# Chapter 1

# *Introduction*

# Overview

Congratulations on using the Xerox Network Interface Card (XNIC) to connect your Xerox DocuPrint 4517 and/or 4520, 4510, and 4505 laser printers to your network environment.

This guide describes the XNIC-E'NET and XNIC-T'RING and tells you how to configure either one on your network for remote printing.

**Note**

*It is not the purpose of this guide to provide instruction in the general design, configuration, and use of local area networks. Use of this guide requires a working knowledge of networks and is therefore intended primarily for network administrators.*

## Document Conventions

This guide uses the following typographical conventions:

- Text that is displayed on the screen is presented in **bold typeface**, in English only. For example, **node_name**.
- Keywords that you enter via the keyboard are presented in `computer typeface`. For example, `define server`.
- Variables that you enter via the keyboard are presented in *italic typeface*. For example, *fileserver.*
- Function keys are shown in brackets. For example, `<Esc>` represents the Escape key and `<Ctrl>` represents the Control key.
- Names of pull down screens and menus are capitalized and printed in a bold typeface. For example, **Available Options** menu
- Throughout this document, XNIC pertains to both XNIC-E'NET and XNIC-T'RING. We have included examples for both Ethernet and Token Ring users.

## The XNIC-E'NET

The XNIC-E'NET is an Ethernet interface card that plugs directly into the printer. Connection to the Ethernet network may be made using either Thinnet (10base2) cable (which uses a BNC connector), or unshielded twisted-pair (UTP/10baseT) cable (which uses an RJ-45 connector). Two LEDs on the connection panel are visual indicators of network activity.

## The XNIC-T'RING

The XNIC-T'RING is a Token Ring interface card that plugs directly into the printer. Connection to the Token Ring network may be made using either shielded twisted pair (STP) cable (which uses a DB-9 connector), or unshielded twisted pair (UTP) cable (which uses an RJ-45 connector).

When your printer is attached to a network with the XNIC, it may be used from virtually any computer on the network. If more than one system requests a print job at the same time, the XNIC ensures that each job is printed in the order that it is received at the XNIC. However, the priority that the XNIC services print jobs from the different networks can be changed.

The XNIC can currently be used with these popular operating systems and protocols:

**Table 1.1 XNIC Operating Systems and Protocols**

| Network Operating System | Protocol |
|---|---|
| Novell NetWare | IPX/SPX, TES |
| UNIX | TCP/IP, LPD, Telnet |
| AppleTalk | EtherTalk, TokenTalk |
| VAX/VMS (XNIC-E'NET only) | DECnet LAT |
| Microsoft LAN Manager | TCP/IP, LPD, NetBIOS |
| IBM LAN Server | TCP/IP, LPD, NetBIOS |
| Microsoft Windows NT | TCP/IP, LPD, NetBIOS |

The procedures described in this manual are the most common and direct approaches for each task. Because many networks have local modifications or run third-party print control software, the proper procedures for your specific network may differ. Also, some of the procedures in this manual may require the expertise and access privileges of a system administrator.

# Before You Begin

Before you begin installation, take a moment to verify that you have received everything listed below:

- XNIC-E'NET or XNIC-T'RING board in an antistatic bag
- *XNIC-E'NET/T'RING Configuration Guide* (this book)
- Three 3.5 inch diskettes:
  - — *Utilities for: LAN Server, LAN Manager, Novell NetWare (TES)*. Three separate utilities on one DOS formatted diskette.
  - — *UNIX Installation Utility* diskette (tar format)
  - — *Xerox Port Monitor for Windows NT*
- DS/P Kit
  - — Three 3.5 inch diskettes
  - — *DS/P Guide*
- The *Xerox 4505/4505ps, 4510/4510ps, 4520/4520mp Desktop Laser Printers Installation Supplement*.
- Instructions on how to install the XNIC on the Xerox 4517 printer are included in the 4517 User Guide.

# Important Information

It is important that you write down the unique Ethernet or Token Ring hardware address of your XNIC, its serial number, and server name. You will need this information during the installation and if you contact Xerox for assistance or upgrades.

## Locating the Ethernet Hardware Address

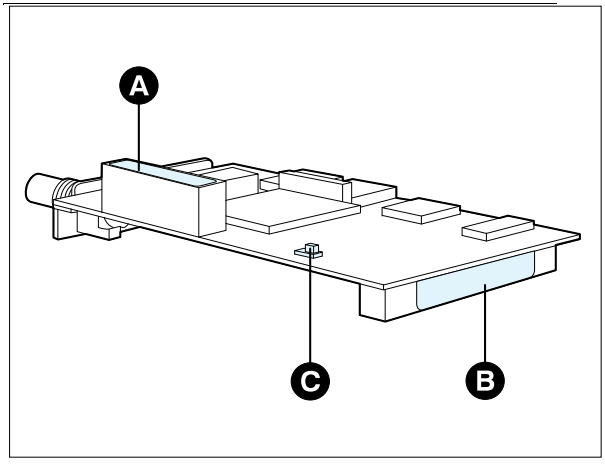
Figure 1.1 shows the location of the Ethernet hardware address and serial number on the XNIC-E′NET.

**Figure 1.1 Location of Ethernet hardware address and serial number**

**A** Serial number

**B** Ethernet hardware address

**C** JX1 pins




**Caution**

**Pins 2 and 3 on JX1 must be strapped together for proper operation of the XNIC-E′NET.**

Once the XNIC-E'NET is installed, the numbers will not be easily accessible. We suggest you note them here and on the back of this guide for later reference.

### Ethernet Hardware Address

**00-00-C9-**_____ _____-_____ _____-_____ _____

### Serial Number

_____ _____ _____ _____ _____ _____ _____ _____ _____

### XNIC-E'NET Server Name

Next, enter the last six characters of the Ethernet hardware address, but without the dashes, in the spaces below. This is the XNIC-E'NET's default print server name:

**XNE** _____ _____ _____ _____ _____ _____

**Note**

*If your printer came with XNIC-E'NET already installed, you can find the Ethernet Hardware Address on either the Printer Configuration Sheet or the Network Interface Configuration For Ethernet sheet. Refer to page 1-11 for instructions on printing the configuration sheets.*

## Locating the Token Ring Hardware Address

Figures 1.2 and 1.3. show the location of the Token Ring hardware address, serial number and speed of the XNIC-T'RING.

**Figure 1.2 Location of Token Ring hardware address and serial number**

**A Serial number**

**B Token Ring hardware address**

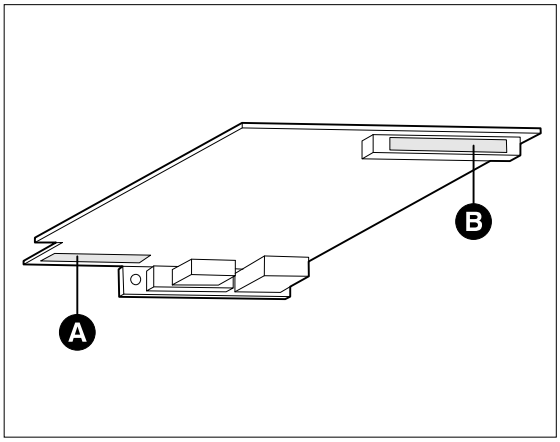


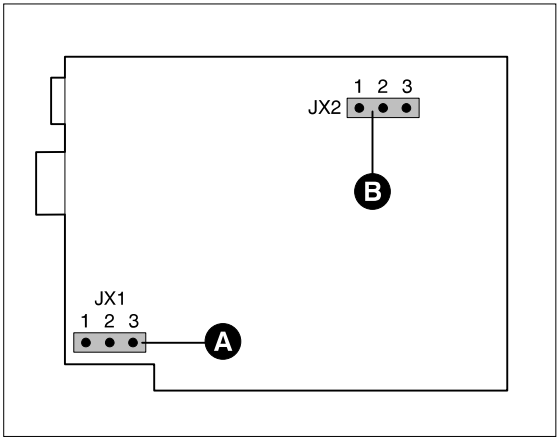

**Figure 1.3 Location of JX1 and JX2 pins**

**A JX1 pins**

***Pins 2 and 3 on JX1 must be strapped together for proper operation of the XNIC-T'RING.***

**B JX2 pins (Token Ring speed)**

- Pins 1 and 2 are strapped together for 4 mbps.
- Pins 2 and 3 are strapped together for 16 mbps. This is the default setting.



