990809
Font Cartridges Installed: NONE
Paper Trays: LOWER (A4) & UPPER (LETTER)
Installed Options: DUPLEX UNIT, PostScript®
*PostScript and Adobe are trademarks of Adobe Systems Incorporated registered in the USA.

abcdefg abcdefg abcdefg abcdefg abcdefg abcdefg

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ABCDEF GHIJ KLMNOP QRSTUV WXYZ [\]^_`abcdefghijklmnopqrstuvwxyz{|}~!#$%&'()*+,-./01
BCDEF GHIJ KLMNOP QRSTUV WXYZ [\]^_`abcdefghijklmnopqrstuvwxyz{|}~!#$%&'()*+,-./012
CDEF GHIJ KLMNOP QRSTUV WXYZ [\]^_`abcdefghijklmnopqrstuvwxyz{|}~!#$%&'()*+,-./0123

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ΑΒΓΔΕΖΗΘΨ ΩϜϝϞϟϠϡϢϣϤϥϦϧϨϩϪϫϬϭϮϯϰϱϲϳϴϵ϶ϷϸϹϺϻϼϽϾϿϠϡϢϣϤϥϦϧϨϩϪϫϬϭϮϯϰϱϲϳϴϵ϶ϷϸϹϺϻϼϽϾϿ

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Figure A-2. Example Token Ring Self Test Page

Self Test Page Messages

This section describes each of the messages that can be printed on a Token Ring self test page.

Table A-4. Token Ring Self Test Page

Field	Description
LLC TYPE 2 802.5	Indicates the name of the adapter card currently installed in the HP LaserJet IIISi printer.
FIRMWARE REVISION: A.00.01	Indicates the revision number of the adapter card's firmware.
CARD ADDRESS: 100090XXXXXX	CARD ADDRESS is the 12-digit hexadecimal network address of the HP Network Printer Interface adapter card installed in the HP LaserJet IIISi printer.
DATA RATE: 4 Mbps 16 Mbps JUMPER ERROR	Indicates the rate at which the adapter card can transfer information. This setting should be either for 4 or 16 Megabits per second (4 or 16 Mbps), depending on your network configuration. If the DATA RATE field displays JUMPER ERROR, check the jumper block setting on the adapter card. Refer to chapter 3 for information on checking the jumper block setting on the adapter card.

Server Information

Indicates the start of the adapter card's information regarding a LAN Manager server.

Table A-5. Server Information Messages

Field	Description
LLC CONNECTION:	Indicates the current state of the Link Level Connection between the adapter card and the server. The status may be CONNECTED or DISCONNECTED. CONNECTED indicates that a link level connection exists between the network printer and the server. DISCONNECTED indicates that the connection between the server and the network printer is currently down. A DISCONNECTED state is temporary. Putting the printer on line and then sending a file to the printer results in a CONNECTED state, since the server will reestablish a connection to the network printer.
SERVER ADDRESS: 100090 XXXXXX	Indicates the adapter card address of the server which is currently connected to this network printer. SERVER ADDRESS is a 12-digit hexadecimal number.
I/O CARD READY or I/O CARD NOT READY	Indicates the current status of the adapter card installed in the HP LaserJet IIISi printer. I/O CARD READY indicates that the card is configured correctly and is capable of communicating with the server. However, in order to communicate with the printer, the server must be configured properly. I/O CARD NOT READY indicates that there is a problem with the adapter card or its physical configuration. Following the I/O CARD NOT READY message is a two digit code and a status message. Refer to Table A-6 for a detailed explanation of all status messages. These messages are listed by their code number.

