

LaserJet II
LaserJet IID
LaserJet III
LaserJet IIID

Network Printer Interface for Novell Networks

**Network Printer Interface
for Novell Networks
(for HP LaserJet II, IID,
III, and IIID Printers)**

Administrator's Guide



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First Edition

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Printing History

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Conventions

Except as noted, the HP LaserJet II, IID, III, and IIID printers operate the same with respect to the procedures contained in this manual. For conciseness and readability, the words “HP LaserJet printer” are used throughout this manual to generically describe the HP LaserJet II, IID, III, and IIID printers.

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, for referring to other documentation, and for the first occurrence of a definable term.
- COMPUTER type indicates what you should type on the computer keyboard.
- **Bold** type indicates screen menu selections and is also used for all subheadings.
- DISPLAY type indicates printer display messages.
-  indicates a computer keyboard or printer control panel key.
- WORDS IN UPPERCASE LETTERS indicate proper names of utilities or files.

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 Novell, Inc. The HP Network Printer Interface is a Hewlett-Packard printer accessory that runs under Novell NetWare.

Use this guide to install and configure the HP Network Printer Interface and configure your Novell NetWare software for network printing. This guide also contains troubleshooting information to help you isolate and solve network printing problems on your Novell network.

Before You Begin

If you are not familiar with NetWare utilities, spend some time learning how they work before continuing with this guide.

This guide assumes that you:

- Have the proper Novell software. See “Software Requirements” in Chapter 1.
- Are the Network Administrator for your network.
- Have access to the supervisor account, or an account that has supervisor and print server operator privileges.
- Have used NetWare utilities.

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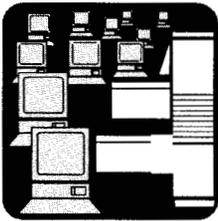
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Introducing the HP Network Printer Interface

Overview



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

- Product overview.
- Basic concepts.
- Network printing modes overview.
- Supported links.
- Software requirements.
- Installation overview.
- What you need before you begin.

Product Overview

The *HP Network Printer Interface* consists of an adapter card (either ThinLAN, 10BASE-T, or Token Ring), this guide, and software diskettes. Refer to Figure 1-1.



Figure 1-1. Components

The *HP Network Printer Interface* enables you to attach an HP LaserJet II, IID, III, or IIID printer directly to your Novell network at any location while providing increased ease of use, network management, and printer I/O performance. (The HP Network Printer Interface does not support the HP LaserJet IIP and IIIP printers.)

Note



Except as noted, the HP LaserJet II, IID, III, and IIID printers operate the same with respect to the procedures contained in this manual. For conciseness and readability, the words “HP LaserJet printer” are used throughout this manual to generically describe the HP LaserJet II, IID, III, and IIID printers.

**Increased
Ease of Use**

The ability to place the HP LaserJet printer anywhere on the network eliminates the need to attach the printer directly to a server or workstation, enabling it to be placed closer to your network users. It also allows network users to access job and printer status information without requiring additional software or memory on the user workstation.

**Improved Network
Management**

When using the HP Network Printer Interface, your printer appears as an intelligent node on the network in Novell diagnostic utilities, like NWCARE and COMCHECK. The interface also collects network statistics and errors to aid in troubleshooting.

**Increased I/O
Performance**

The HP Network Printer Interface provides increased printer performance by eliminating the bottleneck associated with serial or Centronics interfaces. This not only increases I/O performance, but may reduce the load on the file server as well.

Basic Concepts

To understand how a file is printed on a Novell network, you must first understand the following terms. A *file server* is a computer on the network that provides shared resources. A *print queue* on the file server holds print jobs until they are ready to be printed.

When a user at a workstation prints a document to a network printer, the data does not go immediately to the printer. First the user starts the print job from the workstation. The job travels to the file server where it is stored, or spooled, in a print queue. The data must then be moved from the print queue to the printer, where it is printed.

The HP Network Printer Interface provides you with two ways of moving the job from the print queue to the printer. These two methods are described in the next section.

Network Printing Modes

The HP Network Printer Interface allows you to set up your network printer in either of two modes:

- Remote Printer mode (using Novell's print server).
- Queue Server mode.

The *remote printer mode* is more familiar with most network administrators, but the *queue server mode* has several advantages, including ease of setup, and the fact that it doesn't require a print server to operate it. Deciding on the mode that is best-suited for your network requires that you take a few minutes to evaluate the advantages and disadvantages of both modes as discussed below.

Remote Printer Mode

When configured for the Remote Printer mode, data follows the path illustrated by Figure 1-2. First the user prints the job at a workstation (A). The job travels to the file server (B) where it is stored, or spooled, in a print queue. When the printer is ready to print a job, Novell's print server (C) copies the print job to the printer (D) where it prints.

Figure 1-2 illustrates a Novell network that has a *dedicated* print server. This means that the computer that runs the print server software is dedicated to running *only* the print server software. Dedicated print servers can be set up on both the NetWare 286 and 386 network operating systems, and provide significantly better printing performance than non-dedicated print servers.

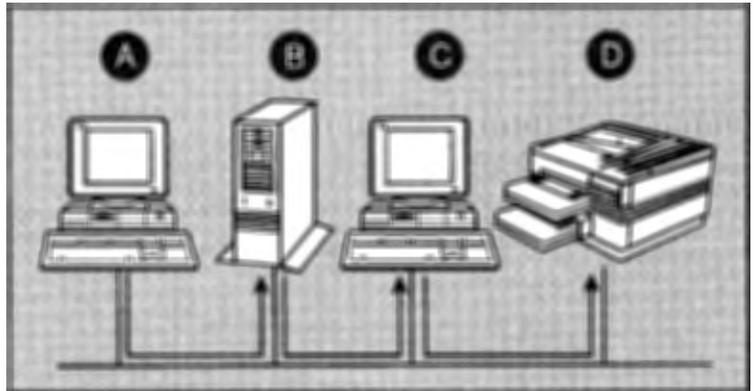


Figure 1-2. Network Printing in Remote Printer Mode

Novell networks may also be configured so that the file server and the print server are located on the same physical computer. If the print server is running on a NetWare 386 file server, it is running as a *Netware Loadable Module (NLM)*. If, however, the print server is running on the NetWare 286 file server, it is running as a *Value Added Process (VAP)*. Dedicated print servers are recommended over VAP print servers for NetWare 286 if users download fonts or print raster graphics frequently.

When configured for Remote Printer mode, the HP Network Printer Interface supports VAP, NLM, and dedicated print servers and all features supported by Novell NetWare Print Services.

Queue Server Mode

When configured for Queue Server mode, the HP Network Printer Interface does not require a print server. All of the Queue Server functionality is located on the HP Network Printer Interface. The HP Network Printer Interface accesses the print queues on the file server to copy jobs to the printer.

When configured for Queue Server mode, the data follows the path illustrated by Figure 1-3. First the user prints the job at a workstation (A). The job travels to the file server (B) where it is stored, or spooled, in a print queue. When the printer is ready to print a job, the Queue Server in the HP Network Printer Interface moves the print job to the printer (C) where it prints.

Because the HP Network Printer Interface has direct access to the print queues, Queue Server mode usually provides higher performance than Remote Printer mode (see Table 1-1).

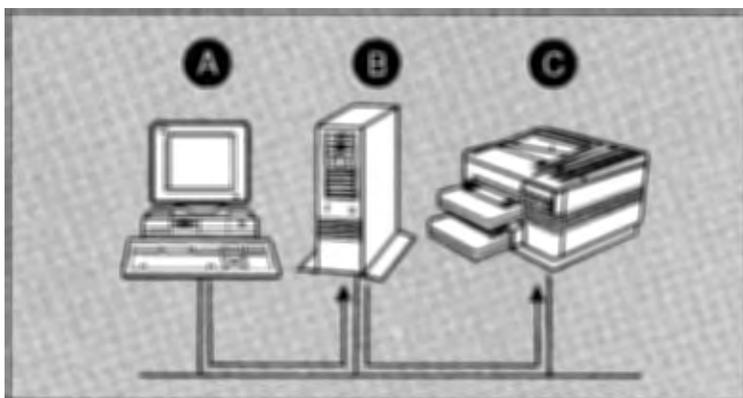


Figure 1-3. Novell Network Printing in Queue Server Mode

Deciding On a Mode

You must decide whether to configure the HP Network Printer Interface card to operate in Queue Server or Remote Printer mode. To help you decide, Table 1-1 compares the two modes. (For more information, see *Operating Modes* in chapter 6.)

Table 1-1. Comparison of Modes

Criteria	Queue Server Mode	Remote Printer Mode
Performance	Highest performance (as observed when printing raster graphics or downloading fonts).	<i>Print Server version 1.2:</i> Good performance (for best remote printer performance, use a dedicated print server.); <i>Print Server version 1.21 or greater:</i> High performance.
Setup	Easiest to set up, with fewer required steps.	Requires additional steps, but provides best integration with NetWare print utilities (i.e., PCONSOLE).
Security	Prevents other printers from accessing data sent to the configured queue(s) without supervisor's intervention. Requires unencrypted passwords in NetWare 386. Data is password-protected from the file server to the printer.	Does not require unencrypted passwords in NetWare 386. Data is password-protected from the file server to the print server.
Print Server	Does not require a separate print server node and does not rely on print server functions. Does not take up a remote printer slot in an NLM, VAP, or dedicated print server. Does not require Novell NetWare Print Server.	Requires a print server, but allows implementation of forms and provides best integration with NetWare print utilities (i.e., PCONSOLE). Requires Novell NetWare Print Server.

Table 1-1. Comparison of Modes (continued)

Criteria	Queue Server Mode	Remote Printer Mode
Status	Printer status is available through PCONFIG, PCONSOLE, and the printer control panel. Job status is available through job notification.	Printer status is available through PCONSOLE, the print server screen, PSC, and the printer control panel. Job status is available through the print server screen, PSC, and job notification.

Supported Links

The HP Network Printer Interface operates on the following protocols and media:

- Ethernet/802.3
 - Thin Ethernet cabling (thin coax [ThinLAN])
 - Twisted pair cabling (unshielded/shielded [10BASE-T])
- Token Ring (802.5)
 - Shielded twisted-pair cabling (4 and 16 Mbps)
 - Unshielded twisted-pair cabling (4 Mbps—see note below)

Note



To attach the HP Network Printer Interface to your network using Token Ring at 4 Mbps over unshielded twisted-pair cable, you will need to purchase a Type 3 Media Filter. The 16 Mbps data rate is not supported over unshielded twisted-pair cable.

Software Requirements

In order to use the HP Network Printer Interface on your Novell network, you will need one of the following Novell products:

- Queue Server mode requires:
 - NetWare 386, version 3.0 or greater.
 - NetWare 286, version 2.12 or greater.
- Remote Printer mode requires:
 - NetWare 386, version 3.1 or greater, with the NetWare Print Server version 1.2 or greater.
 - Advanced NetWare 286, version 2.15 or greater, with NetWare Print Server version 1.2 or greater.
 - NetWare SFT, version 2.15 or greater, with NetWare Print Server version 1.2 or greater.

If you do not have one of these Novell products, you will need to obtain one from your authorized Novell reseller before continuing.

A Word About PostScript

The Network Printer Interface card is designed for use with the HP LaserJet II, LaserJet IID, LaserJet III, and LaserJet IIID printers. *PostScript printing, however, is not supported on the LaserJet II printer while using the Network Printer Interface adapter card.*

PostScript printing on the LaserJet IID, LaserJet III and LaserJet IIID printers requires the Hewlett-Packard PostScript cartridge.

Installation Overview

To successfully install the HP Network Printer Interface, you must complete the following steps in order:

1. Install the adapter card in the HP LaserJet printer.
2. Use Novell's PCONSOLE and PRINTCON utilities to configure your Novell printing environment.
3. Use Hewlett-Packard's PCONFIG utility to configure the HP Network Printer Interface.

This manual describes each of these steps in detail. Chapter 2 provides a quick overview of the entire installation process, while Chapters 3 – 5 provide detailed, step-by-step instructions of the same procedures. Depending on your experience level, you may be able to complete the entire installation and configuration procedure using only Chapter 2. However, if you want more detailed guidance, you will find more thorough coverage in Chapters 3 through 5.

Before You Begin

Before installing the HP Network Printer Interface in your printer, you must have set up the printer according to the instructions in the *Getting Started Guide* for your HP LaserJet printer. In addition, your Novell NetWare network must be correctly installed and functioning properly before you can continue.

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

- The *Novell NetWare Supervisor's Guide*.
- Access to the supervisor account, or an account with both supervisor and print server operator privileges.
- The *Installation and Configuration Utilities* diskette located in the rear of this guide.

- Cabling appropriate for attaching the HP LaserJet printer to your network.
- A small Phillips-head (cross-point) screwdriver.

What's Next?



First you must decide if you want to configure your HP Network Printer Interface for Queue Server mode or Remote Printer mode. Once you have decided, you can continue with the installation of the HP Network Printer Interface.

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, "Quick Guide." Chapter 2 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." Then continue with Chapter 4, "Configuring Queue Server Mode," or Chapter 5, "Configuring Remote Printer Mode," as appropriate. These chapters provide step-by-step instructions for installing the HP Network Printer Interface.





Quick Guide

Overview



Two Modes: Queue Server and Remote Printer

The *Quick Guide* chapter is for experienced Novell Network Administrators 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 3–5 which describe all installation and configuration steps in detail.

As described in Chapter 1, two modes of operation are possible with the HP Network Printer Interface: the Queue Server and Remote Printer modes. There are advantages to both modes and the best choice requires a couple of minutes to evaluate the alternatives. The information presented in Chapter 1 (Table 1-1) will help you decide which mode is best for your particular network.

This chapter contains information about:

- Installing the adapter card.
- Configuring the HP LaserJet printer control panel.
- Configuring the network for Queue Server mode.
- Configuring the network for Remote Printer mode.
- Creating the print job configuration.
- Verifying the configuration.

Installing the Adapter Card

You must install either the Token Ring, ThinLAN, or 10BASE-T adapter card into your HP LaserJet printer. You must then configure your printer's front control panel for the HP Network Printer Interface.

To install the adapter card in your HP LaserJet printer, follow these steps.

Caution



Like most computer circuitry, the adapter card contains parts that are easily damaged by small amounts of static electricity. In order to protect your hardware investment and maximize the life of equipment, you need to take precautions such as *making sure the printer power is off*, 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.

Note



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

-
1. Before installation, verify that the printer is operating properly by turning the printer power on and waiting for the printer to go on-line. After the printer is warmed up, the control panel display should read OO READY (or POSTSCRIPT READY if the printer has a PostScript cartridge installed). If it is not displaying a ready message, refer to your HP LaserJet printer *User's Manual* for troubleshooting information.
 2. **Turn the printer power off and unplug the power cord.**

3. Configure the card:

ThinLAN Card: If you have the ThinLAN adapter card, no hardware configuration is necessary (see Figure 2-1).

10BASE-T Card: If you have the 10BASE-T adapter card, configure the card by either enabling Link Beat (Link Beat On) or disabling it (Link Beat Off). Enable Link Beat if you are connecting the printer to a Type 10BASE-T network and disable it if you are connecting the printer to a non-Type-10BASE-T network like an HP StarLAN10 device. *The default configuration is Link Beat On.* See Figure 2-2.

Token Ring Card: If you have the Token Ring adapter card, configure the card's data rate for your network, either 4 or 16 Mbps. *The Token Ring card's default data rate configuration is 4 Mbps.* See Figure 2-3.

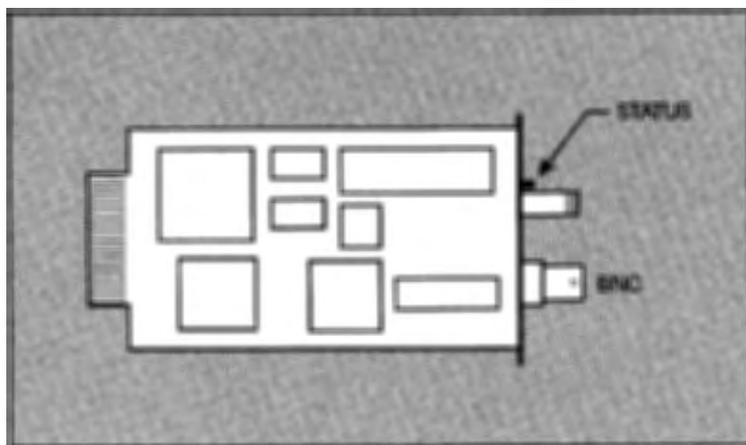


Figure 2-1. The ThinLAN card

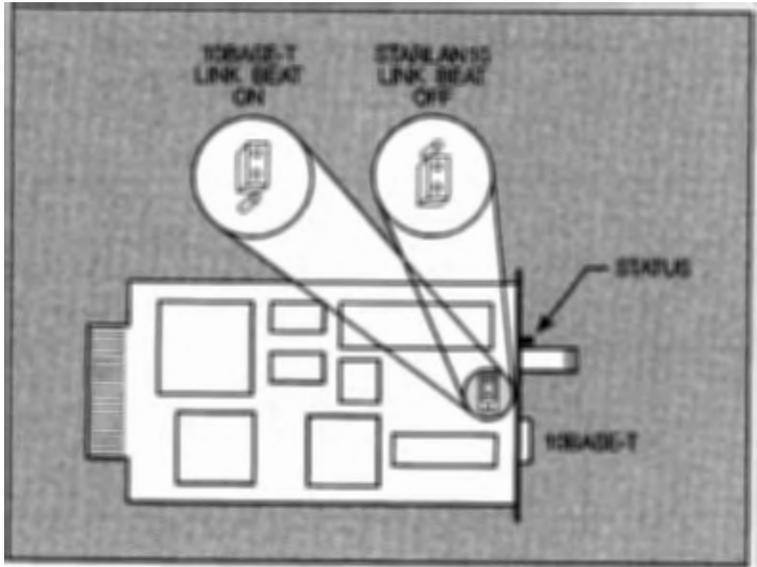


Figure 2-2. Configuring the 10BASE-T Card

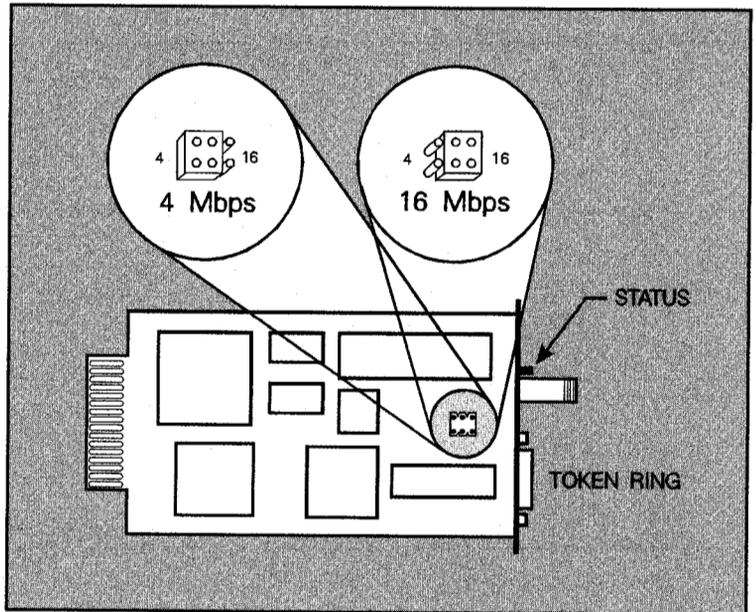


Figure 2-3. Configuring the Token Ring Card

4. With a small Phillips-head (cross-point) screwdriver, remove the Optional I/O faceplate **A** or the existing adapter card **B** (if any) from the rear of the HP LaserJet printer and store it in the anti-static bag in which your adapter card was shipped. See Figure 2-4.

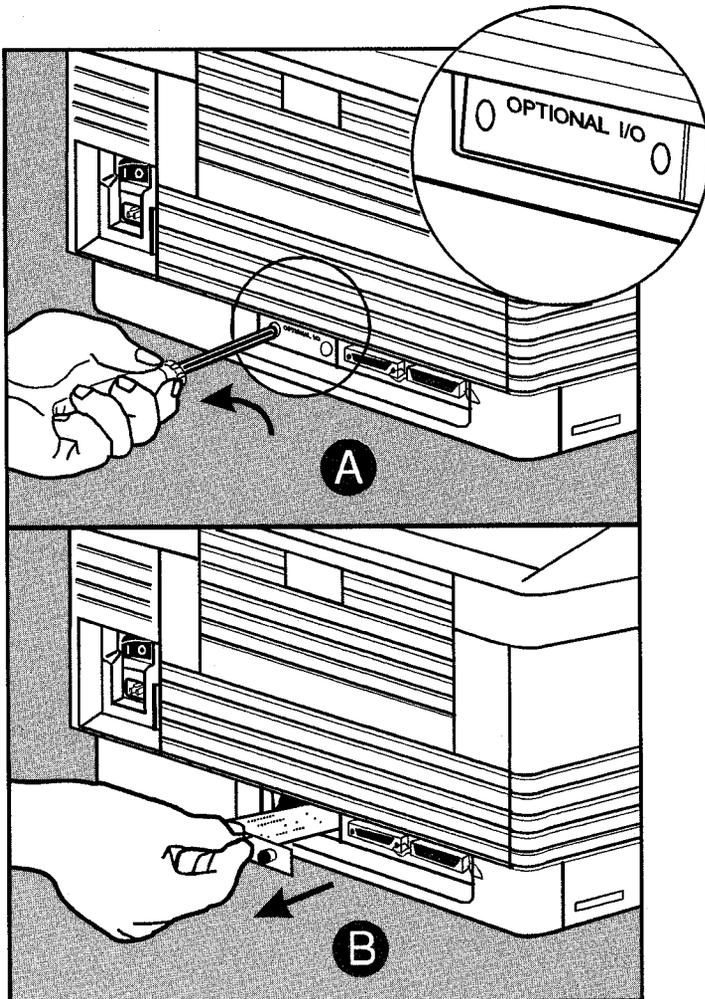


Figure 2-4. Removing Faceplate or Existing Card

5. Making sure the printer power cord is unplugged, hold the adapter card by its handle and insert the card so that the STATUS button is on the left when looking at the back of the printer.

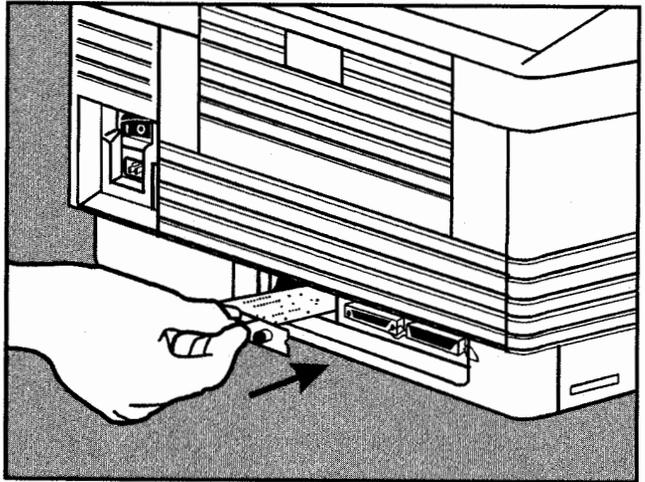


Figure 2-5. Installing the Adapter Card

Note



Be careful *not* to force the card into place if it does not slide smoothly. *Forcing the card into place may cause damage.*

6. Connect the HP LaserJet printer to your network by attaching the network cabling to the HP Network Interface card. (If you are using the ThinLAN adapter card, be sure to rotate the BNC “T” connector after it has made full connection with the card’s BNC port.)
7. Plug the printer’s power cord back in and turn the printer on.
8. Wait for the 00 READY message (or POSTSCRIPT READY if a PostScript cartridge is installed) to appear in the printer’s display window.