Once the XNIC-T'RING is installed, the numbers will not be easily accessible. We suggest you note them here and on the back of this guide for later reference.

### Token Ring Hardware Address

**00-00-93-**_____ _____-_____ _____-_____ _____

### Serial Number

_____ _____ _____ _____ _____ _____ _____ _____ _____

### Token Ring Speed

_____ **mbps** (4 or 16)

### XNIC-T'RING Server Name

Next, enter the last six characters of the Token Ring hardware address, but without the dashes, in the spaces below. This is the XNIC-T'RING's default print server name:

**XNT** _____ _____ _____ _____ _____ _____

## Installation of the XNIC

Before you begin the physical installation of the XNIC, make sure you have the proper cabling and software available.

- If your printer is a Xerox 4517, refer to Appendix C of the 4517 User Guide for installation instructions.
- If your printer is either a Xerox 4505, 4510, or 4520, refer to the instructions in the Installation Supplement.

Complete the installation and return to this book to proceed with network configuration.

## Configuration Sheets

To verify that the XNIC has been properly installed, and to obtain a list of the XNIC settings, you can print either one, or both, of these configuration sheets:

- Printer Configuration Sheet. Refer to your printer's user guide for instructions on printing this.
- Network Interface Configuration for (Ethernet or Token Ring) sheets. Refer to the next section for instructions on printing them.

## Printing the Network Interface Configuration

The Network Interface Configuration sheets verify that the XNIC has been properly installed and list the settings of the XNIC-E'NET or XNIC-T'RING. If this is a first-time installation, the default settings will be listed.

These configuration sheets print automatically when the printer is powered on without a network cable being connected to the XNIC. To print these sheets:

1. **Begin with your printer turned off.**
2. **Make sure the network cable is not attached to the XNIC.**
3. **Power on the printer.**
4. **Within approximately two minutes, two Network Interface Configuration sheets will print automatically.**

**Note**

*If the configuration sheets do not print, verify that the XNIC is properly installed, and that the printer control panel displays the Online Ready message.*

*If DS/P is enabled on the XNIC, the Network Interface Configuration sheets will not print. Make sure you print the configuration sheets before enabling DS/P. The default DS/P setting on the XNIC is disabled.*

## Default Configuration

The XNIC is preconfigured with all protocols enabled using the default settings. The default configuration is applicable for most systems. It may be modified from a host that remotely logs in to the XNIC through a virtual port.

- In Novell, run the NetWare (TES) utility that is on the Utilities for: LAN Server, LAN Manager, Novell NetWare (TES) diskette provided with the XNIC.
- In TCP/IP, run Telnet that is available generically in the host operating system.
- In DEC LAT use NCP that is available generically in the host operating system.

Refer to each chapter in this guide for details on using these utilities to modify the default settings.

Now you are ready to move on to Chapter 2, *Connecting the XNIC*.

# Chapter 2

# *Connecting the XNIC*

# Overview

This chapter discusses connecting the XNIC to the network after you have installed it in the printer.

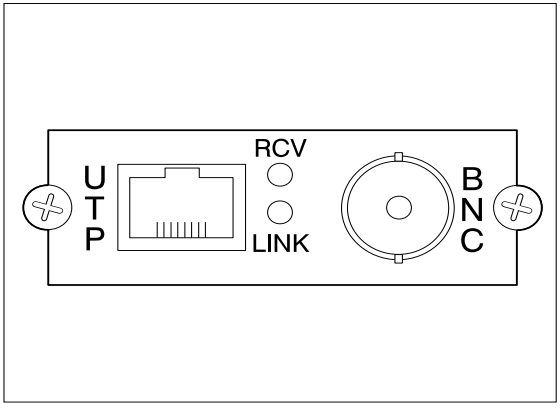
**Caution**

**Before connecting to the network, power the printer off.**

# Connecting XNIC-E'NET to the Network

The XNIC-E'NET may be connected to your network using Thinnet (10base2) cable with a BNC connector, or UTP (Unshielded Twisted Pair, 10baseT) cable with an RJ-45 connector. Figure 2.1 shows the location of the ports on the XNIC-E'NET.

**Figure 2.1 XNIC-E'NET Connection Panel**

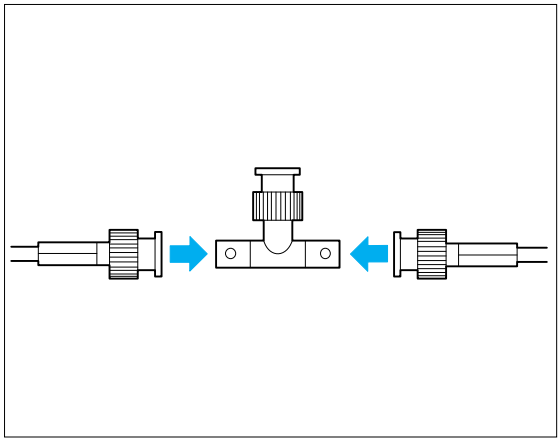



**Caution**

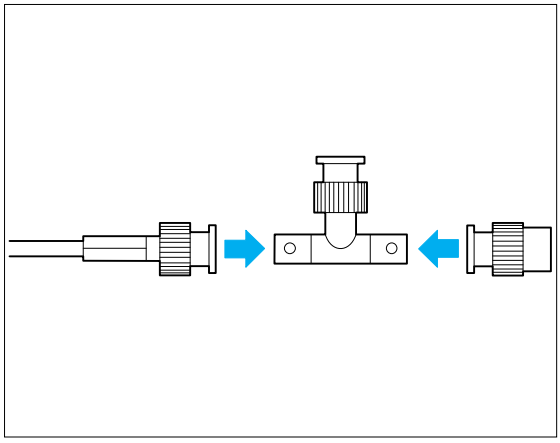
**Never connect network cables to both the BNC and UTP ports on the XNIC-E'NET at the same time.**

**If you are connecting to an active Ethernet network, the connection must be performed quickly to avoid interrupting the network for a long period.**