I/O CARD NOT READY Status Messages

This section describes the messages that can appear following the I/O CARD NOT READY status message. The following table lists all of the possible adapter card status messages:

Table A-6. Adapter Card Status Messages

Number	Message	Description
02	LAN ERROR - INTERNAL LOOPBACK	The adapter card is either incorrectly configured or incorrectly attached to your network. Check the jumper block on the adapter card to ensure that it is set properly. Refer to chapter 3 for information on setting jumpers. In addition, check the cabling, external transceiver, wiring concentrator, and taps.
04	LAN ERROR - JUMPER	A status message indicating the 4Mbps/16Mbps jumper on the 802.5 card is not installed correctly or is otherwise misaligned. Refer to chapter 3 for instructions on setting the adapter card jumpers.
0A	LAN ERROR - OPEN	Indicates the adapter card could not insert into the ring and join the network. Check the jumper block on the adapter card to ensure it is set properly. Refer to chapter 3 for information on setting the jumper block. In addition, check the cabling, external transceiver, wiring concentrator, and taps.
0F	LAN ERROR - WIRE FAULT	Indicates that there is a problem with the network cabling. Check the cabling between the printer and the network.

Table 1-7. Adapter Card Status Messages (continued)

Number	Message	Description
10	LAN ERROR - AUTO REMOVAL	Run the adapter power-on self test by turning the printer off and then on again. If this message reappears on another self test page, you may have a problem with one of the adapter cards on your network. Check all the adapter cards on the network for proper operation.
11	LAN ERROR - REMOVE RECEIVE	Run the adapter power-on self test by turning the printer off and then on again. If this message reappears on another self test page, you may have a problem with one of the adapter cards on your network. Check all the adapter cards on the network for proper operation.

Phase Messages

This section describes the PHASE messages that can be displayed on the self test page. There are five phases that must be completed in order before the adapter card is successfully inserted into the network ring. The PHASE message indicates the current phase in which the I/O CARD NOT READY condition occurred.

Table A-7. Token Ring Phase Messages

Phase Message	Description
LOBE MEDIA TEST	The adapter card or relay at the wiring concentrator wraps the transmitter's signal from a station back to its receiver. The adapter card verifies that this lobe wrap path is functioning.
PHYS INSERTION	The adapter card physically inserts by impressing a DC current on the transmit signal pair. This activates a relay in the wiring concentrator that connects the receive and transmit pairs into the physical ring.
ADDRESS VERIFY	The ring station address must be unique to this adapter card. This phase of the insertion process ensures that this address is not being used by another adapter card that is inserted in the network ring.
RING POLL	This phase ensures that the adapter card has participated in the ring polling process. In this process, the adapter card acquires its upstream neighbor's address (UNA) and allows the nearest downstream adapter to acquire its address as that adapter card's UNA.
REQUEST INIT	The purpose of the Request Initialization phase is to request additional parameters. These parameters are associated with each station on the ring. The parameters received in this process replace the default parameters set at the start of the ring insertion process.

Code Messages

Associated with each PHASE message is one CODE message. The CODE message provides a specific description of the PHASE problem. The possible CODE messages are as follows:

Table A-8. Token Ring Code Messages

Code Message	Description
FUNCTION FAILURE	The adapter card is unable to transmit to itself while wrapped through its lobe at the wiring concentrator. This message may also indicate that data frames are received before physical insertion.
SIGNAL LOSS	A signal loss condition is detected at the adapter receiver input during the open process (either when wrapped or inserted onto the ring).
TIMEOUT	The adapter card fails to logically insert onto the ring before the insertion timer expires. Each phase of the insertion process must complete before expiration of the 18-second insertion timer.
RING FAILURE	The adapter card times out when attempting a ring purge after becoming the active monitor; that is, the adapter is unable to receive its own ring purge MAC frames.
RING BEACONING	The adapter card receives a beacon data frame after physically inserting into the ring. This indicates a break in the ring.
DUP NODE ADDRESS	The adapter card finds that another station on the ring already has the address which the adapter wishes to use. Ensure that all addresses are unique.
REQUEST PARAM	The adapter card determines that a Ring Parameter Server (RPS) is present on the ring but does not respond to a request initialization data frame.
REMOVE RECEIVED	The adapter card received a Remove Adapter data frame after physically inserting into the ring. This indicates a break in the ring.

Ring Status Messages

The self test page may list up to three RING STATUS messages for each PHASE and CODE message pair. The following table describes all of the possible RING STATUS messages.