9. Press **On Line** to take the printer off-line. The on-line indicator should be off.
10. Hold down the **Menu** key for several seconds until AUTO CONT= or SYM SET= appears in the printer display window.
11. If the I/O=PARALLEL, SERIAL, OPTIONAL message is *not* displayed, press the **Menu** key until that message appears in the display window.
12. Press the **+** or **-** keys until the I/O=OPTIONAL message appears. If the I/O = OPTIONAL message is not available by pressing **+** or **-** as described above, make sure that the adapter card is properly installed and power-cycle the printer. If you are sure the card is properly seated and the same condition occurs, then the adapter card is probably faulty. Refer to chapter 7 for more troubleshooting information.
13. Press **Enter** to select the Optional I/O. The display should read I/O=OPTIONAL*, with the asterisk indicating the optional I/O is now selected.
14. Press **Continue** to exit the configuration menu and return on-line.
15. Wait for either the 43 OPT INTERFACE, 43 ERROR, or OPT I/O ERROR 43 message to appear on the printer's display window. (This 43 error message indicates that the adapter card is installed but the interface software has not yet been configured. *During normal network operation*, a 43 error indicates a network problem of some sort, and indicates you should press the Status button as described in the procedure below.)

Note

If the 42 OPT INTERFACE, 42 ERROR, OPT I/O ERROR 42, or 69 SERVICE messages appear in the printer's display window, refer to Chapter 7 for troubleshooting information.

16. Press **Continue** to clear the error message.

17. With the printer on-line, press the STATUS button on the adapter card to print a Status page. (If you are unfamiliar with the STATUS button, it is located underneath the card handle and is labeled STATUS [see Figures 2-1, 2-2, or 2-3].)

Note



If the HP Network Printer Interface is being installed for the first time and the interface software configuration has not been done, the Status page will read I/O CARD NOT READY: NOT CONFIGURED.

If the Status page message is I/O CARD NOT READY: INITIALIZING NETWORK, wait 2 minutes and reprint the Status page. If this message persists, the adapter card is unable to communicate on the network correctly. Refer to Chapter 7 for troubleshooting information.

18. Keep the Status page. *You will need it as reference later in the software configuration process.*

Note



Any time the printing language is changed between PCL and PostScript, you must reconfigure the printer control panel for Optional I/O as described in steps 9 through 14.

Choosing a Mode

Using the information provided in Chapter 1, you should have decided to use either the Queue Server or Remote Printer mode. If you chose Queue Server mode, follow the steps in the section below, "Queue Server Mode Configuration." If you chose Remote Printer mode, skip to the "Remote Printer Mode Configuration" section on page 2-14.

Queue Server Mode Configuration

For Queue Server mode configuration, you will be doing the following:

- Enable unencrypted passwords (NetWare 386 users only).
- Add a print server name under which the HP Network Printer Interface will service the print queue.
- Create a new print queue (if necessary).
- Configure the HP Network Printer Interface as a Queue Server using the PCONSOLE utility.

Note



Detailed instructions on using PCONSOLE are located in Chapter 4.

Enabling Unencrypted Passwords

If you are using NetWare 386, enable unencrypted passwords. At the file server, enter:

```
SET ALLOW UNENCRYPTED PASSWORDS=ON
```

Note



We recommend that you add SET ALLOW UNENCRYPTED PASSWORDS=ON to your AUTOEXEC.NCF file on your file server using either the INSTALL.NLM utility on the file server or the SYSCON utility on a workstation when logged in as supervisor.

Adding a Print Server Name

To add a print server name, complete the following steps:

1. Log on as supervisor on the appropriate file server from any workstation and start PCONSOLE.
2. Select **Print Server Information**.
3. Create a new print server (for example, PUBLIC_PRINTER) or decide on an existing print server to use for the HP Network Printer Interface.
4. Record the name of the print server you created and the mode (Queue Server mode) on the Network Administrator's Worksheet (see inside back cover). You will need this name later in the configuration process.
5. Return to the "Available Options" menu.

Creating a Print Queue

A Queue Server can service multiple queues if necessary. From within PCONSOLE, follow these instructions to create a print queue or queues to be serviced by the print server:

1. Select **Print Queue Information**.
2. Create a new queue to be serviced by the printer if you wish.
3. Select the queue to be serviced by the printer.
4. Select **Queue Servers**.
5. Add the new print server (e.g., PUBLIC_PRINTER) to the Queue Servers list.
6. Repeat steps 2 through 5 for any additional queues to be serviced.
7. Record the name(s) of the queue(s) you created on the Network Administrator's Worksheet (see inside back cover).
8. Exit PCONSOLE.

Configuring the HP Network Printer Interface

You must configure the HP Network Printer Interface using the Hewlett-Packard PCONFIG software, located on the *Installation and Configuration Utilities* disk in the back of this manual. Follow these steps:

1. Log on as supervisor on any workstation and start the PCONFIG utility.

Note



Detailed instructions for using PCONFIG are located in Chapter 4. Additional PCONFIG assistance is available through on-line help screens, accessed by pressing **F1**.

If you wish, you may copy PCONFIG to your hard disk by copying PCONFIG.* from the *Installation and Configuration Utilities* disk.

2. Choose **Select Network**.

3. Select the number of the network (see NETWORK NO on the Status page) on which you installed the HP LaserJet printer (see Figure 2-6). You can select multiple networks by pressing **F5** after each time you highlight a desired network.

HEWLETT-PACKARD										
NETWORK PRINTER INTERFACE STATUS										
NOVELL 802.5 FIRMWARE REVISION: V.00.01 NODE ADDRESS: 10009008080A DATA RATE: 16 Mbps	NOVELL 802.5 REVISION FIRMWARE: V.00.01 DIRECCION NODO: 10009008080A VELOCID DATOS: 16 Mbps	NOVELL 802.5 REVISION FIRMWARE: V.00.01 INDIRIZZO NODO: 10009008080A VELOC TRASH: 16 Mbps	NOVELL 802.5 FIRMWARE-REVISION: V.00.01 KNOTENADRESSE: 10009008080A DATENRATE: 16 Mbps	NOVELL 802.5 REV MICROLOGICIEL: V.00.01 ADRESSE NODELD: 10009008080A DEBIT DONNEES:						
NETWORK NO.: UNKNOW	FRAME TYPE:	NETWORK NO.: DESCONOCIDO	FRAME TYPE:	NO. DI RETE: SCONOSCIUTO	PROTOCOLLO:	NETZMERK-NR.: UNBEKANNT	BAHMENTYP:	N°-RESEAU: INCONNU		
NODE NAME: CURTIS		NOMBRE DE NODO: CURTIS		NOME DEL NODO: CURTIS		KNOTENNAME: CURTIS		NOM DU NOEUD: CURTIS		
NODE: QUEUE SERVER		NODO: SERVIDOR DE COLA		NODO: SERVER DI CODD DI STAMPA		NODUS: WARTESCHLANGEN-SERVER		MODE: SERVEUR FI		
FILE SERVER NAME: QUICKSERVER		NOMBRE SERVIDOR DE FICHEROS: QUICKSERVER		NOME DEL FILE SERVER: QUICKSERVER		NAME DES DATEI-SERVER: QUICKSERVER		NOM DU SERVEUR FICH: QUICKSERVER		

Figure 2-6. Checking the Status Page for NETWORK NO:

4. Choose **Select Network Printer Interface** to begin configuring your HP Network Printer Interface.

Note



If the message, **No Network Printer Interfaces** are operating, appears on the screen or your specific printer does not appear, check the following and rerun PCONFIG:

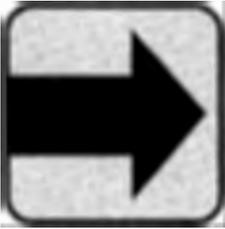
- a. Make sure the printer is turned on. You must wait at least 60 seconds after the printer's 05 SELF TEST message is *no longer displayed* for the printer to start broadcasting its presence on the network.
- b. Make sure the adapter card is properly installed.
- c. Make sure the cables are properly connected to the printer and the network.
- d. Make sure the network number you selected for the printer (in PCONFIG) corresponds with the network number on which the printer is installed.

If you have checked all of the above items and the message still appears, or your specific printer does not appear, refer to Chapter 7 for troubleshooting information.

5. Select the printer Node Address in the second column of the "Network Printer Interfaces" screen which matches the address listed on your printer Status page. The default name will be NPIXXXXXX, where XXXXXX is a unique number assigned to each HP Network Printer Interface card.
6. Select **Select/Configure Queue Server Mode**.
7. For Node Name, type in the name of the print server you created in the previous section (e.g., PUBLIC_PRINTER).
8. For File Server Name, select the file server on which you created your print server name from the menu. (To get the file server menu, use the **Insert** key.)
9. Press **Esc** to exit the utility, saving your changes.

10. Remove the PCONFIG diskette from drive A: and store it in the back of this guide.

What's Next?



You have now completed configuring your HP Network Printer Interface. Skip to the “Creating the Print Job Configuration” section on page 2-20.

Remote Printer Mode Configuration

To set up Remote Printer mode, you must do the following:

- Create a new print queue (if necessary).
- Add a remote printer to the print server.
- Assign a queue to the print server.
- Restart your Novell print server so that the changes you made can be recognized.
- Configure the HP Network Printer Interface.

Creating a Print Queue

Follow these instructions to create a print queue to be serviced by the print server. If you already have a print queue set up, skip to the next section, "Adding a Remote Printer."

Note



Detailed instructions on using PCONSOLE are located in Chapter 5.

1. Log on as supervisor at any workstation and start PCONSOLE.
2. Select **Print Queue Information**.
3. Create a new queue to be serviced by the remote printer.
4. Return to the "Available Options" menu.

Adding a Remote Printer

To add a remote printer to a print server, complete the following steps.

1. Select **Print Server Information**.
2. Select or create the print server you want to service the remote printer.

3. Record the name of the print server you selected or created as well as the mode (Remote Printer mode) on the Network Administrator's Worksheet (see inside back cover). You will need this information later in the configuration process.
4. Select **Print Server Configuration**.
5. Select **Printer Configuration**.
6. Select a **Not-Installed** printer.
7. Record the printer number on the Network Administrator's Worksheet (see inside back cover). You will need this information later in the configuration process.
8. Type a name for the printer. This name should be something that will help you to identify the location or characteristics of the printer.
9. Record this name on the Network Administrator's Worksheet.
10. Select **Remote Other/Unknown** in the "Type" field.
11. Return to the "Print Server Configuration" menu, saving your changes.

Assigning a Queue to the Printer

You now need to assign a queue to be serviced by the remote printer. Note that a printer can service multiple queues.

1. Select **Queues Serviced by Printer** from the "Print Server Configuration" menu.
2. Select the printer that you want to service the queue. This must be the printer you added in the previous section.
3. Select the print queue, created previously, to be serviced by the remote printer. (The **Insert** key will generate a list of available queues.)

4. Record the name of this queue on the Network Administrator's Worksheet. You will need this information later in the configuration process.
5. Enter the priority level of the queue.
6. Return to the "Available Options" menu.

Repeat these steps for each additional queue you want serviced by the remote printer.

Restarting the Print Server

You need to shut down the print server (if it was running) and then bring it back up. This enables the print server to recognize the changes you have made.

Note



If you are running a 286 or 386 nondedicated print server (VAP or NLM print server), you do not need to shut down the file server. You need only shut down the print server program.

The print server now needs to be restarted. The procedure for restarting the print server varies depending on the system you are operating. Use the command below that applies to your system.

System	Command Entered at Server
286 Non-Dedicated Print Server (VAP)	PSERVER START (from file server)
386 Non-Dedicated Print Server (NLM)	LOAD PSERVER X (from file server, where X is the name of the print server).
Dedicated Print Server	PSERVER X (from print server, where X is the name of the print server).

The print server will now restart. The print server screen displays the printer name you entered in PCONSOLE with a “Not Connected” message.

You have now completed configuring your print server to work with the HP Network Printer Interface. Continue with the next section, “Configuring the HP Network Printer Interface.”

Configuring the HP Network Printer Interface

You must configure the HP Network Printer Interface using the Hewlett-Packard PCONFIG software, located in the back of this manual. Follow these steps:

1. Log on as supervisor on any workstation and start the PCONFIG utility.

Note



Detailed instructions for using PCONFIG are located in Chapter 5. Additional assistance is available through on-line help screens accessed by pressing the **F1** key.

If you wish, you may copy PCONFIG to your hard disk by copying PCONFIG.* from the “Installation and Configuration Utilities” disk.

2. Choose **Select Network**.
3. Select the number of the network (see NETWORK NO on the Status page) on which you installed the HP LaserJet printer. You can select multiple networks by highlighting each desired network and pressing **F5**.
4. Choose **Select Network Printer Interface** to begin configuring your HP Network Printer Interface.

Note



If the message, No Network Printer Interfaces are operating, appears on the screen or your specific printer does not appear, check the following and rerun PCONFIG:

- a. Make sure the printer is turned on. You must wait at least 2 minutes after the printer's 05 SELF TEST message is *no longer displayed* for the printer to start broadcasting its presence on the network.
- b. Make sure the adapter card is properly installed.
- c. Make sure the cables are properly connected to the printer and the network.
- d. Make sure the network number you selected for the printer (in PCONFIG) corresponds with the network number on which the printer is installed.

If you have checked all of the above items and the message still appears, or your specific printer does not appear, refer to Chapter 7 for troubleshooting information.

5. Select the printer Node Address in the second column of the "Remote Printer Connections" screen which matches the address listed on your printer Status page. The Default name will be NPIXXXXXX, where XXXXXX is a unique number assigned to each printer.
6. Select **Select/Configure Remote Printer Mode**.
7. Type in the name you want to assign to the printer.
8. Select the print server that you configured using PCONSOLE.
9. Press the  cursor key to move to the Printer Number field.

10. Select the printer number you assigned to the printer using PCONSOLE (recorded on the Network Administrator's Worksheet). Do not select a printer number that is already in use by another printer.
11. Exit the utility, saving your changes.
12. Remove the PCONFIG diskette from drive A: and store it in the back of this guide.

You have now completed configuring your HP Network Printer Interface. Continue with the next section to verify that the HP Network Printer Interface is installed and configured properly.

Creating the Print Job Configuration

The following procedure creates a print job configuration to enable a user to print a PCL print job on the HP LaserJet printer. Unless the default is already set as outlined below, each user on your network must create this print job configuration to print to the HP LaserJet printer, or you must copy this print job configuration to each user's account using the PRINTCON "Copy Print Job Configuration" option. (This latter option will overwrite any print configurations the user already has.)

1. Run Novell's PRINTCON utility to select the values listed in Table 2-1.

Note



Detailed instructions for running PRINTCON are located in Chapter 4. Additional assistance is available through on-line help screens accessed by pressing the  key.

Table 2-1. Printer Configuration Parameters

File contents	Byte stream
Print Banner	NO (or YES, if desired)
Suppress form feed	YES †
File Server	The file server the print queue is on.
Print Queue	The print queue you created to service this printer.
Device	(None)††
Mode	(None)†††

† Select **Suppress form feed=No** for those applications that do not have a trailing form feed.

†† Select **Select the HP LaserJet II/IID or III/IIID** if available.

††† If above is available, mode is selectable.

2. Select the print job configuration you created in step 1 as the default configuration.
3. Exit the utility, saving your changes.

You have now configured your print server to work with the HP Network Printer Interface.

Verifying the Configuration

Note



To verify that you have installed the HP Network Printer Interface correctly, do the following at any workstation on the network:

If your printer has a PostScript cartridge installed, you must turn off the printer, remove the cartridge, and turn the power on before you run this procedure.

1. Make sure the printer is displaying the 00 READY message.
2. Use the `CAPTURE /j=X /FORMFEED` command at the system prompt on any workstation (*where X is the name of the print job configuration you created in the previous section*).
3. Type `DIR > LPT1` to send data to the HP Network Printer Interface. *The directory should print on the printer that is connected to the HP Network Printer Interface.*

If you wish to print using PostScript, or if the verification procedure above didn't work properly, continue to the next page. If the directory prints on the printer, you have successfully installed and configured the HP Network Printer Interface. *You are now done with the setup procedure and can begin using the LaserJet printer as a network printer.* If you wish, you may proceed to "Configuring the Printer (Optional)" or refer to Chapter 6

for information on enhancing your HP LaserJet printer's performance.

Note



After you have verified proper communication with the printer, if you wish to print using PostScript, turn off the printer, insert the PostScript cartridge, and then turn the printer on again.

When the printing language is changed between PCL and PostScript, you may need to reconfigure the printer control panel for Optional I/O (if you are unfamiliar with this procedure, follow steps 9 through 14 in the "Installing the Adapter Card" procedure earlier in this chapter).

As noted previously, the HP Network Printer Interface does not support PostScript printing on the HP LaserJet II printer.

Troubleshooting

If the directory does not print properly, check for error messages on the workstation screen or on the printer's control panel display. Refer to your NetWare documentation to find out more about error messages displayed on the workstation screen. Refer to the HP LaserJet Printer *User's Manual*, as well as to chapter 7 of this manual, for information on error messages displayed on the printer's control panel.

If the directory does not print properly and no error messages appear either on the workstation screen or on the printer's control panel display:

- Make sure that the printer is turned on and is on-line.
- Make sure the adapter card is configured and installed correctly.
- Refer to Chapter 7 for detailed troubleshooting information.

Configuring the Printer (Optional)

The LaserJet printers have a control panel setting called *auto continue* (AUTO CONT= ON/OFF), that affects how error messages influence the control panel display and subsequent printing.

If the printer is set to AUTO CONT=OFF*, an error message remains displayed until you correct the problem and press the  key. The printer *stops printing* until you press  to return the printer on-line.

If the AUTO CONT=ON* setting is selected, most error messages appear on the display for only about 10 seconds. Then the OO READY message appears and the printer resumes printing, unless a “fatal” error has occurred.

To keep you from having to go to the printer and press the  key after routine intermittent errors, Hewlett-Packard recommends that, after you have the printer configured and running properly on the network, you set the HP LaserJet printer’s front control panel AUTO CONT= setting to ON. This enables the printer to resume normal operation after certain network errors or faults have been corrected, without pressing the  key.

Note



With AUTO CONT=ON*, printer error messages (for example, 42/43 OPT INTERFACE, 42/43 ERROR, OPT I/O ERROR 42/43, 42/43 ERROR) will be cleared after about 10 seconds, even if the error still persists. (If a “69” error occurs, it will not be cleared. For more information on “69” errors, refer to your printer user’s manual.)

HP recommends you don’t set the printer to AUTO CONT=ON* until you have fully configured the printer to the network and are printing successfully. Likewise, you would want to set the printer to AUTO CONT=OFF* any time you suspect printer problems and want to see error messages displayed.

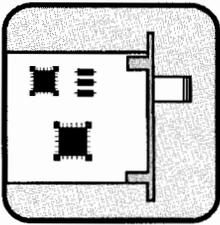
To set auto continue to ON, follow these steps:

1. Make sure the printer is off-line.
2. Hold down **Menu** a few seconds until AUTO CONT= or SYM SET= appears. If SYM SET= appears, press the **Menu** key once more until the AUTO CONT= message appears. (If AUTO CONT=ON* is displayed, your printer is already set as recommended; skip to step 5.)
3. Press **+**. The message AUTO CONT=ON will be displayed.
4. Press **Enter** to save your change. An asterisk (*) will appear in the display.
5. Press **On Line** to return the printer on-line. The printer will display OO READY (or POSTSCRIPT READY).

If you have verified that the HP Network Printer Interface is installed properly (as demonstrated by printing a directory listing in the previous "Verifying the Configuration"), *you have completely finished the setup procedure.* You may now begin using the HP LaserJet printer as a network printer or you may skip to Chapter 6 for tips on improving network printer performance.

Installing the Adapter Card

Overview



This chapter describes how to install the HP Network Printer Interface adapter card in your HP LaserJet printer. Because there are a few significant differences in installing the three versions of the card, this chapter is divided into three sections:

- Installing the ThinLAN adapter card.
- Installing the 10BASE-T adapter card.
- Installing the Token Ring adapter card.

Before you begin to install the adapter card into your HP LaserJet 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.

Installing the 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 Novell networks. (The part numbers for the adapter cards are: ThinLAN – C2071A, 10BASE-T – C2071B, and Token Ring – C2071E.)
- 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 Phillips-head screwdriver for removing the OPTIONAL I/O faceplate from the back of the printer.

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 amber ON LINE indicator next to the  key should be lit.
3. Make sure that the control panel is displaying 00 READY (or POSTSCRIPT READY if you have a PostScript cartridge installed in your HP LaserJet printer).

Note



Your printer must display 00 READY (or POSTSCRIPT READY) before you can continue installing the adapter board. If your printer displays a message other than a READY message, refer to your HP LaserJet Printer *User's Manual* under "Error Messages" 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 ThinLAN Adapter Card

This section describes how to configure and install the ThinLAN adapter card into your HP LaserJet printer and connect the printer to your Novell network. This section also describes how to verify that the printer is correctly connected to your network.

If you have a 10BASE-T adapter card, skip to page 3-14; if you have a Token Ring adapter card, skip to page 3-25.

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 ThinLAN Adapter Card

Follow these steps to install the adapter card:

1. Locate the adapter card (see Figure 3-1). The part number for the ThinLAN adapter card is C2071A.

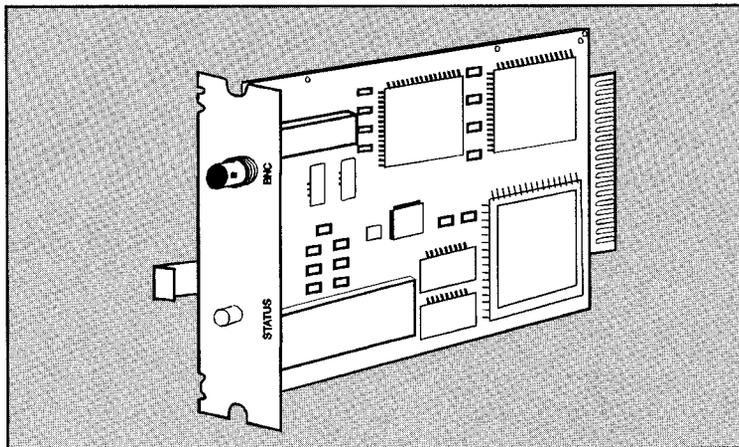


Figure 3-1. Identifying the ThinLAN Adapter Card

2. Gather the appropriate connectors to connect the adapter card to your network.

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.

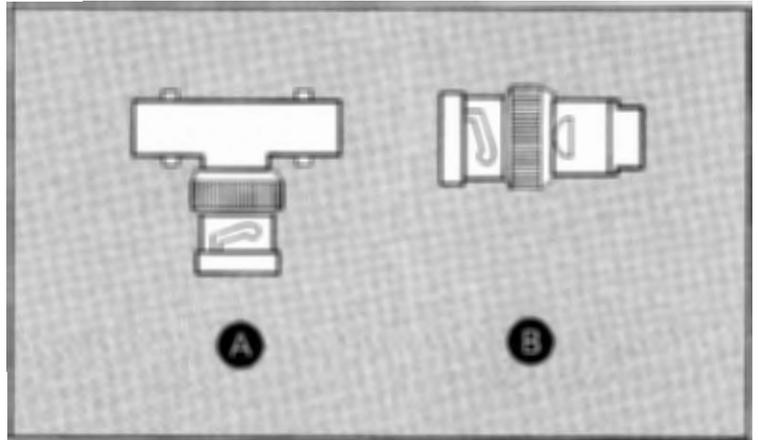


Figure 3-2. Gathering the Appropriate Connectors

Installing the Adapter Card

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

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

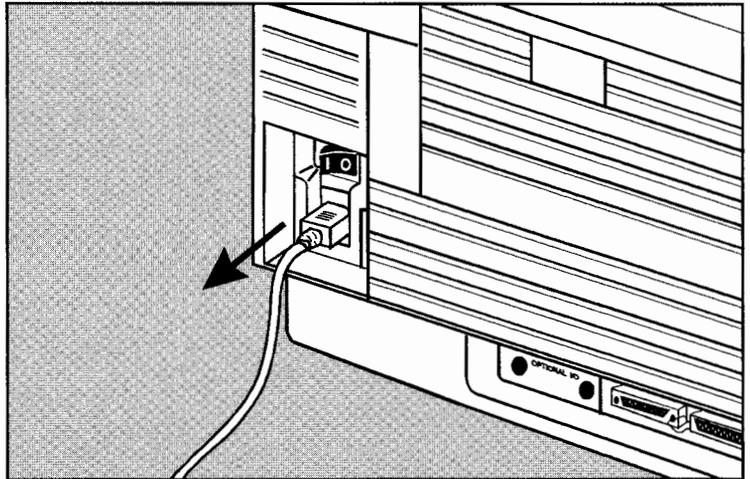


Figure 3-3. Unplugging the Printer Power Cord

2. Locate the Optional I/O slot at the rear of the printer, near the center. See Figure 3-4.

3. Remove the existing adapter card (or slot cover if there is no existing card installed) from the Optional I/O slot at the rear of the printer by following these steps:
 - a. Completely loosen the two screws on the Optional I/O slot cover or the installed adapter card using a small Phillips-head screwdriver. See **A** in Figure 3-4.