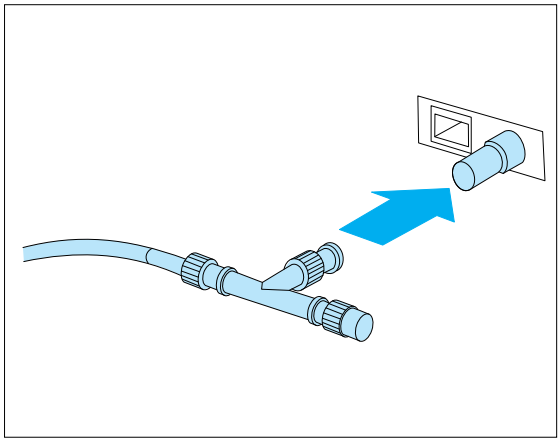
## Thinnet (10base2) Connection



**1** **If you are patching into the middle of the cable, use a BNC T-adapter to connect to the Ethernet cable.**



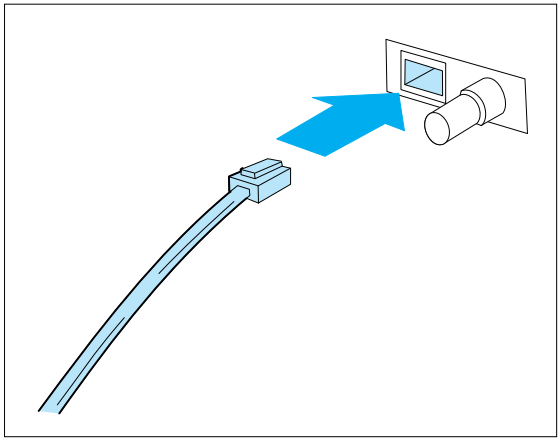
**2** **If you are connecting to the end of a cable segment, connect the Ethernet cable to one side of the BNC T-adapter and connect a 50 Ohm Ethernet terminator to the other side.**



**3** **Attach the BNC T-adapter to the BNC port on the XNIC-E'NET.**

**Do not attach anything to the port marked UTP.**

## Twisted-pair (10baseT) Connection



1. **Attach one end of the twisted-pair cable to the UTP port on the XNIC-E'NET, using a standard RJ-45 connector.**

2. **Attach the other end of the cable to a UTP wall outlet adapter, or other 10baseT Ethernet source.**

   **Do not attach anything to the port marked BNC.**

## Network Indicator LEDs

The XNIC-E'NET has two LEDs on the connection panel that are visual indicators of network activity. The LEDs operate as follows.

### Green LED (LINK)

When the XNIC-E'NET is properly installed, the printer is powered on, and the XNIC is connected to a live network via the UTP, this LED will be lit. If the XNIC-E'NET is connected via BNC, this LED will be off.

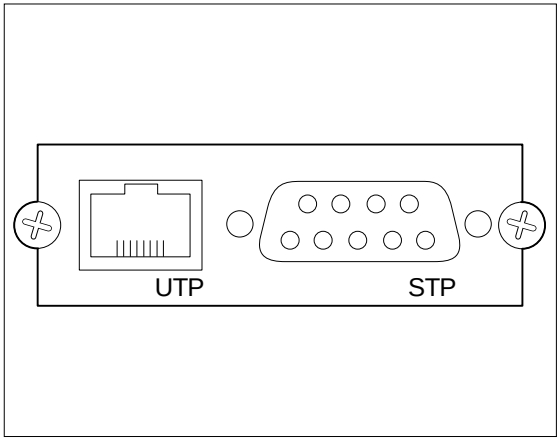
### Yellow LED (RCU)

When the XNIC-E'NET is properly installed, the printer is powered on, and the XNIC is connected to a live network, this LED will flash in accordance with network activity.

# Connecting XNIC-T'RING to the Network

The XNIC-T'RING may be connected to your network using shielded twisted pair (STP) cable with a DB-9 connector, or unshielded twisted pair (UTP) cable with an RJ-45 connector. Figure 2.2 shows the location of the ports on the XNIC-T'RING.

**Figure 2.2 XNIC-T'RING Connection Panel**



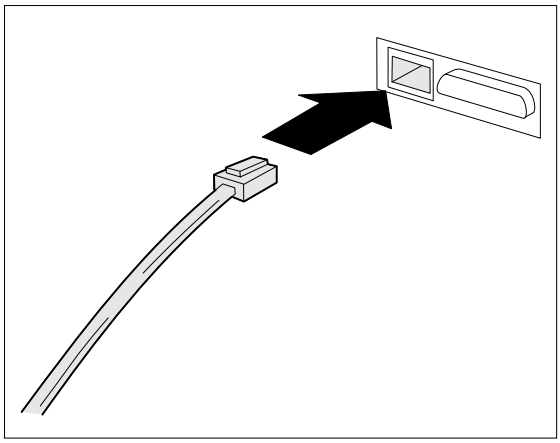

**Caution**

**Never connect network cables to both the STP and UTP ports on the XNIC-T'RING at the same time.**

**If you are connecting to an active Token Ring network, the connection must be performed quickly to avoid interrupting the network for a long period.**

**A Token Ring MAU (Multistation Attachment Unit) connection is required to connect the XNIC-T'RING to a Token Ring network. The MAU connection must match the speed selected on the XNIC-T'RING. Refer to Figure 1.3 *"Location of JX1 and JX2 pins"* (page 1-9) for the speed of the XNIC-T'RING.**

## UTP (RJ-45) Connection

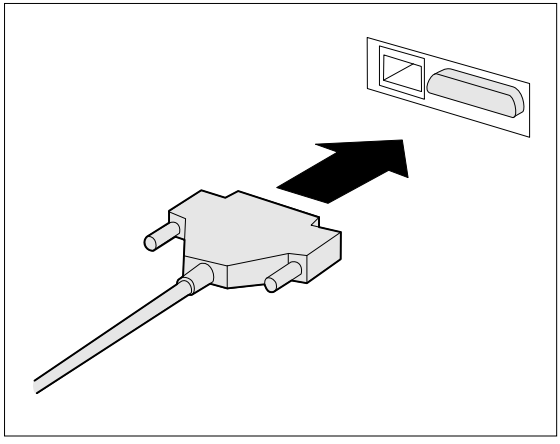


1. **Attach one end of the twisted-pair cable to the UTP port on the XNIC-T'RING, using a standard RJ-45 connector.**

2. **Attach the other end of the cable to a Token Ring MAU with the correct speed.**

   **Do not attach anything to the port marked STP.**

## STP (DB-9) Connection



1. **Attach the DB-9 end cable to the STP port on the XNIC-T'RING.**

2. **Attach the other end of the cable to a Token Ring MAU with the correct speed.**

   **Do not attach anything to the port marked UTP.**

# Initial Testing

After installing the XNIC and connecting the network cable, you are ready to power on the printer and test the system as follows:

1. **Verify that the network cable is connected to only one port:**
   - For Ethernet: BNC or UTP
   - For Token Ring: UTP or STP.

2. **Power ON the printer.**

   Wait for the printer to complete its self-tests and display **Online Ready**.

3. **Move to Step 4 if you are installing an XNIC-T'RING.**

   **Follow this step if you are installing an XNIC-E'NET:**

   **If the XNIC-E'NET powers on properly and is connected to the network via UTP (10baseT), the green LED (LINK) on the XNIC-E'NET's connection panel will be lit (for BNC connection the green LED will be off).**

   **The yellow LAN LED (RCU) will flash in accordance with any network activity. If the yellow LED is not flashing and you know there is network activity, verify that the XNIC-E'NET is properly connected to the network and the printer is powered on.**

   **Now continue with Step 5.**

4. **If the XNIC-T'RING powers on properly and is connected to the network, the LED on the Token Ring MAU will be lit.**

5. **Print a copy of the Printer Configuration Sheet. Then check to see that the card is listed on the Configuration Sheet.**

   Refer to your printer's user guide for instructions on printing a configuration sheet, if necessary.

6. **Configure your XNIC as described in the following chapters. (The table on *"Next Steps"* (page 2-10) will help you determine what chapters you need to read.)**

# Using Multiple Network Cards

Depending on the model of your printer, combinations of optional network cards may be installed (i.e., Ethernet, Token Ring, and LocalTalk). Refer to your printer's user guide for details.

For information about the XNIC-L'TALK, refer to the *XNIC-L'TALK Xerox Network Interface Card for LocalTalk Configuration Guide*.