Table A-9. Token Ring Status Messages

Status Message	Description
RING RECOVERY	The adapter has received claim token data frames on the ring. The adapter card may be transmitting the claim token frames.
SINGLE STATION	The adapter card has sensed that it is the only station on the ring.
REMOVE RECEIVED	The adapter card has received a remove ring station data frame request, and has removed itself from the ring.
AUTO-REMOVAL ERROR	The adapter card has detected an internal hardware error following the beacon auto-removal process and removed itself from the ring.
LOBE WIRE FAULT	The adapter card has detected an open or short circuit in the cable between the adapter card and the wiring concentrator. Verify that this cable is functional, and replace it if necessary.
SIGNAL LOSS	The adapter card has detected a loss of signal on the ring.
HARD ERROR	The adapter card is transmitting or receiving beacon frames to or from the ring.
TRANSMIT BEACON	The adapter card is transmitting beacon frames to the ring.

Network Statistics

This portion of the self test page lists network statistics gathered by the adapter card. Network Statistics consists of the following fields:

Table A-10. Network Statistics

Message	Description Token Ring Network Statistics
PACKETS RECEIVED	Total number of data frames (packets) received without error.
BAD PACKETS RCVD	Total number of data frames (packets) received with errors.
LINE ERRORS RCVD	Total number of frames (packets) received with code violations or CRC (Cyclic Redundancy Check) errors. A large number may indicate a faulty cabling on your network.
BURST ERRORS RCVD	Number of times the adapter card could detect no transitions for 5 half-bit times between the Start Delimiter (SD) and the End Delimiter (ED).
FS SET RECEIVED	Total number of frames with frame status set errors, indicating another node could not set the frame status.
FRAME COPIED RCVD	Total number of frames received with frame copy errors not indicated in the Frame Status (FS) field.
BAD LENGTH RCVD	Total number of frames missed because they were too long for the adapter card to receive.
LOST FRAMES	Number of times the end of the frame could not be detected while transmitting.
TOKEN ERRORS	Number of times a violation of the token passing protocol has been detected.
PACKETS TRANSMITTED	Total data frames (packets) transmitted without errors.



Diagnosing Problems with NPDIAG

Overview



This chapter describes the NPDIAG (Network Printer Diagnostics) utility and shows you how to use it to resolve problems with your network printer. It provides the following information:

- A description of what NPDIAG does.
- A procedure on how to use the NPDIAG utility.

What does NPDIAG do?

NPDIAG is a diagnostic utility that runs on a server on the 3Com 3+ Open LAN Manager network. NPDIAG works for printers which have been added to the server with the NPCONFIG utility.

NPDIAG enables you to test connection between the server and the network printer and the line state of the network printer. NPDIAG displays the printer name and address followed by the:

- Printer connection state.
- Printer line state.
- Server connection state.



Before Running NPDIAG

Before running the NPDIAG utility, go to the network printer you want to test and print out the self test page. These tasks are described in appendix A, "Understanding the Self Test Page." Check problems on the network printer to make sure the problem does not stem from the printer.

Be sure you have the self test page when you run the NPDIAG utility. You compare the Card Address on the self test page with the Card Address(s) that appears on the screen when you run the NPDIAG utility. Between these two items, you get a complete status of the connection between the server and the network printer.

Running NPDIAG

This section describes how to use the NPDIAG utility. To use NPDIAG, you perform the following tasks:

Run NPDIAG.

Choose a network printer to test by selecting the name of the network printer.

Follow the diagnostic messages on the screen.

To run NPDIAG, perform the following steps:

1. Make sure the printer is on and on line.
2. Type NPDIAG from the OS/2 command line at the server and press **ENTER**.
The Welcome screen appears.
3. Press Enter. *The Select Printer screen appears.* This screen shows you the list of network printers for which this server has been installed and configured.
4. Select the printer you want to test. To do so, select the printer (using the up/down cursor keys), then press **Enter**. *The Status Overview screen appears.*

5. Select one of the follow items and press **F1** to view detailed status information.
 - Printer connection state.
 - Printer line state.
 - Server connection state.

Follow the instructions on the screen to resolve the problem.

If the name and Card Address of the HP LaserJet III Si printer does not appear, you need to configure that network printer on this server. To do this, run the NPCONFIG utility and configure the network printer from this server.