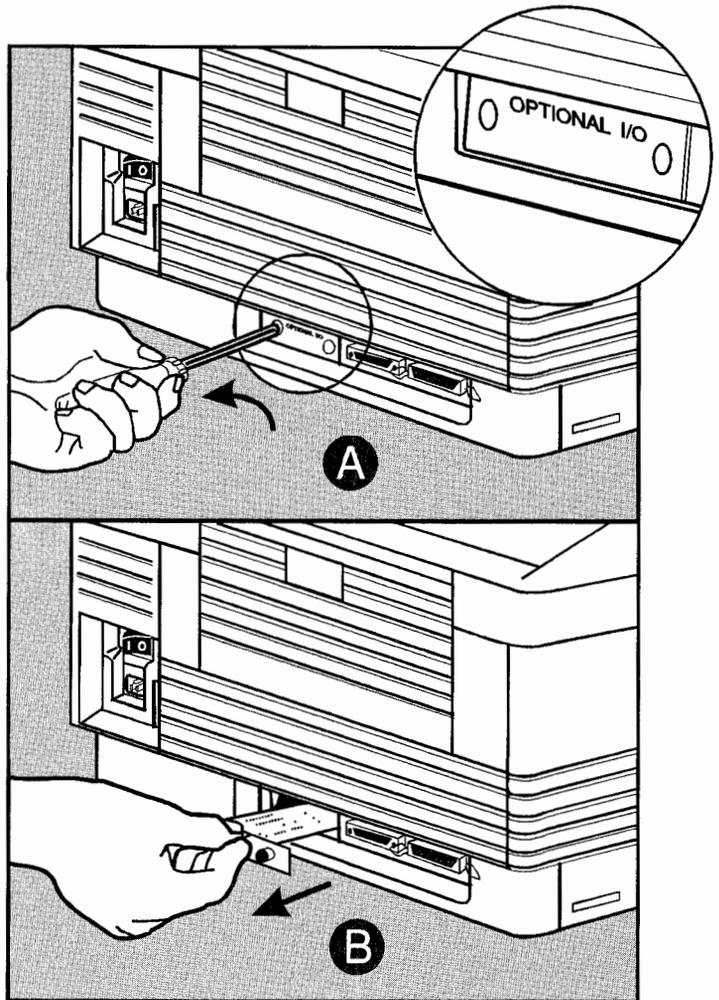


Figure 3-4. Accessing the Optional I/O Slot

- b. If an existing card is installed, remove it by pulling firmly on the card's handle. See ③ in Figure 3-4. Store the card in the antistatic bag in which your ThinLAN adapter card came.
4. Install the ThinLAN adapter card into the HP LaserJet printer.

Caution



Be careful NOT to force the card into place if it does not slide in smoothly. Forcing the card into place may damage the card or the printer.

- a. Hold the adapter card by its handle with the component side down, and push the adapter card firmly into the Optional I/O slot. See Figure 3-5.

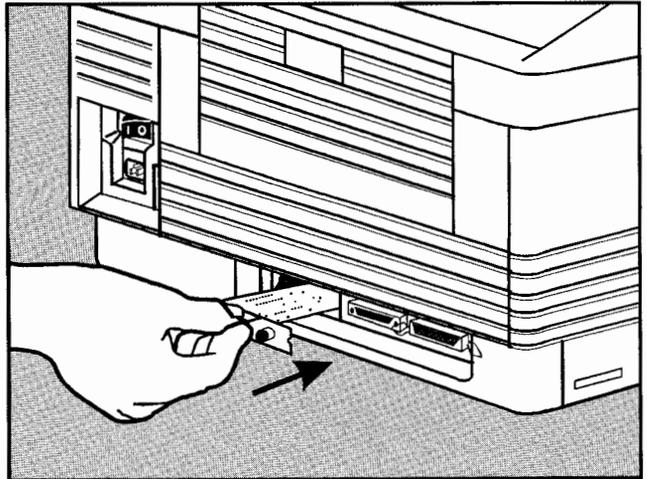


Figure 3-5. Installing the ThinLAN Adapter Card

- b. Once the card's faceplate is flush with the printer, tighten both screws to secure it in place. See Figure 3-6.

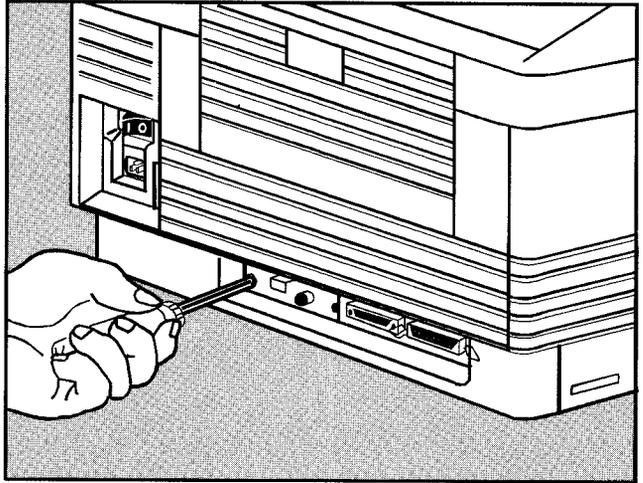


Figure 3-6. Tightening the Faceplate Screws

Attaching the Network Cable

Follow these steps to connect the HP LaserJet printer to the network.

1. Attach one section of your ThinLAN coaxial cable to one side of the BNC "T" connector. (Once the connector is in place, be sure to rotate it clockwise to secure it.)

2. Attach another ThinLAN coaxial cable section or a 50-Ohm terminator to the other side of the BNC "T" connector. If you are attaching the HP LaserJet printer in the middle of your network you must use another ThinLAN coaxial cable section. See (A) in Figure 3-7. If you are attaching the printer to the end of your network, you must use a 50-Ohm terminator. See (B) in Figure 3-7.

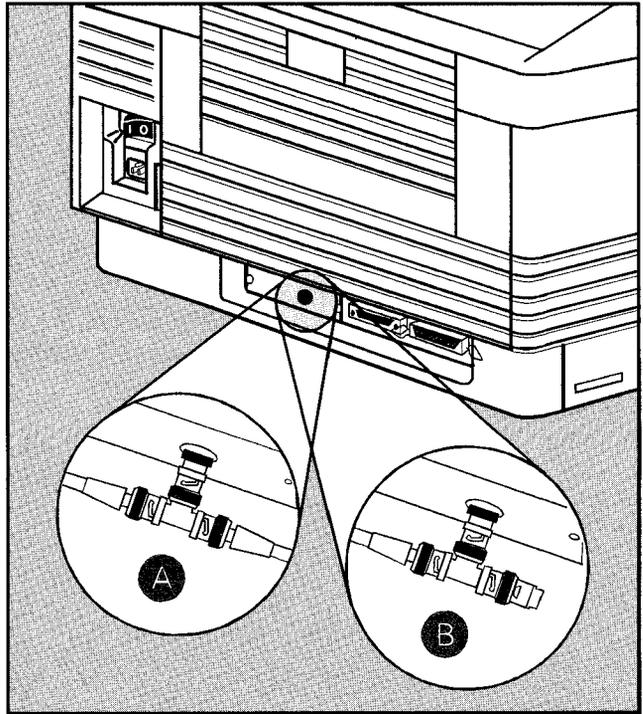


Figure 3-7. Connecting the Printer to the Network

3. Attach the BNC “T” connector to the ThinLAN 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.

Note



Figure 3-8 shows the right and wrong ways to attach the ThinLAN cable to your printer. Connection ① in Figure 3-8 is a correct ThinLAN connection.

Connection ② is incorrect because it is not made directly through a BNC “T” connector; the short cable between the “T” connector and the adapter card constitutes a branch in the network cable, which is not permitted.

Connection ③ is also incorrect because it is not made through a BNC “T” connector; in addition, there must be a 50-Ohm terminator (not an adapter card) at the end of the ThinLAN cable. Connection ③ in Figure 3-7 shows the correct way to connect a printer at the end of a ThinLAN network cable.

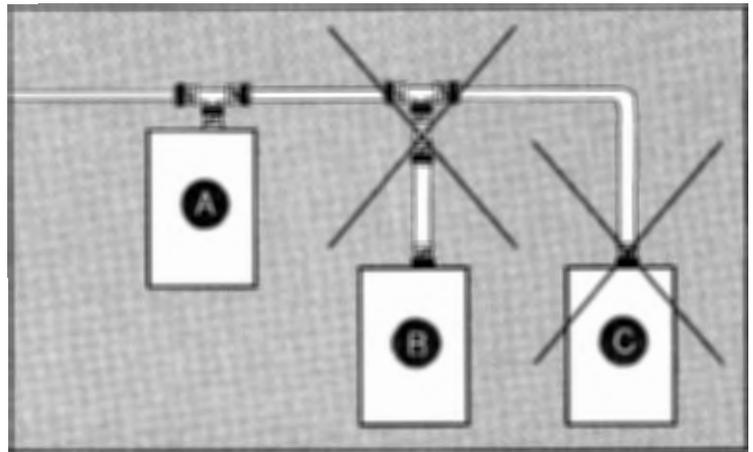


Figure 3-8. Correctly Connecting a ThinLAN Cable

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 and then 00 READY (or POSTSCRIPT READY if a PostScript cartridge is installed).
7. Wait for the 00 READY message (or POSTSCRIPT READY) to appear in the printer's display window.
8. Press **On Line** to take the printer off-line. The on-line indicator should be off.
9. Hold down the **Menu** key for several seconds until AUTO CONT= or SYM SET= appears in the printer's display window.
10. If the I/O=PARALLEL, SERIAL, OPTIONAL message is not already displayed, press the **Menu** key until the message is displayed.
11. Press the **+** or **-** keys until the I/O=OPTIONAL message appears. If the I/O=OPTIONAL message is not available by pressing **+** or **-** as described above, make sure that the adapter card is properly installed and power-cycle the printer. If you are sure that the card is properly seated and the same condition occurs, then the adapter card is probably faulty. Refer to chapter 7 for more troubleshooting information.
12. Press **Enter** to select the Optional I/O. The display should read I/O=OPTIONAL*, with the asterisk indicating the Optional I/O is now selected.
13. Press **Continue** to exit the configuration menu and return on-line.

This completes the installation of the ThinLAN card. Continue with the next section to verify that the adapter card is installed properly.

Verifying the Adapter Card Installation

14. Wait for either the 43 OPT INTERFACE, 43 ERROR, or OPT I/O ERROR 43 message to appear on the printer's display window. (This "43" error message indicates that the adapter card is installed but the interface software isn't yet configured. *During normal network operation*, a 43 error indicates a network problem of some sort, and indicates you should press the Status button as described in the procedure below.)

Note



If the 42 OPT INTERFACE, 42 ERROR, OPT I/O ERROR 42, or 69 SERVICE messages appear in the printer's display window, refer to Chapter 7 for troubleshooting information.

15. Press **Continue** again to clear the error message.
16. With the printer on-line, press the STATUS button on the HP Network Printer Interface adapter card to print a Status page. (If you are unfamiliar with the STATUS button, it is labeled "STATUS" and is located on the adapter card underneath the handle.)

Note



If the HP Network Printer Interface is being installed for the first time and the interface software configuration has not been done, the Status page will read I/O CARD NOT READY: NOT CONFIGURED.

If the Status page message reads I/O CARD NOT READY: INITIALIZING NETWORK, wait 2 minutes and reprint the Status page. If this message persists, the adapter card is unable to communicate on the network correctly. Refer to Chapter 7 for troubleshooting information.

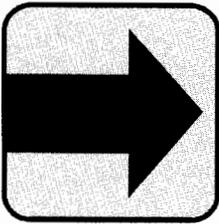
17. Keep the Status page. *You will need it as reference later in the software configuration process.*

Note



Any time the printing language is changed between PCL and PostScript, you must reconfigure the printer control panel for Optional I/O as described in steps 8 through 13.

What's Next?



You have now verified that the adapter card hardware is installed correctly. Continue with Chapter 4, “Queue Server mode,” or Chapter 5, “Remote Printer mode,” for instructions on installing and configuring the HP Network Printer Interface software. If you are unsure of whether to choose the queue server or remote printer mode, see the comparison in Chapter 1.

Installing the 10BASE-T Adapter Card

This section describes how to configure and install the 10BASE-T adapter card into your HP LaserJet printer and connect the printer to your network. This section also describes how to verify that the printer is correctly connected to your network. If you have a ThinLAN or Token Ring adapter card, skip to the section describing how to install the appropriate card.

Caution



Like most computer circuitry, the adapter card contains parts that are easily damaged by small amounts of static electricity. In order to protect your hardware investment and maximize the life of equipment, you need to take precautions such as *making sure the printer power is off*, 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.

Cabling for the 10BASE-T Adapter Card

It is important that the correct cable be used to attach to the 10BASE-T adapter card. Note the following points when selecting twisted-pair cable for your HP Network Printer Interface adapter.

1. Never use untwisted cable, including flat cable, to connect your printer to a twisted-pair network. All cabling must be twisted-pair (at least two twists per foot, six twists per meter).
2. Shielded twisted-pair cable may be used. It is recommended that the shield be grounded at only one end (the hub end) of the cable.

Note



For more information about twisted-pair cabling, see Appendix E of this manual or the *Technical Reference Guide for Workgroup LANs* (HP part number 5091-0663E).

Configuring the 10BASE-T Adapter Card

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

1. Locate the adapter card. The part number for the 10BASE-T adapter card for Novell networks is C2071B. Refer to Figure 3-9.

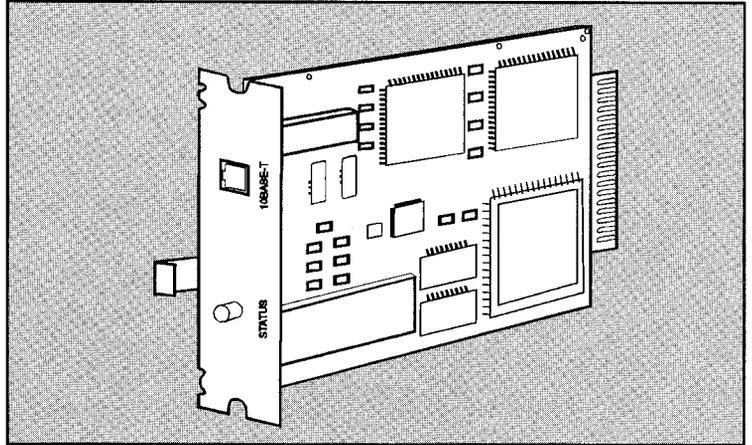


Figure 3-9. Identifying the 10BASE-T Adapter Card

2. Locate your twisted-pair network cable to be used to attach your printer to the twisted-pair network.

3. Configure your 10BASE-T adapter card to either enable or disable Link Beat. (Link Beat, or link test pulse, is a signal sent over twisted-pair cable to inform one device of the presence of the other and the integrity of the network link between them.)
 - If the card will connect to a Type 10BASE-T network device, enable Link Beat as shown in Figure 3-10. (This is the factory default configuration.)
 - If the card will connect to a non-Type 10BASE-T network device, such as an HP StarLAN10 device, disable Link Beat as shown in Figure 3-10.

The default configuration is Link Beat enabled.

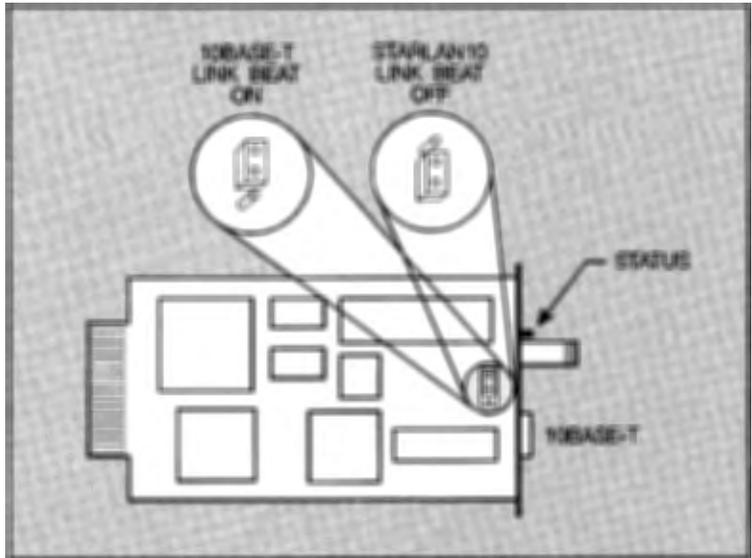


Figure 3-10. Configuring the 10BASE-T Adapter Card

Installing the Adapter Card

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

1. Turn the printer off and unplug the power cord from the printer. See Figure 3-11.

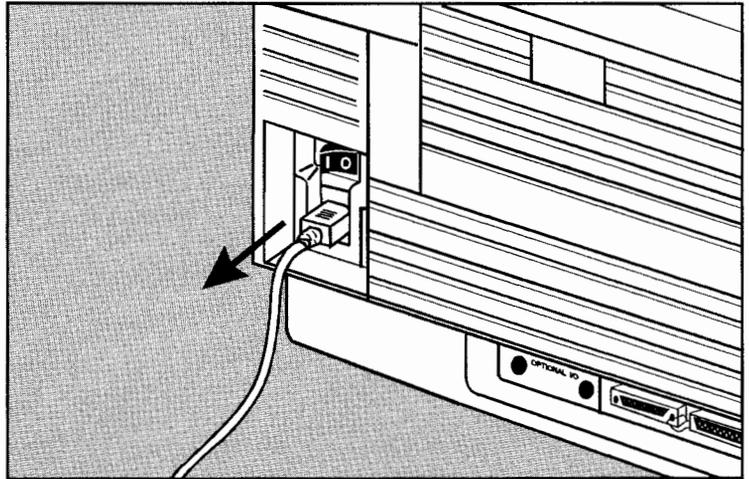


Figure 3-11. Unplugging the Printer

2. Locate the Optional I/O slot at the rear of the printer, near the center. See Figure 3-12.

3. Remove the existing adapter card (or slot cover if there is no existing card installed) from the Optional I/O slot at the rear of the printer by following these steps:
 - a. Completely loosen the two screws on the installed adapter card using a small Phillips-head (cross-point) screwdriver. See **A** in Figure 3-12.

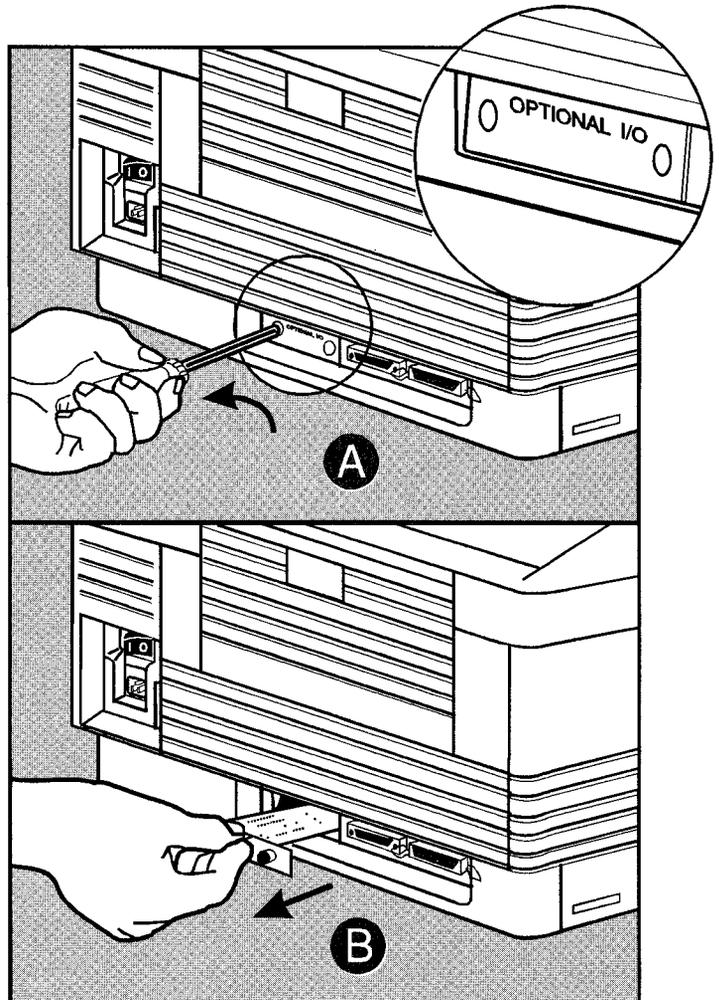


Figure 3-12. Removing the Existing Adapter Card

- b. Remove the existing adapter card (if any) by pulling firmly on the card's handle. See ② in Figure 3-12. Store the card in the antistatic bag in which your 10BASE-T adapter card came.

4. Install the 10BASE-T adapter card into the printer.

Caution



Be careful NOT to force the card into place if it does not slide in smoothly. Forcing the card into place may damage the card or the printer.

5. Hold the adapter card by its handle with the circuit board components facing down and push the adapter card firmly into the Optional I/O slot. See Figure 3-13.

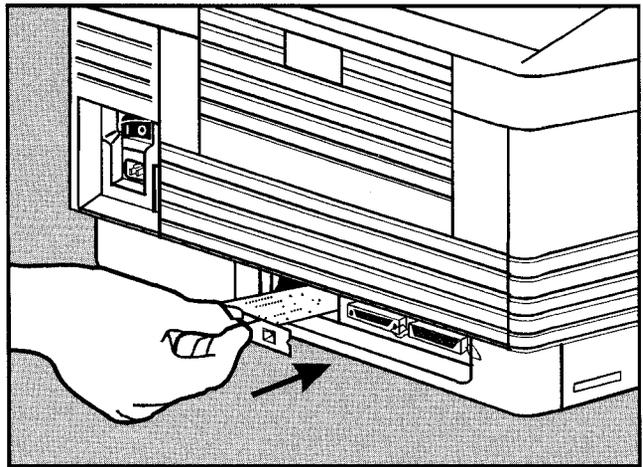


Figure 3-13. Inserting the 10BASE-T Adapter Card

6. Once the card's faceplate is flush with the printer, tighten both screws to secure it in place. See Figure 3-14.

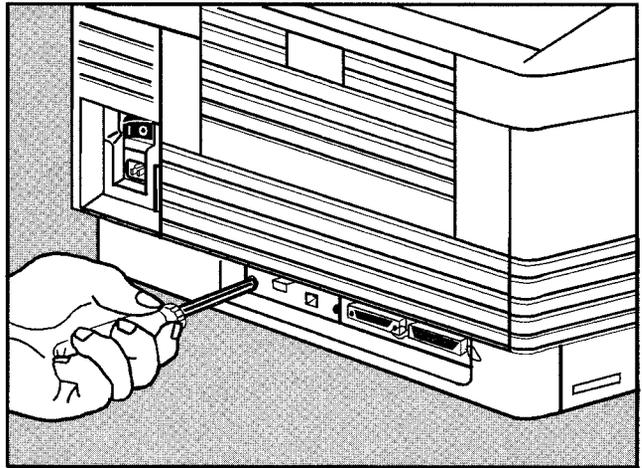


Figure 3-14. Tightening the Faceplate Screws

Attaching the Network Cable

Perform the following procedure to attach the network cable to the adapter card.

1. Plug the 8-pin connector of your twisted-pair network cable into the 8-pin 10BASE-T LAN jack on the faceplate of the adapter card (see Figure 3-15). The other end of the cable should then be attached to a twisted-pair hub/concentrator.