**Caution**

**When both Ethernet and Token Ring cards are being used in the same printer and the cabling type is twisted pair, special care should be taken to ensure that the appropriate cable is connected to the appropriate wall socket or hub. Inserting an XNIC-T'RING into an Ethernet hub, or an XNIC-E'NET into a Token Ring hub, may result in physical damage to the units or can cause excessive errors on the network.**

# Next Steps

You are now ready to configure your printer for your network. This table will help you decide what chapter(s) to read to do this.

| If your network is… | Then go to… |
|---|---|
| Novell NetWare | *Chapter 3: Using the Printer with Novell NetWare* |
| AppleTalk | *Chapter 4: Using the Printer with EtherTalk or TokenTalk* |
| UNIX TCP/IP | *Chapter 5: Using the Printer with UNIX TCP/IP* |
| DEC LAT (XNIC-E'NET only) | *Chapter 6: Using the Printer with LAT* |
| LAN Manager via TCP/IP or NetBIOS/NetBEUI | *Chapter 7: Using the Printer with LAN Manager* |
| LAN Server via TCP/IP or NetBIOS/NetBEUI | *Chapter 8: Using the Printer with LAN Server* |
| Windows NT via TCP/IP or NetBIOS/NetBEUI | *Chapter 9: Using the Printer with Windows NT* |
| SNMP | *Chapter 10: Using the Printer with SNMP* |

# Chapter 3

# *Using the Printer with Novell NetWare*

# Overview

This chapter provides an overview and step-by-step procedures for setting up the printer on a Novell NetWare network. These procedures require that you have the NetWare access privileges of the system supervisor.

While the instructions in this section are complete, you may need to consult your system supervisor or network administrator, or refer to *Chapter 11: Troubleshooting*.

**Note**

*To avoid confusion, you should remember that the XNIC is a printer server, while "Print Server" or "PServer" is Novell software that manages the operation of printers on the NetWare network.*

- *The default Print Server (PServer) name is:*
  - — XNExxxxxx for XNIC-E'NET
  - — XNTxxxxxx for XNIC-T'RING

  *where xxxxxx is the last six characters of the XNIC hardware address.*
- *The default Printer name is:*
  - — XNExxxxxx_1 for XNIC-E'NET
  - — XNTxxxxxx_1 for XNIC-T'RING.

  *The Printer name is the Print Server name followed by an underscore "_" and a "1".*

*Before you begin the installation, print a Printer Configuration Sheet or the Network Interface Configuration sheets to obtain the necessary Novell settings on the XNIC. Refer to page 1-11 for instructions on printing configuration sheets.*

## Available Utilities

In the Novell NetWare environment, you have the option of using the utilities in Table 3.1 to configure your printer. These utilities are provided with your XNIC.

**Table 3.1 XNIC Utilities**

| Document Services for Printing (DS/P) | Novell NetWare TES Utility |
|---|---|
| 3 diskettes | On *Utilities for: LAN Server, LAN Manager, and Novell NetWare (TES)* diskette |
| DOS/Windows-based | DOS-based command language |
| Used for:<br>• PConsole operations for NetWare 3.x and 4.x BEM<br>• Printer management | Used for:<br>• Setting XNIC optional configuration |
| Refer to Document Services for Printing Guide | Refer to *Remote Logging into the XNIC via TES* section in this chapter |

## Network Considerations

To allow communication between the XNIC and Novell file servers across routers, the routers must be configured to pass through the Service Advertising Protocol (SAP) packets generated by the XNIC.

The following are the SAP values from the XNIC in hexadecimal:

- `0x0621` — Xerox SAP
- `0x0047` — PServer SAP
- `0x007A` — TES SAP
- `0x0622` — DS/P SAP

## PServer and RPrinter/NPrinter Modes

The XNIC as shipped from the factory allows both PServer and RPrinter modes in NetWare 2.x/3.x to be active.

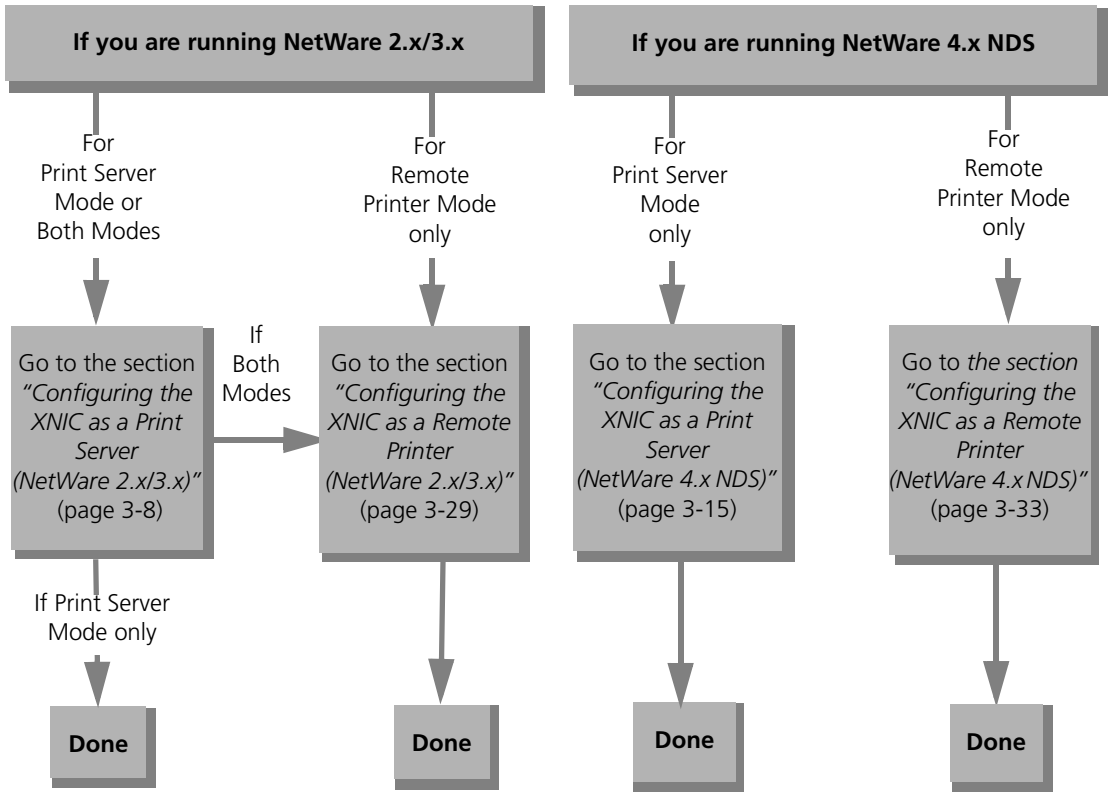
In NetWare 4.x NDS, the XNIC allows either PServer or NPrinter mode to be active at a given time.

Refer to *"Setting Optional Configurations"* (page 3-50) for additional information.

If you are running in NetWare with Bindery Emulation Mode, refer to the Novell documentation to configure PServer and queues on the 4.x file server in BEM.

The figure below guides you through the options for configuring the XNIC for PServer and/or RPrinter/NPrinter.

**Figure 3.1 PServer and RPrinter/NPrinter Modes**



# Configuring the XNIC as a Print Server (NetWare 2.x/3.x)

To configure your XNIC as a Print Server under NetWare 2.x/3.x, complete each of the procedures in this section as follows:

- Adding the Print Server and Printer
- Creating the Print Queue
- Assigning the Print Queue
- Restarting the XNIC
- Linking File Servers to Each Other (if queues are from more than one file server)
- Defining the Print Job Configuration(optional).