INSTALL, NPCONFIG and NPDIAG Error Messages

The INSTALL, NPCONFIG and the NPDIAG Utilities may detect and display the following errors:

Error Messages	Suggested Recovery
Copying files to hard disk ...	The program is copying files to your hard disk. No action is required.
Cannot create directory (DIRECTORY NAME). Make sure the pathname exists, and that the directory name is not already in use.	Exit the program and make sure the pathname exists and is not currently in use by another user on the network, and that a read-only file with that name does not already exist, then rerun the program.
Cannot open (FILE NAME). Make sure the pathname exists, the file is installed on the hard disk, and the file contains read and write permissions.	Exit the program and make sure the file is installed on the hard disk in the specified directory. Also make sure that the file has read and write permissions set properly, and rerun the program.
A network software error has occurred. Call your service representative.	The program has encountered a problem with your network software. Exit the program and call your service representative for help.
Cannot find (FILENAME). Make sure the pathname exists, and the file is installed on the hard disk.	Exit the program and make sure the filename is installed on the hard disk in the specified directory, and rerun the program.
A network configuration error exists in (FILENAME). Reinstall your network server software with NetSetup.	The program has found a configuration problem in the specified file. You must reinstall your network server software using 3Com's NetSetup program. After you have reinstalled your network server software, rerun the program.
Insufficient memory to install network printer software. Either free some memory by removing resident applications or add more memory to the server.	The server must have at least 8 MB of memory to run this program. If your server does not have at least 8 MB, install more memory. If your server does have 8 MB, go into Task Memory and shut down any concurrent running tasks before rerunning the program.

Error Messages	Suggested Recovery
Cannot write to file (FILENAME). Make sure the file has write permissions, and that the server has enough disk space.	The program needs approximately 600K bytes of space on your hard disk. Exit the program and make sure that there are at least 600K bytes available. In addition, make sure the specified file has write permissions.
Examining current configuration files ...	The program is examining the server's CONFIG.SYS, PROTOCOL.INI, LANMAN.INI, and SRVESHARE.PRO configuration files. No action is required.
Backing up and modifying configuration files ...	The program is backing up and then modifying the server's CONFIG.SYS, PROTOCOL.INI, LANMAN.INI, and SRVESHARE.PRO configuration files. No action is required.
Cannot remove the (QUEUE NAME) printer queue. Use "net admin" to purge and delete the printer queue after rebooting the server.	Exit the program, reboot the server, and then use 3Com's NET ADMIN utility to first purge and then delete the specified printer queue.
Checking configuration files ...	The program is currently checking the server's CONFIG.SYS, PROTOCOL.INI, LANMAN.INI, and SRVESHARE.PRO configuration files. No action is required.
Installation is incomplete. Before running NPCONFIG you must run Install, and then reboot your machine.	You have tried to run NPCONFIG without first running INSTALL, or you have not rebooted the server after running INSTALL. Exit NPCONFIG and make sure you have run the INSTALL program and rebooted the server before rerunning NPCONFIG.
Insufficient memory to configure network printer software. Either free some memory by removing resident applications or add more memory to the server.	The server must have at least 8 MB of memory to run this program. If your server does not have at least 8 MB, install more memory. If your server does have 8 MB, go into Task Memory and shut down any concurrent running tasks before rerunning the program.
The name (FILE NAME) is invalid. Names must be 1 to 7 characters long, and consist of letters, digits and underscores.	The printer name you entered is invalid. Enter and alphanumeric name that is 1-7 characters long, such as NETPRN or LJIIISI.
The name (PRINTER NAME) is already in use. Please choose another name.	The name you entered as a printer name has already been assigned to another printer on your network. Enter a unique printer name.