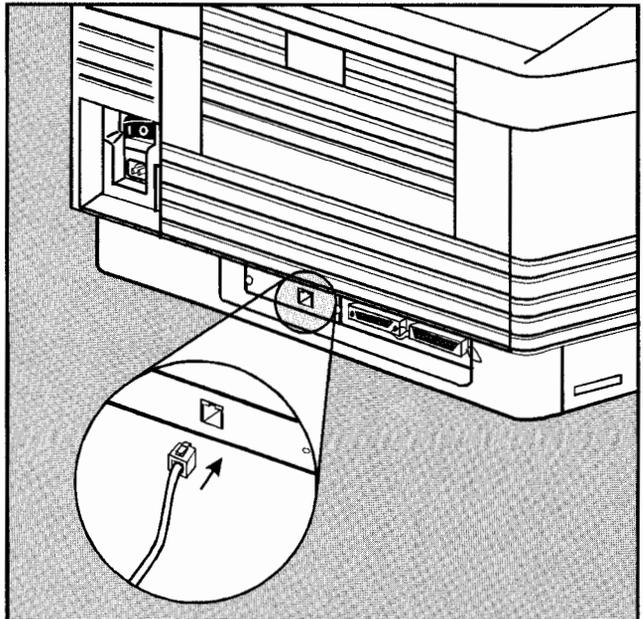


Figure 3-15. Attaching the Network Cable

2. Reattach the printer's power cord.
3. Turn the printer on. The printer will display 05 SELF TEST and then 00 READY (or POSTSCRIPT READY if a PostScript cartridge is installed).
4. Wait for the 00 READY message (or POSTSCRIPT READY) to appear in the printer's display window.

5. Press **On Line** to take the printer off-line. The on-line indicator should be off.
6. Hold down the **Menu** key until AUTO CONT=ON/OFF* or SYM SET= appears in the printer's display window.
7. If the I/O=PARALLEL, SERIAL, OPTIONAL message is not already displayed, press the **Menu** key until the message is displayed.
8. Press the **+** or **-** keys until the I/O=OPTIONAL message appears. If the I/O = OPTIONAL message is not available by pressing **+** or **-** as described above, make sure that the adapter card is properly installed and power-cycle the printer. If you are sure the card is properly seated and the same condition occurs, then the adapter card is probably faulty. Refer to chapter 7 for more troubleshooting information.
9. Press **Enter** to select the Optional I/O. The display should read I/O=OPTIONAL*, with the asterisk indicating the Optional I/O is now selected.
10. Press **Continue** to exit the configuration menu and return on-line.

This completes the installation of the 10BASE-T card. Continue with the next section to verify that the adapter card is installed properly.

Verifying the Adapter Card Installation

11. Wait for either the 43 OPT INTERFACE, 43 ERROR, or OPT I/O ERROR 43 message to appear on the printer's display window. (This "43" error message indicates that the adapter card is installed but the interface software isn't yet configured. *During normal network operation*, a 43 error indicates a network problem of some sort, and indicates you should press the Status button as described in the procedure below.)

Note

If the 42 OPT INTERFACE, 42 ERROR, OPT I/O ERROR 42, or 69 SERVICE messages appear in the printer's display window, refer to Chapter 7 for troubleshooting information.

12. Press **Continue** again to clear the error message.
13. With the printer on-line, press the STATUS button on the HP Network Printer Interface adapter card to print a Status page. (If you are unfamiliar with the STATUS button, it is labeled "STATUS" and is located on the adapter card underneath the handle.)

Note

If the HP Network Printer Interface is being installed for the first time and the interface software configuration has not been done, the Status page will read I/O CARD NOT READY: NOT CONFIGURED.

If the Status page message reads I/O CARD NOT READY: INITIALIZING NETWORK, wait 2 minutes and reprint the Status page. If this message persists, the adapter card is unable to communicate on the network correctly. Refer to Chapter 7 for troubleshooting information.

14. Keep the Status page. *You will need it as reference later in the software configuration process.*

Note

Any time the printing language is changed between PCL and PostScript, you must reconfigure the printer control panel for Optional I/O as described in steps 5 through 10.

What's Next?



You have now verified that the adapter card hardware is installed correctly. Continue with Chapter 4, "Queue Server mode," or Chapter 5, "Remote Printer mode," for instructions on installing and configuring the HP Network Printer Interface software. If you are unsure of whether to choose the queue server or remote printer mode, see the comparison in Chapter 1.

Installing the Token Ring Adapter Card

This section describes how to configure and install the HP Network Printer Interface Token Ring adapter card for your HP LaserJet printer and connect the printer to your network. This section also describes how to verify that the printer is correctly connected to your network. If you have a ThinLAN or 10BASE-T network, go back in this chapter to either “Installing the ThinLAN Adapter Card” (page 3-3) or “Installing the 10BASE-T Adapter Card” (page 3-14)

Caution



Like most computer circuitry, the adapter card contains parts that are easily damaged by small amounts of static electricity. In order to protect your hardware investment and maximize the life of equipment, you need to take precautions such as *making sure the printer power is off*, 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. Locate the adapter card. The part number for the Token Ring adapter card for Novell networks is C2071E. See Figure 3-16.

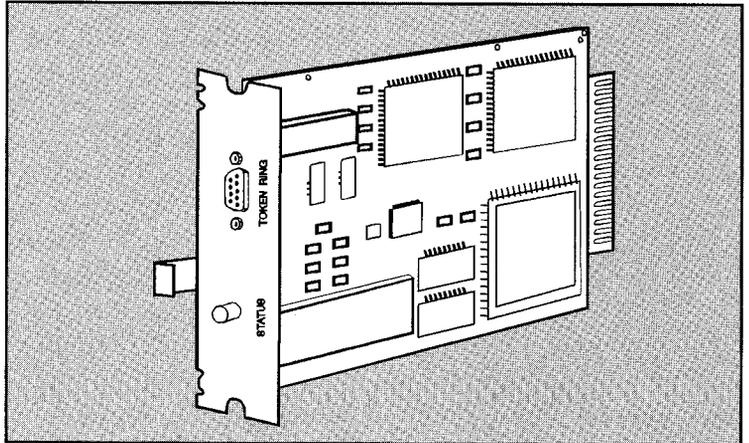


Figure 3-16. Identifying the Token Ring Adapter Card

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 3-17.
 - a. To attach to a shielded twisted-pair network, you will need a shielded twisted-pair Token Ring interface cable. See (A).
 - b. To attach to an unshielded twisted-pair network, you will need a Type 3 Media Filter in addition to an unshielded twisted-pair cable. See (B).

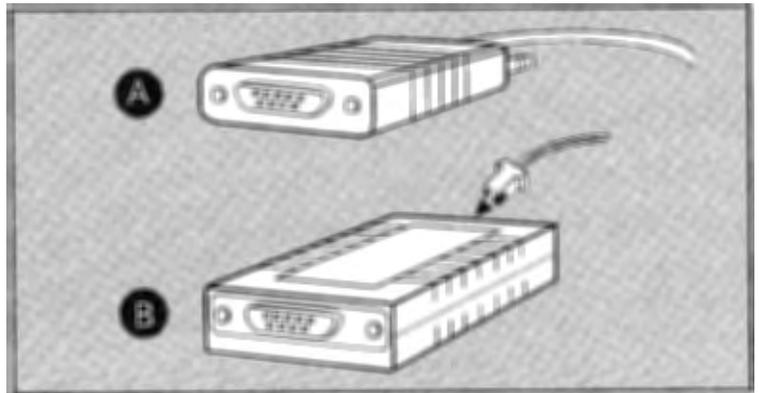


Figure 3-17. Determining the Connection Type

3. Configure your Token Ring adapter card for either 4 Mbps or 16 Mbps data rate by moving the jumper block to the appropriate position. See Figure 3-18. This should be the same setting as the other adapter cards on your network. *The factory default setting is 4 Mbps.*

Note



If you are using unshielded twisted-pair cabling, you must use the 4 Mbps data rate.

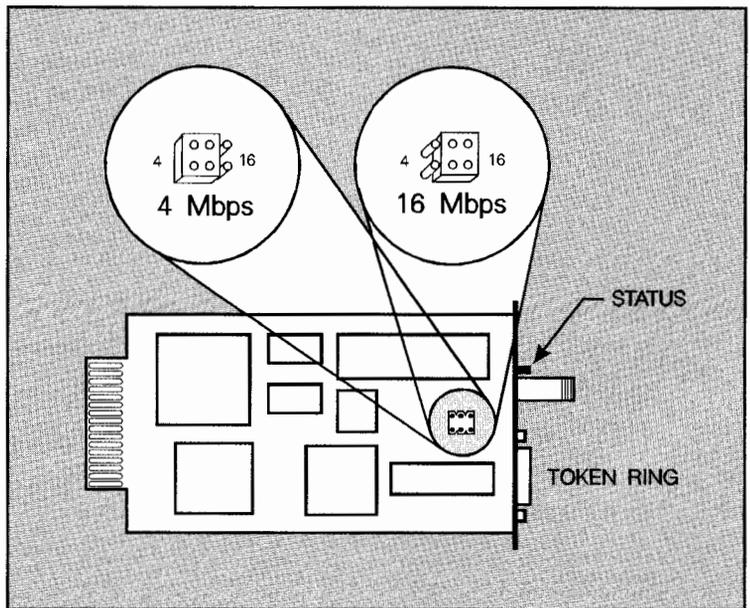


Figure 3-18. Configuring the Token Ring Adapter Card

4. Turn the printer off and unplug the power cord from the rear of the printer. See Figure 3-19.

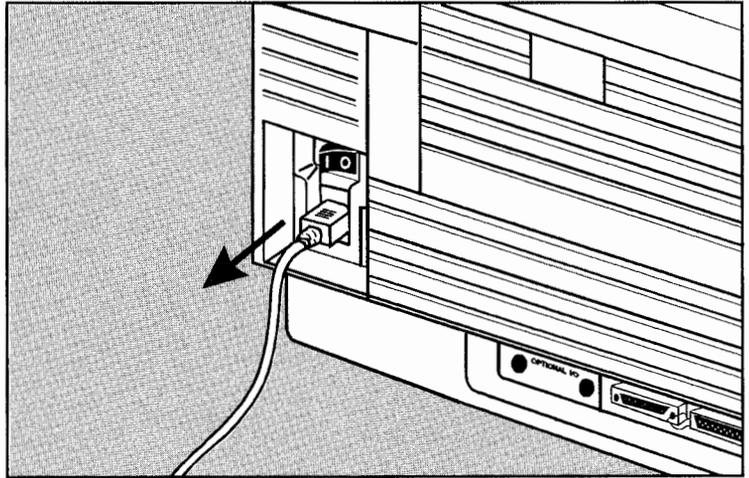


Figure 3-19. Unplugging the Printer Power Cord

5. Locate the Optional I/O slot at the rear of the printer, near the center. See Figure 3-20.

6. Remove the existing adapter card (if any) from the accessory slot at the rear of the printer by following these steps (see Figure 3-20):
 - a. Completely loosen the two screws on the Optional I/O slot cover or the installed adapter card using a small Phillips-head (cross-point) screwdriver. See Ⓐ.

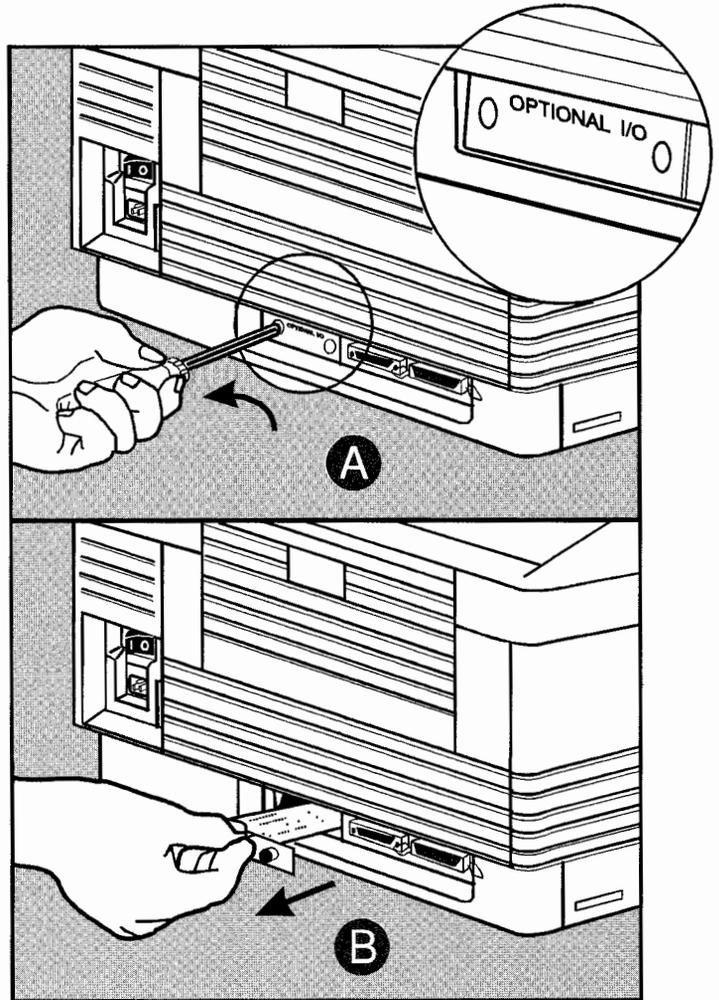


Figure 3-20. Accessing the Optional I/O Slot

- b. Remove the existing adapter card (if any) by pulling firmly on the card's handle. See ② in Figure 3-20. Store the card in the antistatic bag in which your Token Ring card came.

7. Install the Token Ring card into the printer.

Caution



Be careful NOT to force the card into place if it does not slide in smoothly. Forcing the card into place may damage the card or the printer.

8. Hold the adapter card by its handle and position the card so that the STATUS button is on the left when looking at the back of the printer. See Figure 3-21.

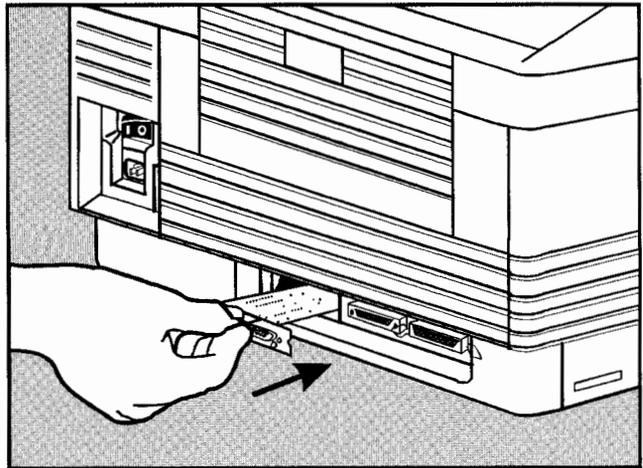


Figure 3-21. Inserting the Token Ring Adapter Card

9. Once the card's faceplate is flush with the printer, tighten both screws to secure it (Figure 3-22).

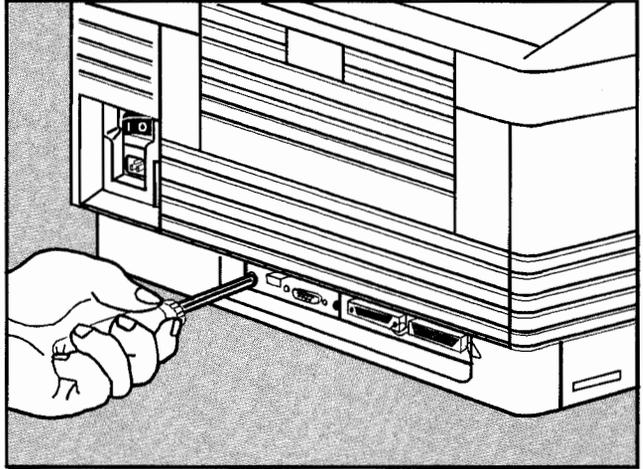


Figure 3-22. Securing the Token Ring Adapter Card

Attaching the Network Cable

To attach your HP LaserJet 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. (See Figure 3-23).
 - a. If your network uses shielded twisted-pair cable, use an adapter cable which supports both 4 and 16 Mbps. See (A).

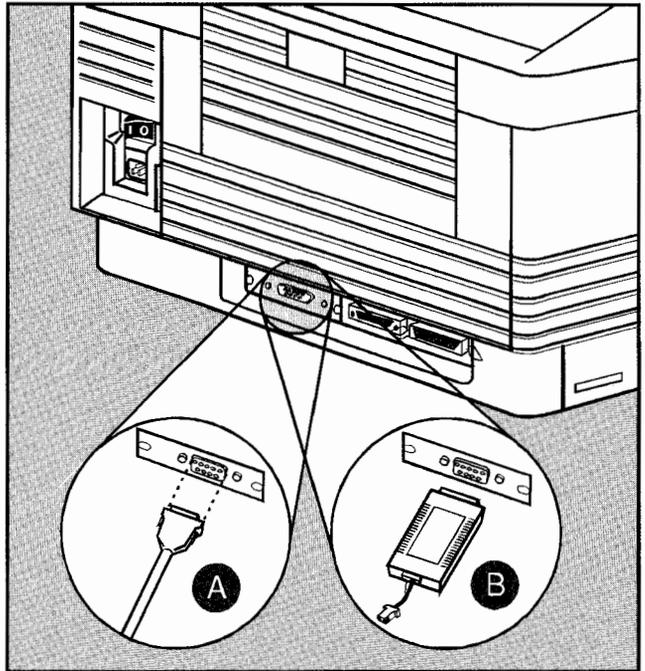


Figure 3-23. Connecting the Printer to the Network

- b. If your network uses unshielded twisted-pair media, use a Type 3 Media Filter cable or its equivalent that supports 4 Mbps. The adapter card only supports

the 4 Mbps data rate over unshielded twisted-pair media. See ⑥ in Figure 3-23.

2. Reattach the printer's power cord.
3. Turn the printer on. The printer will display 05 SELF TEST and then 00 READY or POSTSCRIPT READY.
4. Wait for the 00 READY message (or POSTSCRIPT READY if a PostScript cartridge is installed) to appear in the printer's display window.
5. Press **On Line** to take the printer off-line. The on-line indicator should be off.
6. Hold down the **Menu** key for several seconds until AUTO CONT=ON/OFF* or SYM SET= appears in the printer display window.
7. If the I/O=PARALLEL, SERIAL, OPTIONAL message is not already displayed, press the **Menu** key until the message is displayed.
8. Press the **+** or **-** keys until the I/O=OPTIONAL message appears. If the I/O = OPTIONAL message is not available by pressing **+** or **-** as described above, make sure that the adapter card is properly installed and power-cycle the printer. If you are sure the card is properly seated and the same condition occurs, then the adapter card is probably faulty. Refer to chapter 7 for more troubleshooting information.
9. Press **Enter** to select the Optional I/O. The display should read I/O=OPTIONAL*, with the asterisk indicating the Optional I/O is now selected.
10. Press **Continue** to exit the configuration menu and return on-line.

This completes the installation of the Token Ring card. Continue with the next section to verify that the adapter card is installed properly.

Verifying the Adapter Card Installation

11. Wait for either the 43 OPT INTERFACE, 43 ERROR, or OPT I/O ERROR 43 message to appear on the printer's display window. (This "43" error message indicates that the adapter card is installed but the interface software isn't yet configured. *During normal network operation*, a 43 error indicates a network problem of some sort, and indicates you should press the Status button as described in the procedure below.)

Note



If the 42 OPT INTERFACE, 42 ERROR, OPT I/O ERROR 42, or 69 SERVICE messages appear in the printer's display window, refer to Chapter 7 for troubleshooting information.

12. Press **Continue** again to clear the error message.
13. With the printer on-line, press the STATUS button on the HP Network Printer Interface adapter card to print a Status page. (If you are unfamiliar with the STATUS button, it is labeled "STATUS" and is located on the adapter card underneath the card handle.)

Note



If the HP Network Printer Interface is being installed for the first time and the interface software configuration has not been done, the Status page will read I/O CARD NOT READY: NOT CONFIGURED. If the Status page message is I/O CARD NOT READY: INITIALIZING NETWORK, wait 2 minutes and reprint the Status page. If this message persists, the adapter card is unable to communicate on the network correctly. Refer to Chapter 7 for troubleshooting information.

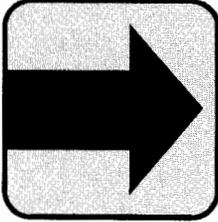
14. Keep the Status page. You will need it as reference later in the software configuration process.

Note



Any time the printing language is changed between PCL and PostScript, you must reconfigure the printer control panel for Optional I/O as described in steps 5 through 10.

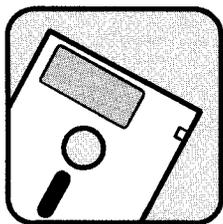
What's Next?



This completes the installation of the Token Ring adapter card. You have now verified that the adapter card hardware is installed correctly. Continue with Chapter 4, "Queue Server mode," or Chapter 5, "Remote Printer mode," for instructions on installing and configuring the HP Network Printer Interface software. If you are unsure of whether to choose the queue server or remote printer mode, see the comparison in Chapter 1.

Queue Server Mode Configuration

Overview



Follow the instructions in this chapter *only if you chose to use the HP Network Printer Interface's Queue Server mode.*

This chapter describes how to do the following:

- Enable unencrypted passwords.
- Create a print server name.
- Create a queue to be serviced and authorize the print server to service the queue.
- Use PCONFIG to configure the HP Network Printer Interface.

In addition, this chapter describes using Novell's PRINTCON utility to configure your printer for PCL printing.

Before You Begin

You will need the following in addition to this guide to configure the HP Network Printer Interface for Queue Server mode:

- The Network Administrator's Worksheet (located on the inside back cover of this guide).
- An understanding of how NetWare manages and uses queues. (Refer to your NetWare documentation for more information).
- Access to the supervisor account, or an account that has print server operator and supervisor privileges.
- A copy of the printer Status page.
- The *Installation and Configuration Utilities* disk located in the back of this guide.

- An IBM PC, IBM PS/2, or compatible network workstation operating under MS/PC-DOS® with at least one floppy drive and at least 385K bytes of user-accessible RAM.
- 260K bytes of available hard disk space on your file server if you plan to install the PCONFIG utility on your hard disk (optional).

Enabling Unencrypted Passwords

If you are using a NetWare 386 server, enable unencrypted passwords. At the file server, type:

```
SET ALLOW UNENCRYPTED PASSWORDS=ON
```

and press .

Note



We recommend that you add SET ALLOW UNENCRYPTED PASSWORDS=ON to your AUTOEXEC.NCF file on your file server using either the INSTALL.NLM utility on the file server or the SYSCON utility on a workstation when logged in as supervisor.

Creating a Print Server Name

Follow these instructions to create a print server name to service the print queue.

If you encounter an error while using PCONSOLE, refer to your NetWare documentation for a description of the error and suggested recovery action.

Adding a Print Server Name

To add a print server name, complete the following steps:

1. Type LOGIN FILESERVER/USER and press **Enter** on any workstation on your network (where *fileserv* is the name of the file server you want to service your HP LaserJet printer, and *user* is your user name which has supervisor privileges).
2. Type PCONSOLE at the system prompt and press **Enter**. This starts PCONSOLE and displays the "Available Options" menu.
3. Select **Print Server Information** from the "Available Options" menu and press **Enter** to view a list of print servers. *The "Print Servers" menu will appear.*
4. Press **Insert** to create a print server. *The "New Print Server Name" screen will appear.*
5. Type the name of the new print server you are creating (for example, PUBLIC_PRINTER) and press **Enter**.
6. Record the name of the print server in the Network Administrator's Worksheet (see inside back cover) for future reference. You will continue to add information to this worksheet as you progress through this guide. When you finish, you will have a permanent record of this remote printer configuration.
7. Press **Esc** to return to the "Available Options" menu.

You have now created a print server name. Continue to the next section, "Creating a Print Queue."

Creating a Print Queue

Follow these instructions to create a print queue to be serviced by the print server in Queue Server mode.

If you encounter an error while using PCONSOLE, refer to your NetWare documentation for a description of the error and suggested recovery action.

1. Select **Print Queue Information** and press **Enter** to view print queue options. *The “Print Queues” list will appear.* If you wish to select an existing print queue, skip to step 2.