**Note**

*DS/P provides an automatic set-up procedure for configuring the printer in PSERVER mode. You may find it much easier to use this utility rather than to configure the printer manually. Refer to the DS/P Guide for details.*

**Note**

*After configuring your XNIC as a Print Server, if your network has more than 25 file servers, go to "4. Setting Required / Preferred File Server Name (Recommended for Large Networks)" (page 3-45).*

## Adding the Print Server and Printer

These procedures use the commands for Novell NetWare 2.x or 3.x. Unless noted, commands can be upper or lower case. Typed commands should be entered by pressing the <Enter> key.

**1** **Log in to the Novell file server so that you have supervisor privileges. At the prompt, enter:**

LOGIN *fileserver*\SUPERVISOR

At the prompt, enter the password.

**2** **At the system prompt, enter:**

PCONSOLE

**3** **Select Print Server Information from the Available Options menu.**

To select an item from a menu in PCONSOLE, use the arrow keys to highlight the item, then press <Enter>.

**4** **Press <Insert>.**

**5** **Enter the print server name as:**

XNE*xxxxxx* (for XNIC-E′NET)

**or as:**

XNT*xxxxxx* (for XNIC-T′RING),

where xxxxxx is the last six characters of the XNIC hardware address.

**6** **Select the print server name you just defined.**

**7** **Select Print Server Configuration from the menu.**

**8** **Select Printer Configuration from the menu.**

**9** **Select one of the Not Installed printers from the list of printers displayed.**

**10** **Enter the XNIC printer name as:**

XNE*xxxxxx*_1 (for XNIC-E'NET)

**or as:**

XNT*xxxxxx*_1 (for XNIC-T'RING),

The printer name is the print server name followed by an underscore "_" and a "1". Upper and lower case letters aren't important. For example, a valid name would be: XNE*1076E3*_1 or XNT*88E829*_1

*If the printer name has been changed using the DS/P utility, then print the Printer Configuration Sheet to verify the printer's name.*

**11** **Press the <Down-arrow> key to select Type, and press <Enter> to display the printer types.**

**12** **Select the printer type Defined Elsewhere.**

**13** **Save your changes by pressing <Esc> and selecting Yes to confirm the save.**

**14** **Press <Esc> several times until the Available Options menu is redisplayed.**

## Creating the Print Queue

**1** **Select Print Queue Information from the Available Options menu.**

To select an item from a menu in PCONSOLE, use the arrow keys to highlight the item, then press <Enter>.

**2** **Create a new Print Queue:**

- **Press <Insert> and a dialog box opens.**
- **Enter a name for the print queue**.
- **Press <Esc> until you redisplay the Available Options menu**.

## Assigning the Print Queue

1. **Select Print Server Information from the Available Options menu.**
2. **Select the print server from the list.**
3. **Select Print Server Configuration from the menu.**
4. **Select Queues Serviced by Printer from the Print Server Configuration menu.**
5. **Select the Xerox printer name.**

   For example, `XNE1076E3_1`.
6. **Press `<Insert>` to display the list of available queues.**

   **Select the queue to be serviced by the Xerox printer.**
7. **Enter a Priority level number for the printer (default is 1, highest) and press `<Enter>`.**
8. **If you wish to service several queues with the Xerox printer, repeat Steps 6 and 7 for each additional queue.**
9. **Press `<Esc>` several times until the Available Options menu is displayed.**

**Note**

*If your network has more than 25 file servers, before continuing to the next section "Restarting the XNIC", it is recommended to configure the XNIC. Refer to "4. Setting Required / Preferred File Server Name (Recommended for Large Networks)" (page 3-45).*

*Setting the file server name on the XNIC will automatically reset the XNIC. Therefore, you can skip the next section "Restarting the XNIC" and proceed on.*

## Restarting the XNIC

After you complete the setup in PConsole, the XNIC needs to be restarted so it can read the new configuration in the NetWare file server. Power the printer off and power it on to restart the XNIC.

The following procedure is an alternative method to restart the XNIC.

1. **Select Print Server Information from the Available Options menu.**
2. **Select your XNIC Print Server name.**
3. **Select Print Server Status and Control.**

   *This option appears only if the XNIC is powered on and connected to the network and the configuration was successful. Refer to the note on page 3-11 if your network has more than 25 file servers.*

   *If there is no response, check the network connection of the printer and verify that the configuration of the print server and queues on the file server is correct.*
4. **Select Server Info.**
5. **Select the Current Server Status field.**
6. **Select Going Down after Current Jobs.**

## Linking File Servers to Each Other (If Queues Are from More Than One File Server)

Follow the steps below when queues on multiple Novell file servers are configured for the same XNIC. This procedure will cross link the file servers to ensure the XNIC will service all the print queues.

**Note**

*The menu names in these steps may differ for the 4.x file server, depending on from where you logon to it. For example, from PConsole.*

1. **Log in as supervisor to the File Server that has an existing Print Server created on it and enter:**

   `PCONSOLE`

2. **Select Print Server Information (Print Servers Information in 4.x) from the Available Options menu.**

3. **Select the Print Server (PServer) already created for the target XNIC from the Print Servers menu.**

4. **Select Print Server Configuration (Serviced NetWare Servers in 4.x) from the Print Server Information menu.**

5. **(Skip this step if you are using NetWare 4.x.)**

   **Select File Servers To Be Serviced from the Print Server Configuration menu.**

6. **Press <Insert> from the File Servers To Be Serviced (Serviced NetWare Servers in 4.x) menu.**

7. **Select the File Server that should be cross linked from the Available File Servers (Available NetWare Servers) menu.**

8. **Repeat Steps 6 and 7 for all other File Servers.**

**9** **Repeat steps 1 to 8 again on every File Server in the cross link pool.**

*The Available File Servers (Available NetWare Servers in 4.x) list should be the same on all File Servers that will have the same common Print Server.*
*For example if File Servers A, B, and C on the network need to be cross linked, perform steps 1 to 8 on Server A.*
*Then log in File Server B, and repeat steps 1 to 8.*
*Next log in File Server C and again repeat steps 1 to 8.*

**10** **Power the printer off and power it on to restart the XNIC.**

Refer to *"Restarting the XNIC"* (page 3-12) for detailed instructions.

## Defining the Print Job Configuration (Optional)

The last task is to define a print job for special configuration for the printer. There are many utility and add-on programs that do this. Refer to your documentation for those programs for further information.

If you also wish to configure the XNIC for Remote Printer mode, go to the section *"Configuring the XNIC as a Remote Printer (NetWare 2.x/3.x)"* (page 3-29).

# Configuring the XNIC as a Print Server (NetWare 4.x NDS)

When Novell NetWare is configured to use the XNIC printer server, up to 128 file servers (the default is 16) may service the printer server with a maximum of 256 queues.

This section includes procedures for configuring the XNIC as PServer in NetWare 4.x NDS network using either PConsole in a DOS environment or NetWare Administrator (NWAdmin) in a Windows environment.

**Note**

*NDS objects can also be defined and administered using NetAdmin™ in DOS environments.*

- *For the Print Server name, use XNExxxxxx for XNIC-E'NET and XNTxxxxxx for XNIC-T'RING.*
- *For the Printer name use XNExxxxxx_1 for XNIC-E'NET and XNTxxxxxx_1 for XNIC-T'RING*

  *where xxxxxx is the last six characters of the XNIC hardware address. Upper and lower case are not important.*

## NDS Mode Considerations

Before you begin, make sure these conditions are present:

- An NDS server containing an NDS partition replica with the 4.x PServer object must be no more than two routers (hops) away from the XNIC printer server.
- Printer objects must be in the same context as the PServer object that references the printer objects.
- Define only one PServer object for each XNIC printer server.
- The Public Trustee, which is created by default during NetWare 4.1 installation, must exist on the root of the NDS tree.
- Spaces and trailers in the NDS tree name will be converted to underscores to form a 32 byte field length.