Error Messages	Suggested Recovery
There are no addresses available to configure.	The program cannot find any network printers on the network. Exit the program and make sure the HP Network Printer adapter card is installed correctly and that the printer is turned on. The adapter card must be installed correctly before you can continue with the configuration of the printer.
No printers are currently configured.	The program cannot find any configured network printers on this server.
Checking server and printer connection status ...	The printer is checking the current status of the connection between the printer and the server. No action is required.
Can't find your CONFIG.SYS file. Please copy a correct OS/2 CONFIG.SYS file to the root of your boot drive, then reboot this machine.	The program could not find the CONFIG.SYS file in the root directory of the server. Exit the program and copy a correct OS/2 CONFIG.SYS file to the root directory of your server's boot drive. Then reboot the server and rerun the program.
Your HP network printer configuration has been corrupted. Please re-install the HP network printer software, using the INSTALL utility on the "Installation and Configuration Utilities" diskette.	Your server's network printer configuration files have been corrupted. Rerun the INSTALL utility to fix the problem.
An unknown internal program or operating system error has occurred. Try rebooting this machine. If the problem persists, contact your service representative.	The program has encountered an unknown error. Exit the program, reboot the server and rerun the program. If the problem persists, call your service representative for help.
A memory allocation error has occurred. Please free up some more memory, then try running this application again.	The server must have at least 8 MB of memory to run this program. If your server does not have at least 8 MB, install more memory. If your server does have 8 MB, go into Task Memory and shut down any concurrent running tasks before rerunning the program.
Your 3+Open software is either not currently loaded, or the configuration has been corrupted. Please either reboot this machine with the proper configuration files, or re-install your network software.	Exit the program and make sure your network software is loaded. If the network software is loaded, make sure your configuration files are not corrupted. If they are, try replacing them with a current backup copy, or reinstall your network software.
No printers are currently configured. Use the HP Network Printer Configuration utility, NPCONFIG, to configure your network printers.	The program cannot find any configured network printers on your server. If you have configured a network printer, make sure that printer's adapter card is installed correctly and the printer is turned on. If you have not yet configured a network printer, run NPCONFIG before running this program.

Customer Support and Warranty Information

Customer Support

Hewlett-Packard has support services available to help you in case of difficulties with your HP Network Printer Interface.

Your Hewlett-Packard Authorized Dealer

If you encounter difficulty, begin by contacting the person who sold you the HP Network Printer Interface. Your Hewlett-Packard Authorized Dealer is familiar with your needs, equipment, and software and should be able to provide you with the information you want.

Hewlett-Packard Customer Assistance



If your Sales Representative cannot answer your questions, Hewlett-Packard has a Personal Peripherals Assist Line service. It is available from 7 AM to 5 PM, weekdays, except Wednesdays, when it is available from 7 AM to 4 PM. The Personal Peripheral Assist Line staff can help you check communications between the printer and your LAN. For network related problems, a referral service is provided.

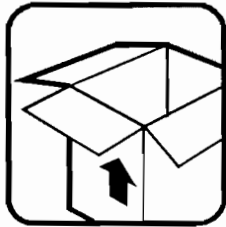
Before you call the Personal Peripheral Assist Line, make sure you:

1. Check chapter 8, "Troubleshooting," in this manual to solve or isolate your problem.
2. Obtain the information requested in the Administrator's Worksheet inside the back cover.

The telephone number for the Personal Peripheral Assist Line is:

(208)323-2551

Hewlett-Packard Return Service



If you determine that the HP Network Printer Interface requires service, a replacement may be obtained through Hewlett-Packard's Return Service. To order a replacement unit call Hewlett-Packard's toll free number **(800) 227-8164**, during normal business hours (6:00 AM - 5:00 PM PST). You must provide the Order Representative with your Hewlett-Packard account number or the account number of a valid major credit card (Hewlett-Packard can accept Visa and Mastercard). Under normal conditions your replacement unit will be delivered within two working days. An emergency next day service is available upon request. This service carries an additional charge to cover express handling and freight.

After you have received your replacement unit, use the same carton and internal packaging to ensure safe return of the defective HP Network Printer Interface unit. The defective unit must arrive at Hewlett-Packard within 30 days of receiving the new unit.

Send the defective unit to:

Hewlett-Packard Company
Support Materials Organization
3625 Cincinnati Avenue
Rocklin, CA 95677

(Adequate insurance is recommended)

User Warranty

The Hewlett-Packard network printer interface LAN Connection is warranted against defects in materials and workmanship for a period of one year from the date of receipt by the end user. During the warranty period, Hewlett-Packard will replace the unit at no charge provided the defective unit is returned and shipping is prepaid to Hewlett-Packard Support Materials Organization. Upon placing your order, Hewlett-Packard will initially charge your account the list price of a new unit. This charge will be credited after the defective unit has been received by Hewlett-Packard and warranty coverage has been verified. *Be sure to enclose a copy of your purchase receipt.* Refer to "Hewlett-Packard Return Service" on the previous page.