If you want to create a new queue to be serviced by the printer, do the following:

- a. Press **Insert**.
 - b. Type a name for the new queue and enter it in the Network Administrator’s Worksheet.
 - c. Press **Enter**.
2. Select the queue you want the printer to service and press **Enter**. *The “Print Queue Information” menu will appear.*
 3. Select **Queue Servers** and press **Enter**. *The Queue Server screen will appear.*
 4. Press **Insert**. *The “Queue Servers Candidates” screen will appear.*
 5. Select the print server you created in the previous section (e.g., PUBLIC_PRINTER) and press **Enter**. The selected print server will appear in the “Queue Servers” screen.
 6. Press **Esc** repeatedly until the “Exit PConsole” screen appears.
 7. Select **Yes** to save your changes, and press **Enter** to exit PCONSOLE.

Configuring the HP Network Printer Interface for Queue Server Mode

The HP Network Printer Interface needs to be configured before it can be used as a queue server. This configuration process is done with the Hewlett-Packard utility, PCONFIG. During this process, you will give an identifying name to the HP Network Printer Interface, then specify the file name from the preceding section.

PCONFIG allows you to give an identifying name to the HP Network Printer Interface, and designate the mode and the file server to which it should attach. Any time you wish to change the mode, name, or file server for the HP Network Printer Interface, you must use PCONFIG.

PCONFIG displays a list of all the HP LaserJet printers using HP Network Printer Interfaces that are currently attached to the NETWORK and turned on. If the printers have not yet been configured, they will be listed by their Node Addresses and unit types. If the printers have been configured, the list will also contain the printer's assigned name.

To run PCONFIG, follow these steps:

1. Log on as supervisor on the appropriate file server from any workstation.
2. Insert the *Installation and Configuration Utilities* disk into drive A: on any workstation connected to your network.
3. Type A: and press **Enter**.
4. Type PCONFIG and press **Return**. The "PConfig Main Menu" will appear.

Note



If an error message appears on the screen while using PCONFIG, refer to Appendix B for a description of the error and suggested recovery action.

If you wish, you may copy PCONFIG to your hard disk by copying PCONFIG.* from the *Installation and Configuration Utilities* disk.

5. If you have only one network, skip to step 7. If you have more than one network, choose **Select Network** and press **Enter** to select the network on which you installed the HP LaserJet printer. *The “Network Number” screen will appear.*
6. Select the number of the network on which you installed the HP LaserJet printer and press **Enter**. You can select multiple networks by highlighting each desired network and pressing **F5** to mark it.

Note



You must select the number of the network on which you installed your printer. The network number you select must match one of the network numbers listed on the printer Status page under NETWORK NO. If you do not select the network on which the printer is located, the printer will not appear as a choice for you to configure.

7. Choose **Select Network Printer Interface** to begin configuring your HP Network Printer Interface. *The “Network Printer Interfaces” list will appear.* This screen displays a list of printers available on the network you selected. (The left column lists the HP product number for the adapter card [C2071A, B, or E], the middle column lists the HP Network Printer Interface adapter card address, and the right column contains the printer name.)

Note



If the message, **No Network Printer Interfaces Are Operating**, appears on the screen or if your specific printer does not appear, there is a problem with the adapter card installation. Check the following and then rerun PCONFIG:

- Is the printer turned on? You must wait at least 60 seconds after the printer's 05 SELF TEST message *is no longer displayed* for the printer to start broadcasting its presence on the network.
- Is the adapter card properly installed and configured?
- Are the cables to the printer properly connected?
- Does the network number you selected correspond with the network number where the HP LaserJet printer is installed? Refer to your Status page for a list of allowable network numbers.

If you have checked all of the above items and **No Network Printer Interfaces Are Operating** still appears, or if your specific printer still does not appear, refer to Chapter 7 for detailed troubleshooting information.

8. Select the printer Node Address which matches the address listed on your printer Status page and press . The Default name will be NPIXXXXXX, where XXXXXX is unique for each printer.

The "Current Status of Node at XXX on Network YYY" screen and "Options Menu" are simultaneously displayed.

9. Select **Select/Configure Queue Server Mode** and press . The "Queue Server Configuration" screen will appear.
10. In the Node Name field, type the print server name you created in the beginning of this chapter (e.g., PUBLIC_PRINTER). Press . (Refer to the Network Administrator's Worksheet on the inside back cover of this guide.)

Note



The Node Name must be the print server name chosen earlier in PCONSOLE.

11. Press **Enter** to select a file server. A list of available file servers will be displayed.
12. Select the file server on which you created the queue at the beginning of this chapter and press **Enter**.
13. Press **Esc**. *The “Save Changes” screen will appear.*
14. Select **YES** to save your changes and press **Enter**. *The “Current Status” screen is updated. The Connection Status field on the “Current Status” screen will change from “Not Configured” to “Logged In To File Server.” You will return to the “Options” menu.*

Note



If the “Current Status” screen is not updated, refer to Chapter 7 for troubleshooting information.

15. Press **Esc** repeatedly until the “Exit PCONFIG” screen appears.
16. Select **YES** and press **Enter** to exit PCONFIG.

You have now finished configuring your HP Network Printer Interface. Press **Continue** if the printer displays 43 OPT INTERFACE, 43 ERROR, or OPT I/O ERROR 43.

Continue with the next section to create the print job configuration.

Creating the Print Job Configuration

The following procedure creates a print job configuration to enable a user to print a PCL print job on the HP LaserJet printer. Each user on your network must use this print job configuration to print to the HP LaserJet printer.

1. Type PRINTCON at the system prompt on any workstation on your network and press **Enter** to start PRINTCON. The “Available Options” menu will appear.
2. Select **Edit Print Job Configurations** and press **Enter**. “Print Job Configurations” will appear.
3. Press **Insert**. The “Name Entry” box will appear.
4. Enter a name for this print job configuration (for example, PCL_JOB) and press **Enter**. “Edit Print Job Configuration” will appear.

Note



If you have no forms defined, the message, No forms defined on server xxx, will appear. Press **Esc** to bring up the “Edit Print Job Configuration ‘PCL_JOB’” screen, where PCL_JOB is the name you chose for this print job configuration.

5. *Ensure that your Print Job Configuration is consistent with Table 4-1.* If you need to change the value in a field, highlight that field using the cursor keys and type in the change.

Table 4-1. Printer Configuration Parameters

File contents	Byte stream
Print Banner	NO (or YES, if desired)
Suppress form feed	YES †
File Server	The file server the print queue is on.
Print Queue	The print queue you created to service this printer.
Device	(None)††
Mode	(None)†††

† Select **Suppress form feed**=No for those applications that do not have a trailing form feed.

†† Select **Select the HP LaserJet II/IID or III/IIID** if available.

††† If above is available, mode is selectable.

6. Press **Esc**. The “Save Changes Confirmation” box will appear.
7. Select **YES** and press **Enter**. The “Print Job Configuration” menu will appear.
8. Press **Esc**. “Available Options” will appear.
9. Choose **Select Default Print Job Configuration** and press **Enter**.
10. Select the print job configuration you created in step 4 and press **Enter**. This selects the new print job configuration as the default.
11. Press **Esc** repeatedly until the “Exit Printcon” box appears.
12. Select **YES** and press **Enter**. “Save Print Job Configuration” will appear.
13. Select **YES** and press **Enter**. You will exit **PRINTCON** and be returned to the system prompt.

Each user on your network must use this print job configuration to print to the HP LaserJet printer. Therefore, either each user on your network must follow these instructions for creating a print job configuration, or you can copy the print job configuration to each user. To copy the print job configuration to each user, use PRINTCON's "Copy Print Job Configurations" option. (This will overwrite any existing print configuration.)

Verifying Configuration

Note



To verify that you have installed the HP Network Printer Interface correctly, do the following from any workstation on your network:

If you have a PostScript cartridge installed in the printer, you must turn off the printer, remove the cartridge, and turn the printer on again before performing this procedure.

1. Type `CAPTURE /j=X/FORMFEED` at the system prompt on any workstation, where *X* is the name of the job assigned to the HP Network Printer Interface in PCONSOLE. For example you might type, `CAPTURE /j=PCL_JOB /FORMFEED` if the name of your print job configuration is "PCL_JOB." The FORMFEED command will allow the printer to eject a partial page.
2. Press the **Enter** key. *You have redirected LPT1 to queue X, where queue X is the queue the HP Network Printer Interface is servicing.*
3. Type `DIR > LPT1` to send a directory listing to the HP Network Printer Interface.
4. Press the **Enter** key. *The directory should print on the printer that is connected to the HP Network Printer Interface.*

Note



After you have verified proper communication with the printer, if you wish to print using PostScript, turn off the printer, insert the PostScript cartridge, and then turn the printer on again. (When the printing language is changed between PCL and PostScript, you may have to reconfigure the printer control panel for Optional I/O. If you are unfamiliar with this procedure, follow steps 9 through 14 in the “Installing the Adapter Card” procedure in chapter 2.)

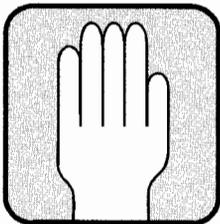
As noted previously, the HP Network Printer Interface does not support PostScript printing on the HP LaserJet II printer.

Troubleshooting

If the directory does not print properly and no error messages appear either on the workstation screen or on the printer’s control panel display:

- Ensure that the printer is turned on and is on line.
- See Chapter 7 for detailed troubleshooting information.

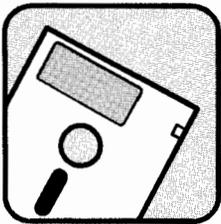
What’s Next?



After the directory prints in the preceding verification procedure, you have successfully installed and configured the HP Network Printer Interface and may begin using the printer as a network printer. Refer to Chapter 6 for information on enhancing your HP LaserJet printer’s performance, including setting the auto continue setting on the printer control panel.

Remote Printer Mode Configuration

Overview



Follow the instructions in this chapter *only if you chose to use the HP Network Printer Interface's Remote Printer mode.*

This chapter describes how to do the following:

- Create a queue to be serviced by the print server.
- Add a remote printer to the print server.
- Authorize the queue to be serviced by the remote printer.
- Allow your changes to be recognized by the print server.
- Use PCONFIG to configure the HP Network Printer Interface.

This chapter describes using Novell's PRINTCON utility to configure your printer for PCL printing.

Before You Begin

You will need the following in addition to this guide to configure the HP Network Printer Interface for Remote Printer mode:

- The Network Administrator's Worksheet (located on the inside back cover of this guide).
- An understanding of how NetWare manages and uses queues. (Refer to your NetWare documentation for more information).
- Access to the supervisor account, or an account that has print server operator and supervisor privileges.
- The NetWare print server installed.

- A copy of the printer Status page.
- The *Installation and Configuration Utilities* disk located in the back of this guide.
- An IBM PC, IBM PS/2, or compatible network workstation operating under MS/PC-DOS[®] with at least one floppy drive and at least 385K bytes of user-accessible RAM.
- 260K bytes of available hard disk space on your file server if you plan to install the PCONFIG utility on your hard disk (optional).

Creating a Print Queue

Follow these instructions to create a print queue to be serviced by the print server. If you already have a print queue set up, skip to the next section, “Adding a Remote Printer to the Print Server.”

If you encounter an error while using PCONSOLE, refer to your NetWare documentation for a description of the error and suggested recovery action.

1. Type LOGIN FILESERVER/USER on any workstation on your network (where *fileserver* is the name of the File Server you want to service your HP LaserJet printer, and *user* is your user name which has supervisor privileges) and press **Enter**.
2. Type PCONSOLE at the system prompt and press **Enter**. This starts PCONSOLE and displays the “Available Options” menu.
3. Select **Print Queue Information** and press **Enter** to view print queue options. *The “Print Queues” list will appear.* If you wish to select an existing print queue, skip to the next section, “Adding a Remote Printer to the Print Server.”

If you want to create a new queue to be serviced by the remote printer, do the following:

- a. Press **Insert**.
 - b. Type a name for the new queue.
 - c. Press **Enter**.
4. Press **Esc** repeatedly to return to the “Available Options” menu.

You have now created a print queue. Continue with the next section, “Adding a Remote Printer to the Print Server.”

Adding a Remote Printer to the Print Server

You now need to add a remote printer to the print server. Each print server can service up to 16 printers. To assign the printer to a print server, complete the following steps.

Note



Before you add a remote printer to the print server, it is necessary to create a print queue, as described in the previous section.

1. Select **Print Server Information** from the “Available Options” menu and press **Enter** to view a list of print servers. *The “Print Servers” menu will appear.* If several print servers appear, select the one you wish to service the remote printer.
2. Record the name of the print server you select in the Network Administrator’s Worksheet (see inside back cover) for future reference. You will continue to add information to this worksheet as you progress through this guide. When you finish, you will have a permanent record of this remote printer configuration.
3. Select a print server and press **Enter**. *“Print Server Information” will appear.*
4. Select **Print Server Configuration** and press **Enter**. *The “Print Server Configuration” menu will appear.*
5. Select **Printer Configuration** and press **Enter** to view a list of configured printers. *The “Configured Printers” list will appear.*

6. Select a **Not-Installed** printer and press **Enter**.
The “Printer Configuration” menu will appear.
There may be several “Not-Installed” printers to choose from. It does not matter which one you select. Record the printer number in the Network Administrator’s Worksheet (see inside back cover) for future reference. You will need this information later in the configuration process.
7. Type a name for the printer. This name should be something that will help you to identify the location or characteristics of the printer, for example, HPLASERJETIIID_PRINTER. Record this name in the Network Administrator’s Worksheet for future reference. You will need this name later in the software configuration process.
8. Press **▼** cursor key to highlight the **Type** field and press **Enter** to view the “Printer Types” menu. *The “Printer Types” menu will appear.*
9. Select **Remote Other/Unknown** and press **Enter**.
10. Press **Esc** once. *The Save Changes confirmation box will appear.*
11. Select **YES** and press **Enter** to save your changes. *The “Configured Printers” list will appear.*
12. Press **Esc** to return to the “Print Server Configuration” menu.

You have now added a remote printer to the print server. Proceed to the next page to continue the configuration.

Assigning a Queue

You now need to assign a queue to be serviced by the remote printer. A printer can service multiple queues if you so desire. Using priority assignments, you can control the flow of print jobs.

Note



Before you assign a queue to the HP Network Printer Interface, it is necessary to add a remote printer to the print server as described in the previous section.

1. Select **Queues Serviced by Printer** from the “Print Server Configuration” menu and press **Enter**. *The “Defined Printers” list will appear.*
2. Select the printer that you want to service the queue, for example HPLASERJETIID_PRINTER and press **Enter**.
3. Press **Insert** to view a list of available queues. *The “Available Queues” list will appear.*
4. Select the queue to be serviced by the HP Network Printer Interface and press **Enter**. *The “Priority:” item will appear.*
5. Record the name of this queue in the Network Administrator’s Worksheet for future reference.
6. Type a number from 1-10 to indicate the priority level of the queue, and press **Enter**. The highest priority is 1. (If you do not want to use the default priority (1), use the **Backspace** key to erase it before typing in the new priority.)
7. Press **Esc** repeatedly until you return to the “Available Options” menu.

If you want the HP Network Printer Interface to service more than one queue, repeat steps 3 through 6 for each additional queue.

Starting the Print Server

To make your changes effective, you must shut down the print server (if it was running) and then bring it back up at this time. This enables the print server to recognize the changes you have made.

You do not need to shut down the file server. You need only shut down the print server program.

Note



If your print server was not running, skip the instructions on this page and continue with the next section, “Restarting the Print Server.”

Caution



Shutting down the print server while it is in use could result in print data loss. Make sure that all printing activity for that print server has been completed.

Shutting Down the Print Server

Follow these steps to shut down the print server.

1. Select **Print Server Information** from the “Available Options” menu and press **Enter**. *The “Print Servers” list will appear.*
2. Select the print server you want to shut down and press **Enter**. *The “Print Server Information” menu will appear.*
3. Select **Print Server Status and Control** and press **Enter**. *The “Print Server Status and Control” menu will appear.*

Note



If **Print Server Status and Control** does not appear as a choice on the “Print Server Information” menu, your print server is already shut down, is not installed, or you are not logged in as the Supervisor or as an operator with supervisor privileges. Skip the rest of this section and continue with the following section, “Restarting the Print Server.”

4. Select **Server Info** and press **Enter**. The “Print Server Info/Status” menu will appear.
5. Press **Enter**. If nothing happens when you press **Enter**, exit PCONSOLE and log on to the system as Supervisor. Then return to this page to shut down the print server.
6. Select **Down** to shut down the print server immediately, or select **Going down after current jobs** to shut down the print server after current jobs are printed and press **Enter**.
7. Select **YES** and press **Enter** to confirm shutting down the print server.
8. Press **Esc** repeatedly until the “Exit PCONSOLE” screen appears.
9. Select **YES** and press **Enter** to exit from PCONSOLE.

You have now shut down the print server. Continue with the next section to restart the print server.

Restarting the Print Server

The print server now needs to be restarted. The procedure for restarting the print server will vary depending on the system you are operating. Follow the procedure below that applies to your system. When you have completed the appropriate section below, continue with the section, “Creating the Print Job Configuration.”

286 Non-Dedicated Print Server (VAP)

If you are running the print server as a VAP, proceed with these steps to restart the print server. If you are not running the print server as a VAP, skip to the next section.

1. Go to the File Server console.
2. Type PSERVER START and press **Enter**.

The print server will now restart. The print server screen displays the printer name you entered in PCONSOLE with a “Not Connected” message.

386 Non-Dedicated Print Server (NLM)

If you are running the print server as an NLM, proceed with this step to restart the print server. If you are not running the print server as an NLM, skip to the next section, "Dedicated Print Server."

1. Go to the File Server console.
2. Type `LOAD PSERVER X` (where *X* is the print server name).

The print server will now restart. The print server screen displays the printer name you entered in `PCONSOLE` with a "Not Connected" message.

Dedicated Print Server (286 or 386)

If you are running a dedicated print server, proceed with this step to restart the print server.

1. Go to the print server console.
2. Log into the file server as supervisor.
3. Type `PSERVER X` (where *X* is the name of the print server). Refer to the Network Administrator's Worksheet for the print server name.

The print server will now restart. The print server screen displays the printer name you entered in `PCONSOLE` with a "Not Connected" message.

Configuring the HP Network Printer Interface for Remote Printer Mode

The HP Network Printer Interface needs to be configured before it can be used as a remote printer. This configuration process is done with the Hewlett-Packard utility, PCONFIG. During this process, you will give an identifying name to the HP Network Printer Interface, then specify the print server and remote printer number for the HP Network Printer Interface.

PCONFIG allows you to give an identifying name to the HP Network Printer Interface, designate the print server you want to attach to, and designate a remote printer number. Any time you wish to change the name, print server, or remote printer number for the HP Network Printer Interface, you must use PCONFIG.

PCONFIG displays a list of all the HP LaserJet printers using HP Network Printer Interfaces that are currently attached to the LAN and turned on. The default name will be NPIXXXXXX, where XXXXXX is unique for each printer.

To run PCONFIG, follow these steps:

1. Make sure the print server is configured and running as described in the previous section.
2. Log on as supervisor on the appropriate file server from any workstation.
3. Insert the *Installation and Configuration Utilities* disk into drive A: on any workstation connected to your network.
4. Type A: and press **Enter**.
5. Type PCONFIG and press **Return**. The “PCONFIG Main” menu will appear.

Note



The print server must be running before you configure the HP Network Printer Interface with the PCONFIG software.

If an error message appears on the screen while using PCONFIG, refer to Appendix B for a description of the error and suggested recovery action. Additional PCONFIG assistance is available through on-line help screens, accessed by pressing the **F1** key.

If you wish, you may copy PCONFIG to your hard disk by copying PCONFIG.* from the *Installation and Configuration Utilities* disk.

6. If you have only one network, skip to step 8. If you have more than one network, choose **Select Network** and press **Enter** to select the network on which you installed the HP LaserJet printer. *The "Network Number" screen will appear.*
7. Select the number of the network on which you installed the HP LaserJet printer and press **Enter**. You can select multiple networks by highlighting each desired network and pressing **F5** to mark it.

Note



You must select the number of the network on which you installed your printer. The network number you select must match one of the network numbers listed on the printer Status page under NETWORK NO. If you do not select the network on which the printer is located, the printer will not appear as a choice for you to configure.

8. Choose **Network Printer Interface** to begin configuring your HP Network Printer Interface. *The “Network Printer Interfaces” list will appear.* This screen displays a list of printers available on the network you selected. (The left column lists the HP product number for the adapter card [C2071A, B, or E], the middle column lists the HP Network Printer Interface adapter card address, and the right column contains the printer name.)

Note



If the message, **No Network Printer Interfaces Are Operating**, appears on the screen, or if your specific printer does not appear, there is a problem with the adapter card installation. Check the following and then rerun PCONFIG:

- Is the printer turned on? You must wait at least 60 seconds after the printer's 05 SELF TEST message *is no longer displayed* for the printer to start broadcasting its presence on the network.
- Is the adapter card properly installed and configured?
- Are the cables to the printer properly connected?
- Does the network number you selected correspond with the network number where the HP LaserJet printer is installed? Refer to your Status page for a list of allowable network numbers.

If you have checked all of the above items and **No Network Printer Interfaces Are Operating** still appears, or if your specific printer still does not appear, refer to “Network Printer Checklist” or “Print Server to HP LaserJet printer Connection” in Chapter 7 for detailed troubleshooting information.

9. Select the printer Node Address which matches the address listed on your printer Status page and press . The default name will be NPIXXXXXX, where XXXXXX is unique for each printer.

The “Current Status of Node at XXX on Network YYY” screen and “Options Menu” are simultaneously displayed.

10. Select **Select/Configure Remote Printer Mode**. The “Remote Printer” screen will appear.
11. Type in the name you want to assign to the printer and press . Hewlett-Packard recommends that you use the same name you assigned to the printer earlier in this chapter. Refer to the Network Administrator’s Worksheet on the inside back cover of this guide.
12. Press  to display a list of available print servers.
13. Select the print server that you configured during Chapter 3 and press .
14. Press the  cursor key to move to the Printer Number field.
15. Press  to display a list of available printer numbers. PCONFIG only displays printers of type Remote Other/Unknown. If none are displayed, you must run PCONSOLE as described earlier in this chapter.
16. Select the printer number you want to assign to the printer and press . This should be the same printer number you recorded on the Network Administrator’s Worksheet on the inside back cover of this guide when you ran PCONSOLE earlier in this chapter. Do not select a printer number that is already in use by another printer.

17. Press **Esc**. The “Save Changes” screen will appear.
18. Select **YES** to save your changes and press **Enter**. The “Current Status” screen is updated. The Connection Status field on the “Current Status” screen changes from *Not Configured* to *Connected to Print Server*, and you are returned to the “Options Menu.”

Note



If the “Current Status” screen is not updated, refer to Chapter 7 for troubleshooting information.

19. Press **Esc** repeatedly until the “Exit PCONFIG” confirmation box appears.
20. Select **YES** and press **Enter** to exit PCONFIG.

You have now finished configuring your HP Network Printer Interface. Press **Continue** if the printer displays 43 OPT INTERFACE, 43 ERROR, or OPT I/O ERROR 43.

Continue with the next section to create your print job configuration.

Creating the Print Job Configuration

The following procedure creates a print job configuration to enable a user to print a PCL print job on the HP LaserJet printer. Each user on your network must use this print job configuration to print to the HP LaserJet printer.

1. Log on as supervisor on the appropriate file server from any workstation.
2. Type PRINTCON at the system prompt on any workstation on your network and press **Enter** to start PRINTCON. The “Available Options” menu will appear.
3. Select **Edit Print Job Configurations** and press **Enter**. “Print Job Configurations” will appear.

4. Press **Insert**. *The Name Entry box will appear.*
5. Enter a name for this print job configuration, for example, PCL_JOB and press **Enter**. *“Edit Print Job Configuration” will appear.*
6. *Ensure that your Print Job Configuration is consistent with Table 5-1. If you need to change the value in a field, highlight that field using the cursor keys and type in the change.*

Table 5-1. Printer Configuration Parameters

File contents	Byte stream
Print Banner	NO (or YES, if desired)
Suppress form feed	YES †
File Server	The file server the print queue is on.
Print Queue	The print queue you created to service this printer.
Device	(None)††
Mode	(None)†††

† Select **Suppress form feed=No** for those applications that do not have a trailing form feed.

†† Select **Select the HP LaserJet II/IID or III/IIID** if available.

††† If above is available, mode is selectable.