# Using PConsole

To configure your XNIC as Print Server using PConsole in NetWare 4.x, complete each of the procedures in this section as follows:

- Creating the Print Queue
- Adding the Print Server
- Adding the Printer
- Selecting the Print Queue
- Linking the Print Server to the Printer
- Restarting the XNIC

After configuring the PServer and queues for the XNIC on the NDS File Server, and if your network has more than 25 file servers, it is recommended to configure the XNIC as follows:


- *"7. Setting NDS Context", (page 3-47)*
- *"8. Setting the NDS Tree", (page 3-48)*
- *"9. Disabling 3.x/BEM or NDS Discovery", (page 3-49).*


## Creating the Print Queue

**1** **Login to the NDS file server as user Admin under the correct context.**

**At the prompt, enter:**

`LOGIN cn=admin.`*`o`*

*o = the organization name. For example if the organization name is "printing", the Novell login is:* `LOGIN cn=admin.`*`printing`*

**2** **If you are prompted to do so, enter your password.**

**3** **At the DOS prompt, enter:**

`PCONSOLE`

To select an item from a menu in PCONSOLE, use the arrow keys to highlight the item, then press `<Enter>`.

4 **Select Change Context from the Available Options menu.**

5 **Enter the desired context name or press <Insert> to browse for available contexts.**

*The context name defines the location of the print queue in the NDS tree.*

6 **Select Print Queues from the Available Options menu.**

7 **Press <Insert> to create a new print queue.**

8 **Enter the Queue name.**

9 **Enter the volume where the queue will be located.**

*If you are unsure, press <Insert> to display a list of the available volumes.*

10 **Highlight the desired *volume name* and press <Enter>.**

11 **Press <Esc> until the Available Options menu is redisplayed.**

## Adding the Print Server

1 **Select Print Servers from the Available Options menu and press <Enter>.**

2 **Press <Insert>.**

3 **Enter the Print Server name as:**

XNE*xxxxxx* (for XNIC E'NET)

**or as:**

XNT*xxxxxx* (for XNIC T'RING)

where xxxxxx is the last six characters of the XNIC hardware address.

## Adding the Printer

1 **Select Printers from the Available Options menu and press <Enter>.**

*An error message may pop up indicating a mode mismatch. Ignore this message and continue with the next step.*

2 **Press <Insert>.**

3 **Enter the Printer name as:**

XNE*xxxxxx*_1 (for XNIC E'NET)

**or as:**

XNT*xxxxxx*_1 (for XNIC T'RING)

The printer name is the print server name followed by an underscore "_" and a "1". Upper and lower case letters aren't important. For example, a valid name would be: XNE*1076E3*_1 or XNT*88E829*_1

*If the printer name has been changed using the DS/P utility, print the Printer Configuration Sheet to verify the printer's name.*

## Selecting the Print Queue

1 **Select Printers from the Available Options menu and press <Enter>.**

2 **Select your newly defined printer and press <Enter>.**

3 **Select Printer Type from the Printer Configuration menu and press <Enter>.**

4 **Select Other/Unknown from the list and press <Enter>.**

5 **Select Print Queues Assigned, then press <Enter>.**

6 **Press <Insert>.**

This will display a list of available print queues.

7 **Select a print queue from the list.**

8 **Once you select a queue, press <Enter> to change the priority or to designate it as the default queue.**

9 **Press <Esc> to save the changes.**

10 **Press <Esc> repeatedly until the Available Options menu is displayed.**

## Linking the Print Server to the Printer

1 **Select Print Servers from the Available Options menu and press <Enter>.**

2 **Choose the print server to link and press <Enter>.**

3 **Select Printers and press <Enter>.**

*An error message may pop up indicating that there is a mode mismatch. Ignore this message and continue with the next step.*

4 **Press <Insert>.**

5 **Select the Printer that you wish to link to the server.**

6 **Press <Esc> until the Available Options menu is redisplayed.**

**Note**

*If your network has more than 25 file servers, it is recommended to configure the XNIC as follows before continuing on to the next section "Restarting the XNIC":*

- *"7. Setting NDS Context", (page 3-47)*
- *"8. Setting the NDS Tree", (page 3-48)*
- *"9. Disabling 3.x/BEM or NDS Discovery", (page 3-49).*

*Setting the above parameters on the XNIC will automatically reset the XNIC. Therefore you can skip the next section "Restarting the XNIC" and proceed on.*

## Restarting the XNIC

After you complete the setup in PConsole, the XNIC needs to be restarted so it can read the new configuration in the NDS file server. Power the printer off and power it on to restart the XNIC.

The following procedure is an alternative method to restart the XNIC.

**1** **Select Print Server Information from the Available Options menu.**

**2** **Select your XNIC Print Server name.**

**3** **Select Information and Status from the Printer Configuration menu and press <Enter>.**

*This option appears only if the XNIC is powered on and connected to the network and the configuration was successful. Refer to the note above if your network has more than 25 file servers.*

*If there is no response, check the network connection of the printer and verify that the configuration of the print server and queues on the file server is correct.*

**4** **Verify that the current server is running by checking to see if "Running" is highlighted.**

5 **Select Going Down After Current Print Jobs if any jobs are in the queue or**

**select Down to restart the server immediately.**

**Then press** <Enter>**.**

**This brings the print server down.**

6 **Press** <Esc> **repeatedly until you exit PCONSOLE**.

You have completed PServer and print queue configuration using PConsole in a DOS environment. You can skip the next section *"Using NWAdmin"* and continue with the section *"Changing the Polling Interval (Optional)"* (page 3-28).

# Using NWAdmin

To configure your XNIC as a print server under NetWare 4.x NDS, using the NetWare Administrator tool, complete each of the procedures in this section as follows:

- Logging into the NetWare File Server
- Establishing the Context
- Creating the Print Queue
- Adding the Print Server
- Adding the Printer
- Assigning the Print Queue to the Printer
- Linking the Print Server to the Printer
- Restarting the XNIC

## Logging into the NetWare File Server

**1** **Login to the NDS file server as user Admin under the correct context.**

**At the prompt, enter:**

```
LOGIN cn=admin.o
```

*o = the organization name. For example if the organization name is "printing", the Novell login is:* `LOGIN cn=admin.printing`

**2** **If you are prompted to do so, enter your password.**

**3** **At the DOS prompt, enter:**

```
WIN
```

**4** **Select the NetWare Tools icon from the Windows Program Manager.**

**5** **Select NWAdmin.**

## Establishing the Context

1. **Select Set Context from the View menu on the title bar.**

   **If the current context is correct, go to the next section,** *"Creating the Print Queue"***.**

   *The context name defines the location of the print queue in the NDS tree.*

2. **Select the desired context from the displayed list.**

## Creating the Print Queue

1. **Use the right mouse button to click the context to which the queue will be created.**
2. **Select Create from the displayed menu.**
3. **Select Print Queue.**
4. **In the Create Print Queue window, enter the queue name in the select Print Queue Name field.**
5. **Select the volume from the Print Queue Volume pull down list on the Select Object window.**
6. **Click OK.**
7. **Click the Create button on the Create Print Queue window.**

## Adding the Print Server

1. **Use the right mouse button to click the context to which the XNIC Print Server will be added.**
2. **Select Create from the displayed menu.**
3. **Select Print Server and click OK.**

4 **Enter the Print Server name as:**

XNE*xxxxxx* (for XNIC E'NET)