This warranty does not apply if the HP Network Printer Interface has been damaged by accident or misuse, or as a result of service or modification by other than an authorized Hewlett-Packard Service Facility. No other express warranty is given by Hewlett-Packard. Hewlett-Packard shall not be liable for consequential damages.

Service Billing (Out of Warranty)

When ordering a replacement unit, your account will be charged the list price of a new unit. Upon receipt of the defective unit, Hewlett-Packard will credit your account the amount equal to the difference between the list price and the standard repair cost.

Units returned after 30 days will not qualify for refund and shall be returned to you.

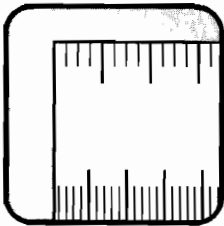
Service Outside the United States

Customers outside the United States should contact their local sales office to obtain information on prices, exchange unit availability and instructions.

Specifications

FCC Regulations

Caution



This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

Any changes or modifications not expressly approved by Hewlett-Packard could void the user's authority to operate this equipment.

Note



Use of a shielded cable is required to comply within the Class A limits of Part 15 of FCC Rules

(This product also meets the Class B emission standards.)

The Federal Communications Commission has prepared a booklet titled *Interference Handbook* (1986), which may be helpful to you. This booklet (stock number 004-000-004505-7) may be purchased from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.

German Regulations

The following notice is required to be printed in German and applies to printer operations and servicing in Germany.

ZZF DECLARATION STATEMENT

Funkentstörung Deutschland Herstellerbescheinigung

Hiermit wird bescheinigt, daß das Gerät HP 33491AB in Übereinstimmung mit den Bestimmungen von *Postverfügung 1046/84* funkentstört ist.

Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

Wird das Gerät innerhalb einer Anlage betrieben,

- so muß bei Inanspruchnahme der *Allgemeinen Genehmigung FTZ 1046/84* die gesamte Anlage der oben genannten Genehmigung entsprechen.
- die mit einer *FTZ-Serienprüfnummer* gekennzeichnet ist, und für die eine Betriebsgenehmigung vorliegt oder beantragt wird, so sind in der Regel keine weiteren Schritte notwendig.

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Software License Agreement

Important Notice:

Read the license agreement below before installing the Network Printer Interface utilities on your file server. The right to use these utilities is sold only on the condition that the customer agrees to the following License. If you do not agree to the terms of the License Agreement, you may return the unopened package for a full refund. However, installing the utilities on your file server indicates your acceptance of these terms and conditions.

In return for the payment of the one-time fee for the Network Printer Interface the customer receives from Hewlett-Packard Company (HP) a license to use this product subject to the following terms and conditions.

- The Network Printer Interface utilities may not be duplicated or copied except for archival purposes, program error verification or to replace defective media. All copies must bear the copyright notices contained on the original product.
- No copies of the Network Printer Interface utilities may be produced for sale to third parties or for any purpose other than those purposes expressly permitted in paragraph 1 above.
- This license and the Network Printer Interface utilities may be transferred to a third party only with the prior written consent of Hewlett-Packard, provided the third party agrees to all the terms of this License Agreement and the customer does not retain any copies of the utilities.
- Purchase of this license does not transfer any right, title or interest in the Network Printer Interface utilities to the customer except as specifically set forth in this License Agreement.
- Hewlett-Packard reserves the right to terminate this license upon breach. In the event of termination, the customer will either return all copies of the product to Hewlett-Packard, or with Hewlett-Packard's prior written consent, provide Hewlett-Packard either a certificate of destruction of all copies.
- In the event the customer modifies the Network Printer Interface utilities or includes it with any other software program, the customer agrees upon termination of the license to either remove the Network Printer Interface utilities or any portion thereof from the modified program and return it to Hewlett-Packard or provide Hewlett-Packard with a certificate of destruction thereof.