7. Press **Esc**. *The “Save Changes Confirmation” box will appear.*
8. Select **YES** and press **Enter**. *The “Print Job Configuration” menu will appear.*
9. Press **Esc**. *“Available Options” will appear.*
10. Choose **Select Default Print Job Configuration** and press **Enter**.

11. Select the print job configuration you created in step 4 and press **Enter**. This selects the new print job configuration as the default.
12. Press **Esc** repeatedly until the “Exit Printcon” box appears.
13. Select **YES** and press **Enter**. “Save Print Job Configuration” will appear.
14. Select **YES** and press **Enter**. You will exit PRINTCON and be returned to the system prompt.

Each user on your network must use this print job configuration to print to the HP LaserJet printer. Therefore, either each user on your network must follow these instructions for creating a print job configuration, or you can copy the print job configuration to each user. To copy the print job configuration to each user, use the “Copy Print Job Configurations” option in Novell’s PRINTCON utility. (This will overwrite any existing print job configurations.)

Verifying Configuration

Note



To verify that you have installed the HP Network Printer Interface correctly, do the following from any workstation on your network:

If you have a PostScript cartridge installed in the printer, you must turn off the printer, remove the cartridge, and turn the printer on again before performing this procedure.

1. Type `CAPTURE /j=X/FORMFEED` at the system prompt on any workstation, where *X* is the name of the print job configuration assigned to the HP Network Printer Interface in PCONSOLE.

For example you might type, `CAPTURE /j=PCL_JOB /FORMFEED` if the name of your job print configuration is "PCL_JOB." The FORMFEED command will allow a partial page to be ejected by the printer.

2. Press the **Enter** key. *You have redirected LPT1 to queue X, where X is the queue the HP Network Printer Interface is servicing.*
3. Type `DIR > LPT1` to send a directory listing to the HP Network Printer Interface.
4. Press the **Enter** key. *The directory should print on the printer that is connected to the HP Network Printer Interface.*

Note



After you have verified proper communication with the printer, if you wish to print using PostScript, turn off the printer, insert the PostScript cartridge, and then turn the printer on again. (When the printing language is changed between PCL and PostScript, you may have to reconfigure the printer control panel for Optional I/O. If you are unfamiliar with this procedure, follow steps 9 through 14 in the "Installing the Adapter Card" procedure in chapter 2.)

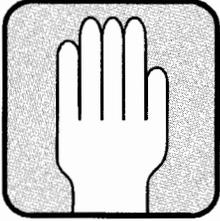
As noted previously, the HP Network Printer Interface does not support PostScript printing on the LaserJet II printer.

Troubleshooting

If the directory does not print properly and no error messages appear either on the workstation screen or on the printer's control panel display:

- Ensure that the printer is turned on and is on line.
- Refer to Chapter 7 for detailed troubleshooting information.

What's Next?



After the directory prints in the preceding verification procedure, you have successfully installed and configured the HP Network Printer Interface and may begin using the printer as a network printer. Refer to Chapter 6 for information on enhancing your HP LaserJet printer's performance, including setting the auto continue feature on the printer control panel.

Enhancing Network Printing

Overview



This chapter provides configuration information and recommendations which could increase the performance of your HP LaserJet printer. This chapter also discusses printer and job status notification, optimum configurations, and font usage.

Configuring the Auto Continue Setting

The LaserJet printers have a control panel setting called *auto continue* (AUTO CONT= ON/OFF), that affects how error messages influence the control panel display and subsequent printing.

If the printer is set to AUTO CONT=OFF*, an error message remains displayed until you correct the problem and press the **Continue** key. The printer *stops printing* until you press **Continue** to return the printer on-line.

If the AUTO CONT=ON* setting is selected, most error messages appear on the display for only about 10 seconds. Then the OO READY message appears and the printer resumes printing, unless a “fatal” error has occurred.

To keep you from having to go to the printer and press the **Continue** key after routine intermittent errors, Hewlett-Packard recommends that, after you have the printer configured and running properly on the network,

you set the HP LaserJet printer's front control panel AUTO CONT= setting to ON. This enables the printer to resume normal operation after certain network errors or faults have been corrected, without pressing the **Continue** key.

Note



With AUTO CONT=ON*, printer error messages (for example, 42/43 OPT INTERFACE, 42/43 ERROR, OPT I/O ERROR 42/43, 42/43 ERROR) will be cleared after about 10 seconds, even if the error still persists. This is the reason that HP recommends you don't set the printer to AUTO CONT=ON* until you have fully configured the printer to the network and are printing successfully. For the same reason, you would want to set the printer to AUTO CONT=OFF* any time you suspect printer problems and want to see error messages displayed.

To set auto continue to ON, follow these steps:

1. Make sure the printer is off-line.
2. Hold down **Menu** a few seconds until AUTO CONT= or SYM SET= appears. If SYM SET= appears, press the **Menu** key once more until the AUTO CONT= message appears. (If AUTO CONT=ON* is displayed, your printer is already set as recommended; skip to step 5.)
3. Press **+**. The message AUTO CONT=ON will be displayed.
4. Press **Enter** to save your change. An asterisk (*) will appear in the display.
5. Press **On Line** to return the printer on-line. The printer will display OO READY (or POSTSCRIPT READY).

NetWare Configurations Performance

The following paragraphs provide data transfer optimization recommendations for NetWare 386 and NetWare 286 based products.

NetWare 386

If you are using NetWare 386, follow these recommendations to ensure optimum data transfer to the printer.

- The HP Network Printer Interface running in Queue Server mode provides the highest data transfer rate to the printer.
- A PC operating as a dedicated print server provides a higher data transfer rate to the printer than an NLM (Network Loadable Module) print server.

NetWare 286

If you are using NetWare 286, follow these recommendations to ensure optimum data transfer to the printer.

- HP Network Printer Interface running in Queue Server mode provides the highest data transfer rate to the printer.
- A PC operating as a dedicated print server provides a higher data transfer rate than the print server running as a VAP (Value Added Process). If you use full-page raster graphics or frequently download soft fonts, a dedicated print server or running in Queue Server mode is recommended.
- The print server VAP should be installed on dedicated file servers only. Non-dedicated file servers, common in NetWare ELS installations, compete with DOS and NetWare processes, adversely impacting printer performance.

Operating Modes

Two operating modes – Queue Server mode and Remote Printer mode – are possible with the HP Network Printer Interface. See Chapter 1 for a discussion of their properties.

Queue Server Mode

Queue Server mode job status notification and other messages are as follows:

Printer and Job Status Notification

In Queue Server mode, users will be notified of an off-line condition if the job was submitted with notification enabled. The off-line error condition will be sent only to the user whose job was interrupted by the printer error.

Printer Status Query

In Queue Server mode, a supervisor may use PCONFIG to receive current printer status messages. The following status messages are available:

- Waiting for Job.
- Offline.
- Not Connected.
- Not Installed.
- Printing.

Remote Printer Mode

Remote Printer mode job status notification and other messages are as follows:

Printer and Job Status Notification

NetWare print server provides the option of selecting individual users or groups of users to be notified of printer and job status. When printer and job status notification is set up, the printer can send messages to users notifying them when the printer is off-line. The users can then attend to the printer and quickly return it to its operating state. Select printer status notification using PCONSOLE.

You can select print job status notification using the PRINTCON or PCONSOLE utility. Print job status notification consists of a message that informs the user at the workstation when the print job has been completely sent to the printer, and the name of the printer on which it was printed.

Refer to your NetWare documentation for instructions on setting up either of these notification lists.

Printer Status Query

You can select printer status query using the PCONSOLE or PSC utilities. The available status messages are:

- Waiting for Job.
- Offline.
- Not Connected.
- Not Installed.
- Printing.

Refer to your NetWare documentation for specific details on setting up printer status query.

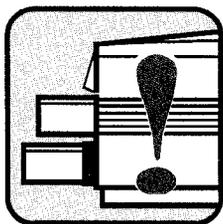
Soft Fonts and Typeface User Hints

To optimize performance of your printing environment, consider the following:

- Powering off the printer will delete all downloaded scalable typefaces, soft fonts, and macros. You must download them again to use them.
 - Use font cartridges to eliminate the need to download fonts and scalable typefaces.
 - Use macro cartridges to eliminate the need to download macros.
- Encourage users to use the HP LaserJet III or IIID printer's internal scalable typefaces; PCL fonts are available in PCL mode and PostScript fonts are available in PostScript mode.
- Within a single language environment, download scalable typefaces and soft fonts at the beginning of each day when there is not heavy use of the LAN. Distribute a list of downloaded soft fonts and scalable typefaces with their ID numbers to all users of the LAN.
- The printer has a limited amount of memory in which to store downloaded typefaces, soft fonts, and macros. Therefore, download only those soft fonts and scalable typefaces that are needed. You can purchase additional memory from your dealer if necessary.
- Some software applications automatically download fonts at the beginning of each print job. It may be possible to configure these software applications to only download soft fonts that are not already resident in the printer. Refer to your software application documentation for more information.

Troubleshooting

Overview



This chapter describes how to troubleshoot any problems you may have with your HP LaserJet printer and HP Network Printer Interface. The chapter contains a series of checklists that help you diagnose the problem. Follow the troubleshooting techniques presented here to effectively diagnose the problem.

Note that many of the troubleshooting steps require that you print a Status page – the Status page and error messages that are contained on the Status page are explained in detail in Appendix A.

Before You Begin

You will need the following items in order to troubleshoot your HP LaserJet printer and HP Network Printer Interface:

- The HP LaserJet Printer *User's Manual*.
- Novell's COMCHECK software diagnostic utility, provided with your Novell network software.

Troubleshooting Overview

For the purpose of troubleshooting, your HP LaserJet 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 printer has never worked before, follow the troubleshooting instructions in this chapter in the order in which they are presented, starting with the troubleshooting strategy on the next page.

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

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

Troubleshooting Strategy

To troubleshoot your HP LaserJet printer, check all of the network parts illustrated in Figure 7-1 in the order in which they are presented.

1. Printer.
2. Print server/file server.
3. Network connection between the printer and the print server/file server.
4. Workstation.
5. Network connection between the workstation and the print server/file server.

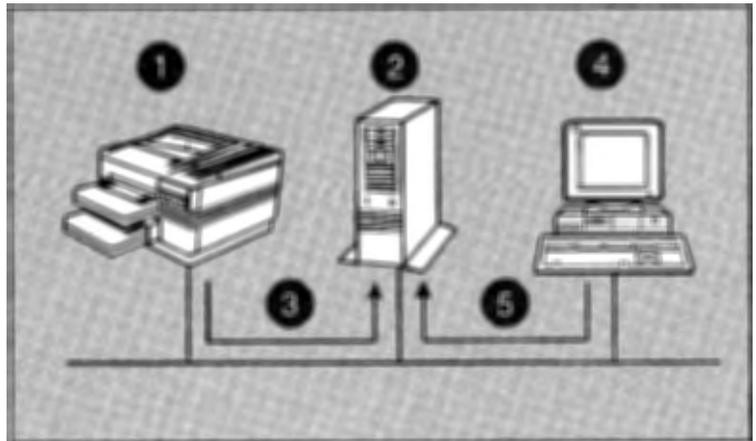


Figure 7-1. Parts of a Local Area Network

For example, first you would check the printer, then the print server, and then the connection between the printer and the print 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.

If your HP LaserJet printer and HP Network Printer Interface has never worked before or you do not know what is causing the problem, check the parts of your network in the order presented in this chapter. If the problem persists, refer to Appendix C for information on customer support.

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 C 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 powered 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 powered on and is online. The printer's green power indicator should be lit.

- Does the printer allow you to select I/O=SERIAL or I/O=PARALLEL, but not I/O=OPTIONAL? If the I/O=OPTIONAL selection is not available to you during the configuration process, the adapter card may not be seated properly or the card may be faulty. Turn the printer power off, reseal the card, turn the printer power back on, and then see if I/O=OPTIONAL is one of the I/O options. If you still cannot get I/O=OPTIONAL as a selection, the adapter card is probably faulty.
- Is the printer on line?

The amber ON LINE light should be lit. If it is not, press the  key to place the printer on line.
- Does a 43 OPT INTERFACE, 43 ERROR, or OPT I/O ERROR 43 error message appear in the printer's display window? (A 43 error message usually indicates a non-fatal, user-correctable network error.)

Note



If you have the printer control panel set to AUTO CONT=ON*, printer error messages (for example, 42 OPT INTERFACE, 43 OPT INTERFACE, 42 ERROR, OPT I/O ERROR 42, 43 ERROR, etc.) will be cleared after about 10 seconds, even if the error still persists. If you suspect a printer problem, set the printer control panel to AUTO CONT=OFF* for awhile so that you will be notified of error messages that occur.

Note



Never print a Status page if the printer is currently printing a job or if it is receiving data (if the READY LED is flashing). It may produce unpredictable results.

Print a Status page by making sure the printer is on-line and pressing the adapter card's STATUS button to cause the printer to print a Status page. The Status page provides detailed information to help in problem resolution. Compare any error messages that show up on the Status page with the error messages in Appendix A (Table A-1).

If the Status page does not print, turn the printer off, and back on. Wait about 60 seconds. Try to print a Status page again. If the Status page still does not print after several attempts, check to make sure that the control panel is set to I/O=OPTIONAL*. If a Status page still doesn't print, remove the adapter card from the printer and turn the printer on again. Try the *printer self test* (take the printer off-line and press the  key located on the control panel).

If the *printer self test* page does not print, something is wrong with your printer. Refer to the HP LaserJet Printer *User's Manual* for information on repairing the HP LaserJet printer.

If a printer *self-test* page prints when the adapter card is removed from the printer, but a *Status* page does not print out when the 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 C for information on replacing the adapter card.

If the Status page prints out, analyze the results using the information in Appendix A. Correct any problems as directed in Appendix A.

- Does the printer's control panel display a 42 OPT INTERFACE, 42 ERROR, OPT I/O ERROR 42 or 69 SERVICE message?

Note



You cannot print a Status page when the printer is displaying a 42 OPT INTERFACE, 42 ERROR, OPT I/O ERROR 42 or 69 SERVICE message. These 42 error messages usually indicate a “fatal” error condition.

If so, turn the printer off and then on again. If the message reappears, try reinstalling the adapter card and make sure that the jumpers (10BASE-T and Token Ring cards) are set correctly as indicated in Chapter 3.

If the 42 OPT INTERFACE, 42 ERROR, OPT I/O ERROR 42 or 69 SERVICE message persists, try the following:

- Turn off the printer.
- Remove the adapter card from the printer.
- Turn the printer on again.

If the 42 OPT INTERFACE, 42 ERROR, OPT I/O ERROR 42 or 69 SERVICE message persists, the problem is with the printer. Refer to the HP LaserJet Printer *User's Manual* for more information. If the message does not persist, the problem is with the adapter card and you must replace it. Refer to replacement instructions in Appendix C.

- Does the message INITIALIZING NETWORK ADAPTER print out on the Status page? Wait several minutes and print another Status page. If the message persists, make sure any file servers or bridges on your network are operating correctly and make sure the network is correctly wired. If the message still persists, you may have an unsupported protocol running on your network (see the tables on the next page).

The HP Network Printer Interface supports the following on an Ethernet/802.3 network:

Frame Type	802.2 SAP (in Hex.)	Ethernet Type (in Hex.)
ETHERNET_802.3	N/A	N/A
ETHERNET_802.2	E0	N/A
ETHERNET_II	N/A	8137
ETHERNET_SNAP	AA	8137

The HP Network Printer Interface supports the following on a Token Ring (802.5) network:

Frame Type	802.5 SAP	Ethernet Type
TOKEN-RING	E0	N/A
TOKEN-RING_SNAP	AA	8137

- Does any other type of message (other than 00 READY or POSTSCRIPT READY) appear in the printer's display window?

Refer to the *Troubleshooting or In Case of Difficulty* section of the HP LaserJet Printer *User's Manual* for a complete listing of control panel messages and corrective actions.

- Does the 00 READY or POSTSCRIPT READY message appear in the printer's display window?

Make sure the adapter card is firmly plugged into the HP LaserJet printer.

Print a Status page (by pressing the STATUS button on the adapter card) and verify that the correct adapter card is installed in the printer.

- 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 the HP LaserJet Printer *User's Manual*.

- Is the FORM FEED light on?

This may indicate that a Form Feed was not sent with the print data, and that the printer is waiting for a Form Feed to begin printing. Take the printer off line, press the FORM FEED key, and put the printer back on line.

- Are you trying to print raster graphics? Make sure you have set the FILE CONTENTS field in Novell's PRINTCON utility to BYTE STREAM, as described in Chapter 4 and 5.

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

Print a Status page and make sure the card name listed on the Status page matches the card name listed in either the ThinLAN/10BASE-T or Token Ring section of Appendix A, “Understanding the Status Page,” as appropriate. If the name does not match, refer to Appendix C for information on replacing the adapter card. (Note that the ThinLAN and 10BASE-T cards both have the same name: “Novell Ethernet/802.3.”)

Print Server Checklist

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

- Is the print server running when the HP Network Printer Interface is configured in Remote Printer mode?

(Use PCONSOLE to ensure that the print server is running.) Follow the instructions in Chapter 4 or 5, “Starting the Print Server” to start the print server.

If you cannot start the print server, refer to the documentation shipped with your network software.

- Are the print queues set up, shared, and authorized properly?

Check that you have set up and shared the print queues correctly. Refer to your network documentation for information on setting up and sharing queues.

- If the HP Network Printer Interface is configured in Remote Printer mode, are any of the queues to be served by that printer disabled? Enable all queues and try printing again. What does the print server screen show as the print server’s status?

If the HP Network Printer Interface is configured in Queue Server mode, what does the status line read for this HP Network Printer Interface in PCONFIG?

If the status is not “Waiting for Job”, you must configure the HP Network Printer Interface using the PCONFIG utility, supplied with your HP Network Printer Interface. Refer to Chapter 4 or 5 for instructions on using PCONFIG.

If the status is “Waiting for Job”, make sure that you selected “Remote Other/Unknown” as the printer type in PCONSOLE. Refer to “Adding a Remote Printer” in Chapter 4 or 5.

If the printer type selection in PCONSOLE is correct, the printer’s connection to the network may have been broken. Turn the printer off and wait for the status message to change to “Not Connected.” Turn the printer on again and wait for the print server’s status to change to “Waiting for Job.” If the status does not change, take the print server down and bring it back up again. Refer to Chapter 4 or 5 for instructions on taking the print server down.

File Server Checklist

Check the following on a file server:

- Is there enough disk space available on the file server?
- Is the file server up and running?
- Do you have the right file server associated with the correct print server?
- Did you select the correct network number when you first ran the PCONFIG utility?

Print/File Server to Printer Connection Checklist

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

- Use PCONSOLE in Remote Printer mode or PCONFIG in Queue Server mode to ensure that data is being sent to the printer.

If data is not being sent to the printer, there may be a problem with the network, print server, or configuration. Recheck the adapter card's configuration (the jumpers on the Token Ring and 10BASE-T cards) and installation, and use PCONSOLE to verify print server configuration. Fix any problems you find. Refer to your NetWare documentation for instructions on running PCONSOLE.

- Are the print server and the network printer communicating? Run Novell's COMCHECK utility from any workstation connected to the local network. If you have a dedicated print server running, you must shut down the dedicated print server before running COMCHECK. Refer to your NetWare documentation for instructions on running COMCHECK.

If the card's node address appears in the COMCHECK screen, your printer is capable of communicating on the network.

If COMCHECK shows that the printer is capable of communicating over the network, check the following:

- Is the printer configured correctly?
- Is the correct node name used?
- Is the correct print server name used?
- Is the correct file server name used?
- Is the correct Remote printer number used?
- Is the correct network number used?

Use PCONFIG to reconfigure as necessary.

In addition, use PCONSOLE to confirm that the print server and print queues are configured correctly:

- Check the print server name.
- Check the remote printer number.
- Check the remote printer configuration.
- Check the queue name.

If Novell's COMCHECK utility does not show that the printer is capable of communicating over the network, the problem is in the printer, the print server, or the connection between the printer and the print server. Recheck the network cabling, protocol type, and jumper settings on the adapter card by printing a Status page on the printer. If you cannot solve the problem, recheck all checklists. (If after rechecking all checklists you still cannot solve the problem, call your HP dealer or service representative.)

Workstation Checklist

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

- Is the workstation running the network software?

Make sure the network operating system software is loaded. If you cannot load your network software, refer to the documentation shipped with your network software.

- Is your software application correctly configured to print to the network printer?

Make sure your software application is printing to the correct port using the correct driver.

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

Workstation to Print Server Connection Checklist

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

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

Use PCONSOLE to verify that a printed job is queued to the intended queue.

Print a file and verify that the print job gets to the intended queue. If it does, the problem is not with the connection between the workstation and the print server.

- Is Novell's CAPTURE utility running?

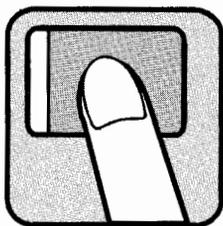
You must use the CAPTURE or NPRINT command to send data to the printer.

- Is another printer taking jobs from the queue before the new printer can service the jobs?

Disable the other printer until you can verify the new printer's setup.

Understanding the Status Page

Overview



The Status page lists information about the printer's configuration and the HP Network Printer Interface's configuration. The Status page is helpful when configuring and also troubleshooting the HP Network Printer Interface adapter. To print a Status page:

1. Make sure the printer is on line. The On Line indicator should be lit.
2. Press the adapter card STATUS button. A printer Status page will print after a short time. (If you are unfamiliar with the STATUS button, it is located on the adapter card faceplate, underneath the adapter card handle and is labeled STATUS [see Figure 2-1, 2-2, or 2-3].)

Note



Do not hold down the STATUS button; holding it down too long will result in multiple pages being printed.

This appendix describes the HP Network Printer Interface configuration information printed on the printer's *Status* page, which is different from the printer's *self test* printout. For information on the *self test* printout, refer to the HP LaserJet Printer *User's Manual*.

This chapter is divided into two sections:

- Understanding the ThinLAN and 10BASE-T Status pages
 - Queue Server mode Status page.
 - Remote Printer mode Status page.

- Understanding the Token Ring (802.5) Status page
 - Queue Server mode Status page.
 - Remote Printer mode Status page.

Understanding the ThinLAN and 10BASE-T Status Pages

Note



The ThinLAN and 10BASE-T adapter cards produce similar Status pages.

If you have connected your HP LaserJet printer to a Token Ring (802.5) network, skip to the next section, “Understanding the Token Ring Status Page.”

The ThinLAN/10BASE-T Status Page Layout

The ThinLAN and 10BASE-T Status pages will print in either Queue Server mode or Remote Printer mode. Each status page is divided into four parts (see Figures A-1 and A-2):

1. Adapter card configuration information.
2. Novell network configuration information.
3. Adapter card status information.
4. Network statistics.

Note



Depending on your configuration, the Status page may look slightly different than Figures A-1 or A-2. Use Table A-1 for an explanation of each of the fields on the Status page.