**or as:**

XNT*xxxxxx* (for XNIC T'RING)

where xxxxxx is the last six characters of the XNIC hardware address**.**

5 **Click the Create button.**

## Adding the Printer

1 **Use the right mouse button to click the context to which the XNIC Print Server will be added.**

2 **Select Create from the displayed menu.**

3 **Select the Printer object and click OK.**

4 **Enter the Printer name as:**

XNE*xxxxxx*_1 (for XNIC E'NET)

**or as:**

XNT*xxxxxx*_1 (for XNIC T'RING)

The printer name is the print server name followed by an underscore "_" and a "1". Upper and lower case letters aren't important. For example, a valid name would be: XNE*1076E3*_1 or XNT*88E829*_1

*If the printer name has been changed using the DS/P Utility, print the Printer Configuration Sheet to verify the printer's name.*

5 **Click the Create button.**

## Assigning the Print Queue to the Printer

1. **Double click the Printer icon for your newly created printer.**
2. **Click the Assignments button.**
3. **Click the Add... button.**
4. **Select a print queue. The name becomes the selected object.**

   *The selected printer is automatically set as the default.*
5. **Click OK.**
6. **Click OK.**

## Linking the Print Server to the Printer

1. **Double click on the Print Server icon on the main NWAdmin screen.**

   *The XNIC Print Server name is entered as XNExxxxxx (for XNIC E'NET) or as XNTxxxxxx (for XNIC T'RING).*

   *The XNIC Printer name is entered as XNExxxxxx_1(for XNIC E'NET) or as XNTxxxxxx_1 (for XNIC T'RING).*
2. **From the Print Server window, click the Assignments button.**
3. **Select Add.**
4. **Select Printer.**
5. **Select OK.**
6. **Select OK at the Print Server window.**

**Note**

*If your network has more than 25 file servers, it is recommended to configure the XNIC as follows before continuing on to the next section "Restarting the XNIC":*

- *"7. Setting NDS Context", (page 3-47)*
- *"8. Setting the NDS Tree", (page 3-48)*
- *"9. Disabling 3.x/BEM or NDS Discovery", (page 3-49).*

*Setting the above parameters on the XNIC will automatically reset the XNIC. Therefore you can skip the next section "Restarting the XNIC" and proceed on.*

## Restarting the XNIC

After you complete the setup in NWAdmin, the XNIC needs to be restarted so it can read the new configuration in the NDS file server. Power the printer off and then power it on to restart the XNIC.

The following procedure is an alternative method to restart the XNIC.

1. **Exit NWAdmin and return to the DOS prompt.**
2. **Access PConsole.**
3. **Select Print Server Information from the Available Options menu.**
4. **Select your XNIC Print Server name.**

**5** **Select Information and Status from the Printer Configuration menu and press <Enter>.**

*This option appears only if the XNIC is powered on and connected to the network and the configuration was successful. Refer to the note on page 3-26 if your network has more than 25 file servers.*

*If there is no response, check the network connection of the printer and verify that the configuration of the print server and queues on the file server is correct.*

**6** **Verify that the current server is running by checking to see if "Running" is highlighted.**

**7** **Select Going Down After Current Print Jobs if any jobs are in the queue or**

**select Down to restart the server immediately.**

**Then press <Enter>.**

**This brings the print server down.**

**8** **Press <Esc> repeatedly until you exit PCONSOLE.**

You have completed PServer and print queue configuration using NWAdmin in a Windows environment. You can continue with the next section.

# Changing the Polling Interval (Optional)

The default polling interval for the XNIC to pull print jobs is set at 10 seconds for 3.x/bindery mode and five seconds for NDS mode. This interval gauges the frequency that the XNIC polls the file server to determine if jobs are available. Once the XNIC determines that jobs are available, all the jobs in the queue may be called at the network bandwidth.

The polling interval cannot be changed in NetWare versions 3.x/BEM. However, the user can change the polling interval for a print queue in Netware 4.x NDS. The procedure below lets you change the polling interval using PConsole.

1. **Login to the File Server in NDS mode and press** `<Enter>`**.**
2. **At the DOS prompt, enter:**

   `PCONSOLE`
3. **Select Print Servers from the Available Options menu.**
4. **Select the** *`Print_Server`* **for your printer from the Print Servers**.

   **For example:** `XNE`*`1076E3`* **or** `XNT`*`88E829`*
5. **Select Printers from the Print Server Information menu.**
6. **Select the** *`Printer_Name`* **from the Serviced Printers list**.

   **For example:** `XNE`*`1076E3`*`_1` **or** `XNT`*`88E829`*`_1`
7. **Select Sampling Interval from Printer** *`XNE1076E3_1`* **or** `XNT88E829_1` **Configuration .**
8. **Replace the existing number by entering the required value .**
9. **Restart the XNIC, either by:**
   - Powering the Printer off and powering it on, or by
   - Using PConsole to bring down the Print Server.

   Refer to *"Restarting the XNIC"* (page 3-20) for detailed instructions.

# Configuring the XNIC as a Remote Printer (NetWare 2.x/3.x)

To configure your XNIC as a remote printer under NetWare 2.x/3.x, complete each of the procedures in this section as follows:

- Creating the Print Queue
- Adding the Remote Printer
- Assigning and Restarting the Print Queue
- Defining the Print Job Configuration (optional)

These procedures use the commands for Novell NetWare 2.x or 3.x. Unless noted, commands can be upper or lower case, and typed commands should be entered by pressing the <Enter> key.

**Note**

*After configuring the XNIC RPrinter mode, and if your printer has more than 25 file servers, it is recommended that you configure the XNIC with the PServer name that will remotely attach to the XNIC.*

*Refer to "6. Setting the Remote PServer Name for RPrinter/NPrinter (Recommended for Large Networks)" (page 3-47).*

## Network Considerations

Novell NetWare RPrinter mode requires one of the following:

- PSERVER.VAP for Version 2.x NetWare file servers
- PSERVER.NLM for NetWare file servers
- PSERVER.EXE for a stand-alone PC-based print server.

## Creating the Print Queue

**1** **Login to the Novell file server with supervisor privileges.**

**At the DOS prompt, enter:**
`LOGIN fileserver\SUPERVISOR`

**At the prompt, enter the *password*.**

**2** **At the DOS prompt, enter:**

`PCONSOLE`

**3** **Select Print Queue Information from the Available Options menu.**

**4** **To create a new queue, press <Insert>, which opens a dialog box.**

**Enter in a name and press <Enter> and the new queue name will appear on the list.**

**5** **Press <Esc> until the Available Options menu is redisplayed.**

## Adding the Remote Printer

**1** **Select Print Server Information from the Available Options menu.**

**2** **If several Print Servers are displayed, select the one you want to service the Xerox printer.**

For example, an existing Print Server name might be *remote_mode*. You may also create a new Print Server and select it.

**3** **Select Print Server Configuration from the Print Server Information menu.**

**4** **Select Printer Configuration.**

**5** **Select one of the Not Installed printers from the list of printers displayed.**

6 **Enter the XNIC printer name as:**

XNE*xxxxxx*_1 (for XNIC-E'NET)

**or as:**

XNT*xxxxxx*_1 (for XNIC-T'RING),

Where xxxxxx is the last six characters of the XNIC hardware address. Upper and lower case letters aren't important. For example, a valid name would be: XNE*1076E3*_1 or XNT*88E829*_1

7 **Press the <Down-arrow> key to select Type, and press <Enter> to display the printer types.**

**Select Remote Other/Unknown from the list.**

8 **Save your changes by pressing <Esc> and selecting Yes to confirm the save.**

9 **Press <Esc> to redisplay the Print Server Configuration menu.**

## Assigning and Restarting the Print Queue

1 **Select Queues Serviced by Printer from the Print Server Configuration menu.**

2 **Select the XNIC printer name.**

For example: XNE1076E3_1

3 **Press <Insert> to display the list of available queues.**

**Select the queue to be serviced by the Xerox printer.**

4 **Enter a Priority level number for the printer (default is 1, highest) and press <Enter>.**

5 **Press <Esc> until the Available Options menu is displayed.**

6 **If you wish to service several queues with the Xerox printer, repeat Steps 3 and 4 for each additional queue.**

7. **Press <Esc> until the message Exit PCONSOLE appears.**

   **Select Yes to exit PCONSOLE.**

8. **Follow Novell procedures to load PServer from the NetWare file server console.**

   For example:

   ```
   load pserver remote_mode
   ```

9. **Power the printer off and power it on.**

## Defining the Print Job Configuration (Optional)

There are many utility and add-on programs that define special printer configurations. Refer to each respective program's documentation for further information.