HEWLETT - PACKARD

NETWORK PRINTER INTERFACE STATUS

NOVELL ETHERNET/802.3 FIRMWARE REVISION: NODE ADDRESS: 080009	1	NOVELL ETHERNET/802.3 REVISION FIRMWARE: W.00.04 DIRECCION NODO: 080009102B0F	NOVELL ETHERNET/802.3 REVISIONE FIRMWARE: W.00.04 INDIRIZZO NODO: 080009102B0F	NOVELL ETHERNET/802.3 FIRMWARE-REVISION: W.00.04 KNOTENADRESSE: 080009102B0F	NOVELL ETHERNET/802.3 REV MICROLOGICIEL: W.00.04 ADRESSE NOEUD: 080009102B0F				
NETWORK NO.: UNKNOWN	FRAME TYPE: UNKNOWN	NUM. DE RED: DESCONOCIDO	TIPO DE TRAMA: DESCONOCIDO	NO. DI RETE: SCONOSCIUTO	PROTOCOLLO: UNBEKANNT	NETZWERK-NR.: UNBEKANNT	RAHMENTYP: UNBEKANNT	N° RESEAU: INCONNU	TYPE DE TRAME: INCONNU
NODE NAME: JOHN	2	NOMBRE DE NODO: JOHN	NOME DEL NODO: JOHN	NOM DU NOEUD: JOHN					
MODE: QUICKSERVER	QUELQUE SENS	MOD: SERVIDOR DE COLA	MOD: SERVER DI CODE DI STAMPA	MODUS: WARTESCHLANGEN-SERVER	MOD: SERVEUR FILE D'ATTENTE				
FILE SERVER NAME: QUICKSERVER		NOMBRE SERVIDOR DE FICHEROS: QUICKSERVER	NOME DEL FILE SERVER: QUICKSERVER	NAME DES DATEI-SERVER: QUICKSERVER	NOM DU SERVEUR FICHIER: QUICKSERVER				
I/O CARD NOT READY: LAN ERROR - EXTERNAL L	3	TARJETA E/S NO PREPARADA: ERROR LAN-TEST BUCLE EXTERN	03	SCHEDA DI I/O NON PRONTA: ERRORE LAN - LOOPBACK ESTERNO	03	E/A-KARTE NICHT BEREIT: LAN-FEHLER: EXT.SCHLEIFENTEST	03	CARTE E/S NON PRETE: ERREUR LAN - BOUCLE EXTERNE	03
NETWORK STATISTICS:		ESTADISTICAS DE RED:		STATISTICHE DI RETE:		NETZWERK-STATISTIK:		CONFIGURATION RESEAU:	
PACKETS RECEIVED: 0		PAQUETES RECIBIDOS: 0		RICEZ. SENZA ERR: 0		RX PAKETE: 0		PAQUETS RECUS: 0	
BAD PACKETS RCVD: 0		PAQUETES ERR RECIB: 0		ERRORI RICEZIONE: 0		RX FEHLERH. PAKETE: 0		MAUVAIS PAQ RECUS: 0	
FRAMING ERRORS RCVD: 0		ERRS DE TRAMA RCBD: 0		ERR. FORMATO RICEZ: 0		RX RAHMENFEHLER: 0		ERR. TRAME RECUS: 0	
PACKETS TRANSMITTED: 0		PAQUETES TRANSMIT: 0		TRASM. SENZA ERR: 0		TX PAKETE: 0		PAQUETS TRANSMIS: 0	
UNSENDABLE PACKETS: 4		PAQTES NO ENVIABLES: 0		ERR. TRASMISSIONE: 0		TX KEINE PAKETE: 0		PAQUETS INTRANSM.: 0	
XMIT COLLISIONS: 0		COLISIONES EN XMIT: 0		COLLISIONI TRASM: 0		TX KOLLISIONEN: 0		COLLISIONS: 0	
XMIT LATE COLLISIONS: 0		COLISIONES TARD XMIT: 0		ULTIM COLLIS TRASM: 0		TX SPATE KOLLISION: 0		COLL. TARDIVES: 0	
RETRANSMISSIONS: 0		RETRANSMISSIONS: 0		RETRANSMISSIONI: 0		SENDEWIEDERHOLUNGEN: 0		RETRANSMISSIONS: 0	

Figure A-1. ThinLAN Status Page

A Understanding the Status Page

HEWLETT - PACKARD

NETWORK PRINTER INTERFACE STATUS

NOVELL ETHERNET/802.3		NOVELL ETHERNET/802.3		NOVELL ETHERNET/802.3		NOVELL ETHERNET/802.3		NOVELL ETHERNET/802.3	
FIRMWARE REVISION:	U	REVISION FIRMWARE:	U.00.04	REVISIONE FIRMWARE:	U.00.04	FIRMWARE-REVISION:	U.00.04	REV MICROLOGICIEL:	U.00.04
MODE ADDRESS:	080009	DIRECCION MODO:	080009103838	INDIRIZZO MODO:	080009103838	KNOTENADRESSE:	080009103838	ADRESSE NOEUD:	080009103838
JUMPER SELECT:	10BASE-T/L	PUENTE SELEC.:	10BASE-T/LB ON	PONTICELLO:	10BASE-T/LB ON	JUMPER-AUSWAHL:	10BASE-T/LB ON	POS.CAVALLIER:	10BASE-T/LB ON
LINKBEAT:	NOT DETECTED	LINKBEAT:	NO DETECTADO	LINKBEAT:	NON RILEVATO	LINKBEAT:	NICHT DERKANNT	LINKBEAT:	NON DETECTE
NETWORK NO.:	FRAME TYPE:	MJM. DE RED:	TIPO DE TRAMA:	NO. DI RETE:	PROTOCOLLO:	NETZWERK-NR.:	RAHMENTYP:	N° RÉSEAU:	TYPE DE TRAME:
UNKNOWN		DESCONOCIDO		SCONOSCIUTO		UNBEKANNT		INCONNU	
NODE NAME:		NOMBRE DE MODO:		NOME DEL MODO:		KNOTENNAME:		NOM DU NOEUD:	
NP1103838		NP1103838		NP1103838		NP1103838		NP1103838	
MODE:	REMOTE PRINTER	MODO:	IMPRESORA REMOTA	MODO:	STAMPANTE IN REMOTO	MODO:	REMOTE-DRUCKER	MODE:	IMPRIMANTE À DISTANCE
PRINT SERVER NAME:		NOMBRE SERVIDOR DE IMPRESORA:		NOME DEL SERVER:		NAME DES PRINT SERVER:		NOM DU SERVEUR D'IMPRESSION:	
QUICKPRINT		QUICKPRINT		QUICKPRINT		QUICKPRINT		QUICKPRINT	
PRINTER NUMBER:	0	NUMERO DE IMPRESORA:	0	NUMERO DELLA STAMPANTE:	0	DRUCKERNUMMER:	0	NUMERO D'IMPRIMANTE:	0
I/O CARD NOT READY:	03	TARJETA E/S NO PREPARADA:	03	SCHEDA I/O NON PRONTA:	03	E/A-KARTE NICHT BEREIT:	03	CARTE E/S NON PRETE:	03
LAN ERROR - EXTERNAL LOK		ERROR LAN-TEST BUCLE EXTERN		ERRORE LAN - LOOPBACK ESTERNO		LAN-FEHLER: EXT.SCHLEIFENFEST		ERREUR LAN - BOUCLE EXTERNE	
LOSS OF CARRIER ERROR		ERROR PERDIDA DE PORTADORA		PERDITA DELLA PORTANTE		TRÄGERVERLUST		PERTE DE PORTEUSE	
SQE ERROR		ERROR SQE		ERRORE SQE		SQE-FEHLER		ERREUR SQE	
NETWORK STATISTICS:		ESTADÍSTICAS DE RED:		STATISTICHE DI RETE:		NETZWERK-STATISTIK:		CONFIGURATION RESEAU:	
PACKETS RECEIVED:	0	PAQUETES RECIBIDOS:	0	RICEZ. SENZA ERR:	0	RX PAKETE:	0	PAQUETS RECUS:	0
BAD PACKETS RCVD:	0	PAQUETES ERR RECIB:	0	ERRORI RICEZIONE:	0	RX FEHLERH. PAKETE:	0	MAUVAIS PAQ RECUS:	0
FRAMING ERRORS RCVD:		ERRS DE TRAMA RCVD:	0	ERR. FORMATO RICEZ:	0	RX RAHMENFEHLER:	0	ERR. TRAME RECUES:	0
PACKETS TRANSMITTED:		PAQUETES TRANSMIT:	0	TRASH. SENZA ERR:	0	TX PAKETE:	0	PAQUETS TRANSMIS:	0
UNSENDABLE PACKETS:		PAQTS NO ENVIABLES:	0	ERR. TRASMISSIONE:	0	TX KEINE PAKETE:	0	PAQUETS INTRASH.:	0
XMIT COLLISIONS:	0	COLISIONES EN XMIT:	0	COLLISIONI TRASH:	0	TX KOLLISIONEN:	0	COLLISIONS:	0
XMIT LATE COLLISIONS:	0	COLISIONES TARD XMIT:	0	ULTIM COLLISI TRASH:	0	TX SPÄTE KOLLISION:	0	COLL. TARDIVES:	0
RETRANSMISSIONS:	0	RETRANSMISSIONS:	0	RITRASMISIONI:	0	SENDEWIEDERHOLUNGEN:	0	RETRANSMISSIONS:	0

Figure A-2. 10BASE-T Status Page

ThinLAN/10BASE-T Status Page Messages

This section describes each of the messages that can be printed on a ThinLAN/10BASE-T Status page.

Table A-1. ThinLAN/10BASE-T Status Page Messages

Field	Description
NOVELL ETHERNET/802.3	Indicates the name of the adapter card currently installed in the HP LaserJet printer. If the card name printed on the Status page does not match the card name shown here, you have the wrong adapter card installed in the printer. You must replace your card with the HP Network Printer Interface Ethernet card for Novell networks. Refer to Appendix C for information on card replacement.
FIRMWARE REVISION: X.XX.XX	Indicates the firmware revision number of the adapter card currently installed in the HP LaserJet printer.
NODE ADDRESS: 080009XXXXXX	NODE ADDRESS is the 12-digit hexadecimal network address of the LAN card installed in the HP LaserJet printer.
JUMPER SELECT: XXXXXXXXXXXXXXXX	Indicates the setting of the Link Beat jumper on the card. Values for the selection are 10BASE-T/LB ON and STARLAN10/LB OFF. Refer to "Configuring the 10BASE-T Adapter Card" in Chapter 3 for instructions on setting jumpers.
LINK BEAT: XXXXXXXXXXXX	Indicates the status of the Link Beat (link test pulse) function. Values for this field are DETECTED and NOT DETECTED. NOT DETECTED means that Link Beat is enabled on the adapter card but is not being detected from its connecting device. Make sure that the Link Beat function is enabled on the connecting hub/concentrator. DETECTED means that Link Beat is enabled on the adapter card and is being detected. (NOTE: This Link Beat field will not appear on the Status page unless Link Beat is enabled with the card jumper.)

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Table A-1. ThinLAN/10BASE-T Status Page Messages (continued)

Field	Description
<p>NETWORK NO. XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX</p>	<p>Indicates the hexadecimal number of the Novell network(s) to which the HP LaserJet printer is attached. If the value is UNKNOWN, the adapter card is still trying to determine the protocol used over the network by listening for NetWare traffic.</p>
<p>FRAME TYPE: XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX</p>	<p>Indicates the protocol frame type. The card automatically determines the protocol frame type for each network by listening to the NetWare data being transferred over the network. The Frame Type value can be ETHERNET_802.3, ETHERNET_802.2, ETHERNET_II, or ETHERNET_SNAP.</p>
<p>NODE NAME:</p>	<p>Queue Server Mode: Indicates the print server name. This name must match a valid print server on the appropriate file server. The default name is NPIXXXXXX.</p> <p>Remote Printer Mode: Indicates the name you gave to the network printer when you used PCONFIG to configure the network printer. The default name is NPIXXXXXX.</p>
<p>MODE:</p>	<p>Indicates the mode used by the card. QUEUE SERVER indicates that the card receives data directly from the queue; REMOTE PRINTER indicates that the card emulates a Novell remote printer. If the HP Network Printer Interface has not been configured, this field will display QUEUE SERVER.</p>

Table A-1. ThinLAN/10BASE-T Status Page Messages (continued)

Field	Description
<p>FILE SERVER NAME: (Queue Server Mode only)</p>	<p>Indicates the name of the file server on which the queues reside. You entered this from a menu of attached file servers in PCONFIG. If no name is displayed, the HP Network Printer Interface has not been configured.</p>
<p>PRINT SERVER NAME: (Remote Printer Mode only)</p>	<p>Indicates the name of the print server to which this printer is attached. You entered this name when you ran PCONFIG to configure the HP Network Printer Interface. If no name is displayed, the HP Network Printer Interface has not been configured.</p>
<p>PRINTER NUMBER: XX (Remote Printer Mode only)</p>	<p>Indicates the number you chose to represent the print server's printer number when you ran PCONFIG to configure your HP Network Printer Interface. This number must match the print server's configuration. If no number is shown, the HP Network Printer Interface has not been configured.</p>
<p>I/O CARD READY or I/O CARD NOT READY XX</p>	<p>Indicates the current status of the adapter card installed in the HP LaserJet printer. I/O CARD READY indicates that the card is configured correctly and is capable of communicating with the print server. I/O CARD NOT READY indicates that there is a problem with the card, its configuration, or the print server. Following the I/O CARD NOT READY message is a two digit code and a status message. Refer to Table A-3 for a detailed explanation of all status messages. The messages are listed by their code numbers.</p>

Network Statistics

This portion of the Status page lists network statistics gathered by the adapter card. NETWORK STATISTICS consists of the following eight 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-2. ThinLAN/10BASE-T 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 no. of frames (packets) transmitted without error.
UNSENDABLE PACKETS:	Total number of frames (packets) not successfully transmitted because of errors. A large number of unsendable packets could indicate a Link Beat configuration problem (10BASE-T card only).
XMIT COLLISIONS:	No. of frames not transmitted due to repeated collisions.
XMIT LATE COLLISIONS:	Total number of frames not transmitted because a late collision occurred. A large number may indicate a cabling problem on the network.
RETRANSMISSIONS:	Number of retransmissions necessary because a remote node did not acknowledge receipt of a frame sent to it. Excessive retransmissions may degrade performance or indicate developing network hardware or congestion problems.

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-3. ThinLAN/10BASE-T "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, taps, transceivers, and BNC "T" connectors (ThinLAN card only).</p> <p>If you are using a 10BASE-T adapter card, check to make sure that Link Beat is enabled on both the card and on the hub/concentrator port being used, assuming the hub/concentrator is a 10BASE-T device. If the hub/concentrator is not a 10BASE-T device (for example, STARLAN10), Link Beat must be disabled on the card. (See Chapter 3 for Link Beat configuration instructions.)</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. Refer to Appendix C for information on replacing your adapter card.
	CRC ERROR	Check the network topology and verify all cable segments. Check for damaged cables.

Table A-3.
ThinLAN/10BASE-T “I/O CARD NOT READY” Status Messages (continued)

Number	Message	Description
	FRAMING ERROR	Check the network topology and verify all cable segments. Check for damaged cables.
	LATE COLLISION ERROR	Check the network topology, verify all cable segments and make sure no segment is too long.
	LOSS OF CARRIER ERROR	Check your network cable to ensure proper connection. Make sure your cable is good. If you are using a 10BASE-T adapter card, check to make sure that Link Beat is enabled on both the card and on the hub/concentrator port being used, assuming the hub/concentrator is a 10BASE-T device. If the hub/concentrator is not a 10BASE-T device, Link Beat must be disabled on the card. (See Chapter 3 for Link Beat configuration instructions.) If the error persists after printing another Status page, run the power-on self test by turning the printer off and then on again. If the error still persists, replace the adapter card.
	MEMORY ERROR	Run the adapter card power-on self test by turning the printer off and then on again. If the error persists, replace the adapter card. Refer to Appendix C for information on replacing your adapter card.
	OVERFLOW ERROR	Run the Power-on self test by turning the printer off and then on again. If the error persists, replace the adapter card. Refer to Appendix C for information on replacing your adapter card.

Table A-3.
ThinLAN/10BASE-T "I/O CARD NOT READY" Status Messages (continued)

Number	Message	Description
	RECEIVE BUFFER ERROR	Run the power-on self test by turning the printer off and then on again. If the error persists, replace the adapter card. Refer to Appendix C for information on replacing your adapter card.
	RETRY ERROR	Verify that the network cable is correctly terminated on both ends. Make sure your adapter card is correctly attached to your network.
	SQE ERROR	Check your network cable to ensure proper connection. If you are using a 10BASE-T adapter card, check to make sure that Link Beat is enabled on both the card and on the hub/concentrator port being used, assuming the hub/concentrator is a 10BASE-T device. If the hub/concentrator is not a 10BASE-T device, Link Beat must be disabled on the card. (See Chapter 3 for Link Beat configuration instructions.) If the error persists after printing another Status page, run the power-on self test by turning the printer off and then on again. If the error still persists, replace the adapter card.
	TRANSMIT ERROR	Check the network topology and verify all cable segments.
	UNDERFLOW ERROR	Check the cabling, taps, and BNC "T" connectors. If the error persists, run the power-on self test by turning the printer off and then on again. If the error still persists, replace the adapter card. Refer to Appendix C for information on replacing your adapter card.

Table A-3.
ThinLAN/10BASE-T "I/O CARD NOT READY" Status Messages (continued)

Number	Message	Description
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. Refer to Appendix C for information on replacing the adapter card.
08	LAN ERROR-INFINITE DEFERRAL	Your network is not correctly terminated. Check to make sure that both ends of the 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. Refer to Appendix C for information on replacing the adapter card.
0A	LAN ERROR-NO SQE	Check your network cable to ensure proper connection. If you are using a 10BASE-T adapter card, check to make sure that Link Beat is enabled on both the card and on the hub/concentrator port being used, assuming the hub/concentrator is a 10BASE-T device. If the hub/concentrator is not a 10BASE-T device, Link Beat must be disabled on the card. (See Chapter 3 for Link Beat configuration instructions.) If the error persists after printing another Status page, run the power-on self test by turning the printer off and then on again. If the error still persists, replace the adapter card.

Table A-3.
ThinLAN/10BASE-T "I/O CARD NOT READY" Status Messages (continued)

Number	Message	Description
OC	LAN ERROR-RECEIVER OFF	There may be a problem with your network cabling or the adapter card. Check the cabling, taps, and BNC "T" connectors on your Ethernet network. If you cannot find a problem with your network cabling, turn the HP LaserJet 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 Appendix C for information on replacing the adapter card.
OD	LAN ERROR-TRANSMITTER OFF	There may be a problem with your network cabling or the adapter card. Check the cabling, taps, and BNC "T" connectors on your network. If you cannot find a problem with your network cabling, turn the HP LaserJet 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 Appendix C for information on replacing the adapter card.
OE	LAN ERROR-LOSS OF CARRIER	Check your network cable to ensure proper connection. If you are using a 10BASE-T adapter card, check to make sure that Link Beat is enabled on both the card and on the hub/concentrator port being used, assuming the hub/concentrator is a 10BASE-T device. If the hub/concentrator is not a 10BASE-T device, Link Beat must be disabled on the card. (See Chapter 3 for Link Beat configuration instructions.) If the error persists after printing another Status page, run the power-on self test by turning the printer off and then on again. If the error still persists, replace the adapter card.

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Table A-3.
ThinLAN/10BASE-T "I/O CARD NOT READY" Status Messages (continued)

Number	Message	Description
10	LAN ERROR-UNDERFLOW	There may be a problem with your network cabling or the adapter card. Check the cabling, taps, and BNC "T" connectors on your Ethernet network. If you cannot find a problem with your network cabling, turn the HP LaserJet 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 Appendix C for information on 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.
13	CONFIGURATION ERROR	Indicates that the configuration information is not stored correctly on the adapter card. Rerun the PCONFIG utility to reconfigure the HP Network Printer Interface. Refer to Chapter 4 or 5 for information on running PCONFIG. If this error persists, there may be a problem with the adapter card. Refer to Appendix C for information on replacing the card.
14	NOT CONFIGURED	Indicates that the printer interface has not been configured. You must run the PCONFIG utility to configure the HP Network Printer Interface. Refer to Chapter 4 or 5 for information on running PCONFIG.

Table A-3.
ThinLAN/10BASE-T "I/O CARD NOT READY" Status Messages (continued)

Number	Message	Description
15	UNABLE TO FIND SERVER	The adapter card was not able to find the print or file server to which the adapter card was assigned. Make sure that the print server or file server is running, and that the print server or file server name assigned to the adapter card matches the print server or file server's actual name.
16	UNABLE TO CONNECT TO SERVER	The adapter card was not able to connect to the print server or file server to which the adapter card was assigned. Make sure that the print server is running and that the print server or file server name assigned to the adapter card matches the print server or file server's actual name.
17	PRINTER NUMBER NOT DEFINED	The printer number you assigned to the remote printer using the PCONFIG utility has not been defined. Rerun the PCONFIG utility and assign a valid printer number to the adapter card, or run PCONSOLE and define this printer number for the print server. Refer to Chapter 4 or 5 for instructions on running PCONFIG, and your Novell NetWare documentation for information on running PCONSOLE.
18	PRINTER NUMBER IN USE	The printer number you assigned to the remote printer using the PCONFIG utility is already in use by another printer. Rerun the PCONFIG utility and assign an unused printer number to the adapter card. Refer to Chapter 4 or 5 for instructions on running PCONFIG.

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Table A-3.
ThinLAN/10BASE-T "I/O CARD NOT READY" Status Messages (continued)

Number	Message	Description
19	TRYING TO CONNECT TO SERVER	The adapter card is trying to connect to the printer or file server after being configured. Wait for the adapter card to establish a connection with the printer or file server. Make sure the queue is not on hold.
1A	DISCONNECTING FROM SERVER	The adapter card is disconnecting from the printer or file server it was connected to in order to connect to the new printer or file server you recently assigned using PCONFIG. Wait for the adapter card to establish a connection with the new printer or file server.
1B	INITIALIZING NETWORK ADAPTER	When the HP LaserJet printer is first turned on, the adapter card must determine the protocol used on the network. Wait for the adapter card to be initialized. If this message persists for more than three minutes, make sure any file server or bridges are operating correctly. Refer to "Network Printer Checklist" in Chapter 7 for more information.
1C	UNENCRYPTED PASSWORD ERROR	Indicates that the adapter card detected that the NetWare 386 file server was not configured to allow unencrypted passwords. Configure the file server to accept unencrypted passwords. Refer to your Novell documentation.
1D	PASSWORD ERROR	Indicates that the the adapter card detected that the password for the print server object is wrong. If the printer is configured to use the correct print server object, erase the print server password using the PCONSOLE utility.

Table A-3.
ThinLAN/10BASE-T "/O CARD NOT READY" Status Messages (continued)

Number	Message	Description
1E	PRINT SERVER NOT DEFINED	Indicates that the adapter card detected that a print server object has not been created that corresponds to the adapter card node name. Use the PCONSOLE utility to create the print server object or rename the node name to match an existing print server object.
1F	NO QUEUE ASSIGNED	Indicates that the adapter card detected that a print server object has not been assigned any queues to service. Assign queues to the print server object using the PCONSOLE utility.

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Understanding the Token Ring Status Page

This section describes the Token Ring (802.5) Status page. Use the information in this section only if you have connected your HP LaserJet printer to a Token Ring (802.5) network.

If you have connected your HP LaserJet printer to a ThinLAN or 10BASE-T network, refer to the previous section, “Understanding the ThinLAN/10BASE-T Status Page.”

Token Ring Status Page Layout

The Token Ring Status page will print in either Queue Server mode or Remote Printer mode (see Figure A-3). Each version is divided into four parts:

1. Adapter card configuration information.
2. Novell network configuration information.
3. Adapter card status information.
4. Network statistics.

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NETWORK PRINTER INTERFACE STATUS

NOVELL 802.5 FIRMWARE REVISION: W 1 NODE ADDRESS: 100090D DATA RATE: 16 Mbps	NOVELL 802.5 REVISION FIRMWARE: W.00.01 DIRECCION MODO: 10009008080A VELOCID DATOS: 16 Mbps	NOVELL 802.5 REVISIONE FIRMWARE: W.00.01 INDIRIZZO MODO: 10009008080A VELOCID TRASM: 16 Mbps	NOVELL 802.5 FIRMWARE-REVISION: W.00.01 KNOTENADRESSE: 10009008080A DATENRATE: 16 Mbps	NOVELL 802.5 REV MICROLOGICIEL: W.00.01 ADRESSE NOEUD: 10009008080A DEBIT DONNEES: 16 Mbps
NETWORK NO.: UNKNOWN FRAME TYPE: UNKNOWN	NETWORK NO.: DESCONOCIDO FRAME TYPE: DESCONOCIDO	NO. DI RETE: SCOSCIUTO FRAME TYPE: SCOSCIUTO	PROTOCOLLO: UNBEKANNT FRAME TYPE: UNBEKANNT	NETZWERK-NR.: N°-RESEAU: INCONNU FRAME TYPE: INCONNU
MODE NAME: CURTIS MODE: QUELQUE SERVER	NOMBRE DE MODO: CURTIS MODE: SERVIDOR DE COLA	NOME DEL MODO: CURTIS MODE: SERVER DI CODE DI STAMPA	KNOTENNAME: CURTIS MODUS: WARTESCHLANGEN-SERVER	NOM DU NOEUD: CURTIS MODE: SERVEUR FILE D'ATTENTE
FILE SERVER NAME: QUICKSERVER	NOMBRE SERVIDOR DE FICHEROS: QUICKSERVER	NOME DEL FILE SERVER: QUICKSERVER	NAME DES DATEI-SERVER: QUICKSERVER	NOM DU SERVEUR FICHER: QUICKSERVER
I/O CARD NOT READY: 02 LAN ERROR - INTERNAL LD: 3 PHASE: LOBE MEDI CODE: FUNCTION FAILURE	TARJETA E/S NO PREPARADA: 02 ERROR LAN - TEST BUCLE INTERN FASE: TEST DEL MEDIO CODIGO: FALLO DE FUNCION	SCHEDA I/O NON PRONTA: 02 ERRORE LAN - LOOPBACK INTERNO FASE: VERIFICA LOGO CODICE: MALFUNZIONAMENTO	E/A-KARTE NICHT BEREIT: 02 LAN-FEHLER: INT.SCHLEIFENTEST PHASE: LEITUNGSTEST CODE: FUNKTIONSFehler	CARTE E/S NON PRETE: 02 ERREUR LAN - BOUCLE INTERNE PHASE: TEST DE LOBE CODE: PANNE FONCTION
NETWORK STATISTICS: PACKETS RECEIVED: 0 BAD PACKETS RCVD: 0 LINE ERRORS RCVD: 0 BURST ERRORS RCVD: 0 FS SET ERRORS RCVD: 0 FRAME COPIED RCVD: 0 BAD LENGTH RCVD: 0 LOST FRAMES: 0 TOKEN ERRORS: 0 PACKETS TRANSMITTED: 0 RETRANSMISSIONS: 0	ESTADISTICAS DE RED: PAQUETES RECIBIDOS: 0 PAQUETES ERR RECIB: 0 ERRS EN LINEA RCBD: 0 ERRS RAFAGAS RCBD: 0 AJUSTE FS RECIBIDO: 0 TRAMA COPIADA RCBD: 0 LONG ERRONEA RCBD: 0 PERDIDA DE TRAMAS: 0 ERRORES DE TESTIGO: 0 PAQUETES TRANSMIT: 0 RETRANSMISIONS: 0	STATISTICHE DI RETE: RICEZ. SENZA ERR: 0 ERRORI RICEZIONE: 0 ERRORI LINEA RICEZ: 0 ERR. "BURST" RICEZ: 0 ERR. SET FS RICEZ: 0 ERR COPIA PACG RIC: 0 RIC. PAC TRP LUNGO: 0 PACCHETTI PERSI: 0 ERRORE TOKEN: 0 TRASM. SENZA ERR: 0 RITRASMISIONI: 0	NETZWERK-STATISTIK: RX PAKETE: 0 RX FEHLERN. PAKETE: 0 RX LEITUNGSFEHLER: 0 RX BURST-FEHLER: 0 RX FS-SETZFEHLER: 0 RX RAINNEN-KOP.FEHL: 0 RX UNGLUETIGE LANGE: 0 VERLORENE RAINNEN: 0 TOKEN-FEHLER: 0 TX PAKETE: 0 SENDEWIEDERWOLUNGEN: 0	CONFIGURATION RESEAU: PAQUETS RECUS: 0 MAUVAIS PAQ RECUS: 0 ERR. LIGNE RECUES: 0 ERR DONNEES RECUES: 0 TRAMES STATUS ERR: 0 TRAMES RECUES: 0 MALV. LONG. RECUES: 0 TRAMES PERDUES: 0 ERREURS DE JETON: 0 PAQUETS TRANSMIS: 0 RETRANSMISSIONS: 0

Figure A-3. Sample Token Ring Status Page

Understanding the Status Page

Status Page Messages

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

Table A-4. Token Ring Status Page Messages

Field	Description
NOVELL 802.5	Indicates the name of the adapter card currently installed in the HP LaserJet printer.
FIRMWARE REVISION: X.XX.XX	Indicates the revision number of the adapter card's firmware.
NODE ADDRESS: 100090XXXXXX	NODE ADDRESS is the 12-digit hexadecimal network address of the LAN card installed in the HP LaserJet printer.
DATA RATE:	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.
NETWORK NO: XXXXXXXX XXXXXXXX	Indicates the hexadecimal number of the Novell network(s) to which the HP LaserJet printer is attached. If the value is UNKNOWN, the adapter card is still trying to determine the protocol used over the network by listening for NetWare traffic.
FRAME TYPE: XXXXXXXX XXXXXXXX	Indicates the protocol frame type. The card automatically determines the protocol frame type for each network by listening to the NetWare data being transferred over the network. The Frame Type value can be TOKEN-RING or TOKEN-RING_SNAP.

Table A-4. Token Ring Status Page Messages (continued)

Field	Description
NODE NAME:	<p>Queue Server Mode: Indicates the print server name. This name must match a valid print server on the appropriate file server. The default name is NPIXXXXXX.</p> <p>Remote Printer Mode: Indicates the name you gave to the network printer when you used PCONFIG to configure the network printer. The default name is NPIXXXXXX.</p>
MODE:	Indicates the mode used by the card. QUEUE SERVER indicates that the card receives data directly from the queue; REMOTE PRINTER indicates that the card emulates a Novell remote printer. If the HP Network Printer Interface has not been configured, this field will display QUEUE SERVER.
FILE SERVER NAME: (Queue Server Mode only)	Indicates the name of the file server on which the queues reside. You entered this from a menu of attached file servers in PCONFIG. If no name is displayed, the HP Network Printer Interface has not been configured.
PRINT SERVER NAME: (Remote Printer Mode only)	Indicates the name of the print server to which this printer is currently attached. You entered this name when you ran PCONFIG to configure the HP Network Printer Interface. If no name is displayed, the HP Network Printer Interface has not been configured.
PRINTER NUMBER: XX (Remote Printer Mode only)	Indicates the number you chose to represent the print server's printer number when you ran PCONFIG to configure your HP Network Printer Interface. If no number is shown, the HP Network Printer Interface has not been configured.

Table A-4. Token Ring Status Page Messages (continued)

Field	Description
I/O CARD READY or I/O CARD NOT READY XX	Indicates the current status of the adapter card installed in the HP LaserJet printer. I/O CARD READY indicates that the card is configured correctly and is capable of communicating with the print server. I/O CARD NOT READY indicates that there is a problem with the card, its configuration, or the print server. 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. The messages are listed by their code numbers.

NETWORK STATISTICS

This portion of the Status page lists network statistics gathered by the adapter card for the following fields:

Table A-5. Token Ring Network Statistics

Field	Description
PACKETS RECEIVED:	Total number of data frames (packets) received without error.
BAD PACKETS RCVD:	Total number of data frames (packets) received by the adapter card with errors.
LINE ERRORS RCVD:	Total number of frames received by the adapter card with code violations or CRC (Cyclic Redundancy Check) errors. A large number may indicate 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 error 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:	Total number of times a violation of the token-passing protocol has been detected.
PACKETS TRANSMITTED:	Total number of data frames (packets) transmitted without error.
RETRANSMISSIONS:	Number of retransmissions necessary because a remote node did not acknowledge receipt of a frame sent to it. Excessive retransmissions may degrade performance or indicate developing network hardware or congestion problems.

I/O CARD NOT READY Status Messages

This section describes all of the possible messages that can appear following the I/O CARD NOT READY status message:

Table A-6. Token Ring "I/O CARD NOT READY" Status Messages

Number	Message	Solution
02	LAN ERROR-INTERNAL LOOPBACK	Check the jumper block on the adapter card to ensure it is set correctly. Refer to Chapter 3 for information on setting the jumper block. In addition, check the cabling, external transceiver, wiring concentrator, and taps.
04	LAN ERROR-JUMPER	The jumper block on the adapter card is set incorrectly. Refer to Chapter 3 for instructions on setting the adapter card jumper block.
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.
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 Status 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.

Table A-6.
Token Ring "I/O CARD NOT READY" Status Messages (continued)

Number	Message	Solution
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 the resulting Status 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. This error can result from a LAN configuration server. You may need to add station address to configuration server.
13	CONFIGURATION ERROR	Indicates configuration information is not stored on the adapter card correctly. Rerun the PCONFIG utility to reconfigure the HP Network Printer Interface. Refer to Chapter 4 or 5 for information on running PCONFIG. If this error persists, there may be a problem with the adapter card. Refer to Appendix C for information on replacing the card.
14	NOT CONFIGURED	Indicates that the printer interface has not been configured. You must run the PCONFIG utility to configure the HP Network Printer Interface. Refer to Chapter 4 or 5 for information on running PCONFIG.
15	UNABLE TO FIND SERVER	The adapter card was not able to find the print or file server to which the adapter card was assigned. Make sure that the print server or file server is running, and that the print server or file server name assigned to the adapter card matches the actual print or file server's name.
16	UNABLE TO CONNECT TO SERVER	The adapter card was not able to find the print or file server to which the adapter card was assigned. Make sure that the print server or file server is running, and that the print server or file server name assigned to the adapter card matches the actual print or file server's name.

Table A-6.
Token Ring "I/O CARD NOT READY" Status Messages (continued)

Number	Message	Solution
17	PRINTER NUMBER NOT DEFINED	The printer number you assigned to the remote printer using the PCONFIG utility has not been defined. Rerun the PCONFIG utility and assign a valid printer number to the adapter card, or run PCONSOLE and define this printer number for the print server. Refer to Chapter 4 or 5 for instructions on running PCONFIG, and your Novell NetWare documentation for information on running PCONSOLE.
18	PRINTER NUMBER IN USE	The printer number you assigned to the remote printer using the PCONFIG utility is already in use by another printer. Rerun the PCONFIG utility and assign an unused printer number to the adapter card. Refer to Chapter 4 or 5 for instructions on running PCONFIG.
19	TRYING TO CONNECT TO SERVER	The adapter card is trying to connect to the printer or file server after being configured. Wait for the adapter card to establish a connection with the printer or file server.
1A	DISCONNECTING FROM SERVER	The adapter card is disconnecting from the printer or file server it was connected to in order to connect to the new printer or file server you recently assigned using PCONFIG. Wait for the adapter card to establish a connection with the new printer or file server.
1B	INITIALIZING NETWORK ADAPTER	When the HP LaserJet printer is first turned on, the adapter card must determine the protocol used on the network. Wait for the adapter card to be initialized. If this message persists for more than three minutes, make sure any file server or bridges are operating correctly. Refer to "Network Printer Checklist" in Chapter 7 for more information.

Table A-6.
Token Ring "I/O CARD NOT READY" Status Messages (continued)

Number	Message	Solution
1C	UNENCRYPTED PASSWORD ERROR	Indicates that the adapter card detected that the NetWare 386 file server was not configured to allow unencrypted passwords. Configure the file server to accept unencrypted passwords. Refer to your Novell documentation.
1D	PASSWORD ERROR	Indicates that the adapter card detected that the password for the print server object is wrong. If the printer is configured to use the correct print server object, erase the print server password using the PCONSOLE utility.
1E	PRINT SERVER NOT DEFINED	Indicates that the adapter card detected that a print server object has not been created that corresponds to the adapter card node name. Use the PCONSOLE utility to create the print server object or rename the node name to match an existing print server object.
1F	NO QUEUE ASSIGNED	Indicates that the adapter card detected that a print server object has not been assigned any queues to service. Assign queues to the print server object using the PCONSOLE utility.

In addition to the I/O CARD NOT READY messages, the I/O CARD STATUS section of the Status page also includes phase, code, and ring status messages. The following pages describe these messages.

Phase Messages

This section describes the PHASE messages that can be displayed on the Status 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 into 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 card 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 node 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 card 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 card is unable to receive its own ring purge data 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 card 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 during the insertion process.

Ring Status Messages

The Status 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

Message	Description
RING RECOVERY	The adapter card 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 has 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.
TRANSMIT BEACON	The adapter card is transmitting beacon frames to the ring.
HARD ERROR	The adapter card is transmitting or receiving beacon frames to or from the ring.
SIGNAL LOSS	The adapter card has detected a loss of signal on the ring. Check the cable from the adapter card to the network and check the wiring concentrator.

PCONFIG Status and Error Messages

Overview



There are three types of messages displayed by the PCONFIG program:

- Printer Status Messages
- Connection Status Messages
- Error Messages

The *printer status* and *connection status* messages are displayed on the PCONFIG *Current Status* menu after selecting a network printer interface within PCONFIG. These status messages are not error messages, but help to keep the user informed of the current state of the HP Network Printer Interface.

Printer status is only displayed when the HP Network Printer Interface adapter card is configured for queue server mode. These messages are described in Table B-1.

Connection status is displayed when the HP Network Printer Interface is configured for either queue server or remote printer mode. These messages are described in Table B-2.

Error messages are displayed when the HP Network Printer Interface detects an error condition. The error messages are described in Table B-3.

PCONFIG Printer Status Messages

PCONFIG may display the following *printer status* messages:

Table B-1. PCONFIG Printer Status Messages

Printer Status Message	Explanation
Offline	The printer is off-line.
Out of Paper	The printer is out of paper.
Printing	The printer is printing a job.
Waiting For Job	The printer is waiting for something to print.

PCONFIG Connection Status Messages

PCONFIG may display the following *connection status* messages:

Table B-2. PCONFIG Connection Status Messages

Connection Status Message	Explanation
Concluding Servicing Of Previous Configuration	The adapter card has been reconfigured and is breaking associations with the previous configuration. If a job is printing when the card is reconfigured, the card immediately stops printing the job and breaks its connections. This differs from when the adapter card is reconfigured while in remote printer mode.

Table B-2. PCONFIG Connection Status Messages (continued)

Connection Status Message	Explanation
Configuration Error	The card is reporting a configuration error. This will only happen if there is a problem with the card or if the PCONFIG program malfunctions and incorrectly configures the card. If reconfiguring the card does not fix the problem, see Appendix C for customer support information.
Connected to Print Server	The adapter card is successfully connected to the print server and is able to print.
Disconnecting From Previous Print Server	The adapter card has been reconfigured and is in the process of breaking connections from its previous configuration. If the card is reconfigured while the printer is printing a job, this message is displayed while the printer finishes the job. After the job is completed, the adapter card will break its previous connections and try to connect to a print server based on its new configuration.
Initializing Adapter Card	The adapter card is being initialized. This status only occurs if the adapter card is in an initializing state while it is being connected. The message will disappear within a few seconds.
Logged In To File Server	The card is logged into the file server under the queue server account and is able to print.
No Status Available	The adapter card is not reporting any status. This message only appears while PCONFIG is trying to establish communication with the card.
Not Configured	The adapter card is reporting that it is not configured. This happens when the card is new (before the initial configuration) or if its mode is changed without specifying its configuration parameters.

Table B-2. PCONFIG Connection Status Messages (continued)

Connection Status Message	Explanation
Not Connected: Can't Connect To Print Server	The adapter card cannot connect to the print server. The print server is operating but the card cannot make the connection. This usually indicates a network problem.
Not Connected: Can't Find Print Server	The card cannot locate the print server to which it is configured. The print server is probably not operating or there is a network problem.
Not Connected: Printer Number Not Available	The remote printer slot in the print server (for which the card is configured) is already being used by another remote printer. A Network Printer Interface card in remote printer mode tries to connect to the print server at a specified remote printer number. The remote printer number is part of the HP Network Printer Interface card's configuration.
Not Connected: Printer Number Not Defined	The print server does not have the remote printer number to which the HP Network Printer Interface card is configured.
Not Logged In: Can't Find File Server	The file server the adapter card is supposed to log into cannot be found on the network. The file server is not running or does not exist.
Not Logged In: Can't Find Queue Server Account	The queue server account on the file server that the card is supposed to log in under does not exist. PCONSOLE must be used to create the account.
Not Logged In: Invalid Password	The password with which the adapter card is attempting to log into the queue server account is not valid. This happens if the card is swapped after originally being configured. The user must use PCONSOLE to delete the password from the queue server account.

Table B-2. PCONFIG Connection Status Messages (continued)

Connection Status Message	Explanation
Not Logged In: Unencrypted Passwords Not Allowed	The adapter card cannot log into its file server because that file server does not have unencrypted passwords enabled.
Not Logged In: No Queue Assigned To Server	The queue server account that the adapter card is configured for has no queues assigned to it. The user must run PCONSOLE and assign a queue to the queue server account.
Trying to Connect To Print Server	The adapter card is in the process of trying to connect to the print server to which it is configured.
Trying to Log In to File Server	The adapter card is trying to connect to the file server to which it is configured. Connecting includes finding the file server on the network and logging into it.

PCONFIG Error Messages

PCONFIG may detect and display the following errors messages:

Table B-3. PCONFIG Error Messages

Error Message	Probable Cause	Suggested Recovery
Network Printer Interface XXXXX is no longer active	Selected unit's name changed (by another user running PCONFIG) after the Network Printer Interface list has been displayed but before the unit has been selected.	<ol style="list-style-type: none">1. Escape to PConfig Main Menu.2. Exit Select Network Printer Interface to rebuild list.
No Network Connection	The user is not logged into a file server.	<ol style="list-style-type: none">1. Exit PCONFIG.2. Log into a file server as supervisor at the workstation from which PCONFIG will be run.3. Rerun PCONFIG.
No print servers are operating. Press  for help.	Your print server is not running. This can only occur in Remote Printer mode.	<ol style="list-style-type: none">1. Exit PCONFIG.2. Restart the print server. Refer to the instructions on starting the print server in Chapter 5.3. Rerun PCONFIG.
No Supervisor Read/Write Access	The user is not logged into an account that has supervisor privileges.	<ol style="list-style-type: none">1. Exit PCONFIG.2. Log into an account that has supervisor privileges at the workstation from which PCONFIG will be run.3. Rerun PCONFIG.

Table B-3. PCONFIG Error Messages (continued)

Error Message	Probable Cause	Suggested Recovery
Not Able To Communicate With Print Server XXXXX	The workstation is not able to communicate with the print server either because the print server is not running, or because there is a communication problem between the workstation and the print server.	<ol style="list-style-type: none"> 1. Exit PCONFIG. 2. Ensure that the print server is running. 3. Ensure that the workstation and the print server are capable of communicating. 4. Rerun PCONFIG.
Not Able To Communicate With Network Printer Interface XXXXX	The workstation is not able to communicate with the printer either because the printer is not running or because there is a communication problem between the workstation and the printer.	<ol style="list-style-type: none"> 1. Exit PCONFIG. 2. Ensure that the printer is running. 3. Ensure that the workstation and the printer are capable of communicating. 4. Rerun PCONFIG.
Out Of Memory	The workstation that PCONFIG is being run from does not have enough usable memory.	<ol style="list-style-type: none"> 1. Exit PCONFIG. 2. Remove unnecessary Terminate and Stay Resident programs (TSRs) and device drivers or move to a workstation that has more usable memory. 3. Rerun PCONFIG.
Print Server XXXXXX has no available remote printer slots. Press F1 for help.	Your print server has no remote printer slots available to use for your HP Network Printer Interface. This can only occur in Remote Printer mode.	<ol style="list-style-type: none"> 1. Exit PCONFIG. 2. Follow the instructions listed in Chapter 3 to correctly set up your print server for the HP Network Printer Interface. 3. Rerun PCONFIG.

Table B-3. PCONFIG Error Messages (continued)

Error Message	Probable Cause	Suggested Recovery
XXXXXX is busy. Press F1 for help.	The remote printer you are trying to configure is currently being configured by another user running PCONFIG on a different workstation.	Wait until the other user is no longer using PCONFIG to configure the remote printer and try again.

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 (MST), 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.

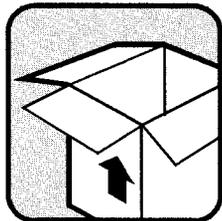
Before you call the Personal Peripheral Assist Line, make sure you:

1. Check Chapter 7, "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 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 (see previous section, "Hewlett-Packard Return Service") and warranty coverage has been verified. *Be sure to enclose a copy of your purchase receipt.*

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.

10BASE-T Cabling

Cabling for the 10BASE-T Adapter Card

It is important that the correct cable be used to attach to the 10BASE-T adapter card. Note the following points when selecting twisted-pair cable for your Network Printer Interface adapter.

1. Never use untwisted cable, including flat cable, to connect your printer to a twisted-pair network. All cabling must be twisted-pair (at least two twists per foot, six twists per meter).
2. When making twisted-pair connections, keep conductors of a pair together. Do not form a pair by taking a conductor of one pair and twisting it with a conductor of another pair. See Figure E-1.

Note



For more information about twisted-pair cabling, see the *Technical Reference Guide for Workgroup LANs* (HP part number 5091-0663E).

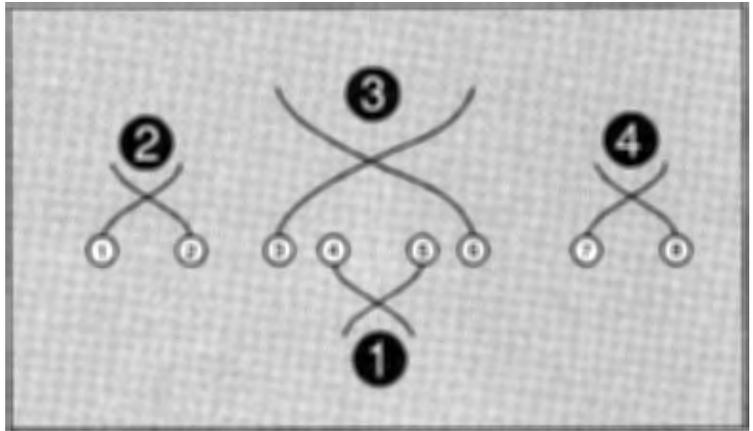


Figure E-1. Making Correct Twisted-Pair Connections

Pair No.	Pin No.	Color	Description
2	1	White/orange	Data Transmit (Hub Receive)
2	2	Orange/white	Data Transmit (Hub Receive)
3	3	White/green	Data Receive (Hub Transmit)
1	4	White/blue	Not used
1	5	Blue/white	Not used
3	6	Green/white	Data Receive (Hub Transmit)
4	7	White/brown	Not used
4	8	Brown/white	Not used

3. To connect your printer to a twisted-pair hub/concentrator, cables must be wired “straight through,” meaning that a pin at one end connects to a pin with the same number at the other end. See Figure E-2.

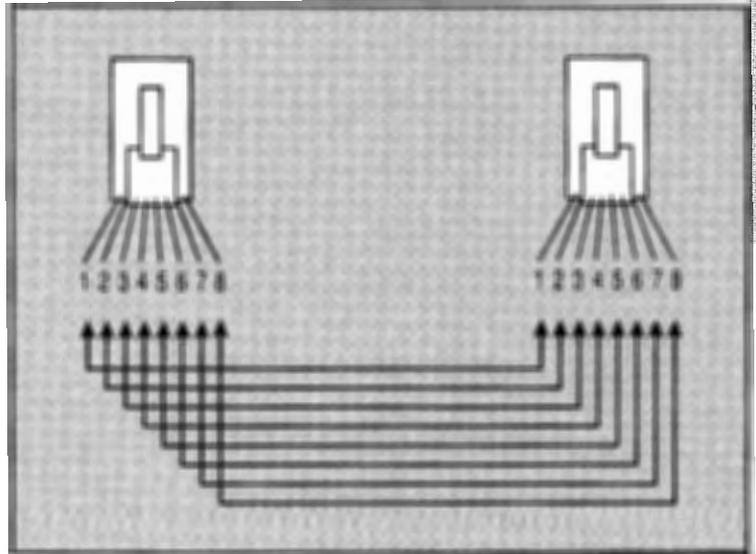


Figure E-2. “Straight-Through” Cabling Connections

4. Shielded twisted-pair cable may be used. It is recommended that the shield be grounded at only one end (the hub end) of the cable.

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Network Administrator's Worksheet

Fill out the following worksheet while you configure your Network Printer Interface. This worksheet will help you keep track of important information about your HP LaserJet printer and the Network Printer Interface. Keep this worksheet for future reference.

Item	Description
Novell Netware Version No.	
Mode (Queue Server or Remote Printer)	
LAN Type (Ethernet or Token Ring)	
Token Ring Jumper Setting (4 or 16 Mbps)	
10BASE-T Jumper Setting (Link Beat On/Off)	
Node Address	
Network Number	
File Server	
Print Server or Node Name	
Printer Number	
Printer Name	
Print Queue	
File Server Make & Model	
Media (ThinLAN, 10 BASE-T, etc.)	

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