# Configuring the XNIC as a Remote Printer (NetWare 4.x NDS)

This section includes procedures for configuring the XNIC as NPrinter in NetWare 4.x NDS network using either PConsole in a DOS environment or NetWare Administrator (NWAdmin) in a Windows environment.

**Note**

*NDS objects can also be defined and administered using NetAdmin™ in DOS environments.*

- *For the Print Server name, use XNExxxxxx for XNIC-E'NET and XNTxxxxxx for XNIC-T'RING.*
- *For the Printer name use XNExxxxxx_1 for XNIC-E'NET and XNTxxxxxx_1 for XNIC-T'RING where xxxxxx is the last six characters of the XNIC hardware address. Upper and lower case are not important.*

## Network Considerations

Novell NetWare NPrinter mode requires one of the following:

- PSERVER.NLM for NetWare file servers
- PSERVER.EXE for a stand-alone PC-based print server

**Note**

*To ensure optimal performance when running Remote Printer mode in NDS, make sure PServer is disabled on the XNIC. Refer to "5. Disabling PServer Mode (Required for Large Networks)" (page 3-46).*

*After configuring the XNIC RPrinter mode, and if your printer has more than 25 file servers, it is recommended that you configure the XNIC with the PServer name that will remotely attach to the XNIC. Refer to "6. Setting the Remote PServer Name for RPrinter/NPrinter (Recommended for Large Networks)" (page 3-47).*

# Using PConsole

To configure your XNIC as an NPrinter under NetWare 4.x using PConsole, complete the procedures in this section as follows:

- Creating a Print Queue
- Adding the Print Server
- Adding the Printer
- Associating the Printer with Novell PServer
- Linking the Print Queue to the Printer
- Restarting the Novell PServer

These procedures use the commands for Novell NetWare 4.x NDS. Unless noted, commands can be upper or lower case. Typed commands should be entered by pressing the <ENTER> key.

## Creating a Print Queue

**1** **Login to the NDS file server as user Admin under the correct context.**

**At the prompt, enter:**

```
LOGIN cn=admin.o
```

*o = the organization name. For example if the organization name is "printing", the Novell login is:* `LOGIN cn=admin.printing`

**2** **If you are prompted to do so, enter your password.**

**3** **At the DOS prompt, enter:**

```
PCONSOLE
```

**4** **Select Change Context from the Available Options menu.**

5 **Enter the desired context name or press <Insert> to browse for available contexts.**

*The context name defines the location of the print queue in the NDS tree.*

6 **Select Print Queues from the Available Options menu.**

7 **Press <Insert> to create a new print queue.**

8 **Enter the printer queue volume name, or**

**Press <Insert> to view a list of volumes.**

*This is the name of the file server's volume where the print queue will be created.*

9 **Select the volume name.**

10 **Press <Esc> until the Available Options menu is redisplayed.**

## Adding the Printer

1 **Select Printers from the Available Options menu.**

2 **Press <Insert>.**

3 **Enter the XNIC printer name as:**

XNE*xxxxxx*_1 (for XNIC-E'NET)

**or as:**

XNT*xxxxxx*_1 (for XNIC-T'RING)

where xxxxxx represents the last six characters of the XNIC hardware address. For example, a valid name would be: XNE1076E3_1 or XNT88E829_1

*If the printer name has been changed using the DS/P utility, print a Printer Configuration Sheet to verify the printer's name. The printer's name is the print server's name followed by "_1".*

4 **Press <Esc> to redisplay the Available Options menu.**

## Adding the Print Server

If a print server does not exist, one must be created. Follow this procedure.

1. **Select Print Server from the Available Options menu.**
2. **Press <Insert> and enter a new print server name.**
   For example: *remote_mode*
3. **Press <Esc> to return to the Available Options menu.**

## Associating the Printer with the Novell PServer

1. **Select Print Server from the Available Options menu.**
2. **Select the Print Server.**
   For example: *remote_mode*
3. **Select Printers from the Print Server Information menu.**
   **This displays the Serviced Printers menu.**
4. **Press <Insert>.**
5. **Select the XNIC Printer name.**
   For example: XNE1076E3_1 or XNT88E829_1
6. **Verify that the XNIC printer name appears in the Serviced Printers menu.**
7. **Select the XNIC printer name.**
8. **Select Printer Type from the Printer Configuration menu.**
9. **Select Other/Unknown from the Printer Type menu.**

## Linking the Print Queue to the Printer

1. **Select Print Queues from the Available Options menu.**
2. **Select Print Queues to link.**
3. **Select Print Servers from the Print Queue Information.**
4. **Press <Insert> and select the Print Server from the list.**
   For example: *remote_mode*
5. **Press <Esc> three times.**
6. **Select Printers from the Available Options menu.**
7. **Select the defined Printer.**
8. **Select Print Queues Assigned.**
9. **Press <Insert> and select the print queue from the list.**
10. **Press <Esc> three times.**

**Note**

*Before continuing with the next section, "Restarting the Novell PServer", refer to the notes under "Network Considerations" (page 3-33).*

## Restarting the Novell PServer

1. **Follow Novell procedure to load PServer from the NetWare file server console.**
2. **Power off the printer and power it on.**

You have completed NPrinter configuration on the XNIC using PConsole in a DOS environment. You can skip the next section, *"Using NWAdmin"* and continue with the section *"XNIC Configuration Options"* (page 3-43).

# Using NWAdmin

To configure your XNIC as a print server under NetWare 4.x NDS, using the NetWare Administrator tool, complete each of the procedures in this section as follows:

- Logging into the NetWare File Server
- Establishing the Context
- Creating the Print Queue
- Adding the Printer
- Linking the Print Queue to the Printer
- Associating the Printer with the Novell PServer
- Restarting the Novell PServer

## Logging into the NetWare File Server

**1** **Login to the NDS file server as user Admin under the correct context.**

**At the prompt, enter:**

```
LOGIN cn=admin.o
```

*o = the organization name. For example if the organization name is "printing", the Novell login is:* `LOGIN cn=admin.printing`

**2** **If you are prompted to do so, enter your password.**

**3** **At the DOS prompt, enter:**

```
WIN
```

**4** **Select the NetWare Tools icon from the Windows Program Manager.**

**5** **Select NWAdmin.**

## Establishing the Context

1. **Select Set Context from the View menu on the title bar.**

   **If the current context is correct, go to the next section** *"Creating the Print Queue"***.**

   *The context name defines the location of the print queue in the NDS tree.*

2. **Select the desired context from the displayed list.**

## Creating the Print Queue

1. **Use the right mouse button to click the context to which the queue will be created.**
2. **Select Create from the displayed menu.**
3. **Select Print Queue.**
4. **In the Create Print Queue window, enter the queue name in the Print Queue Name field.**
5. **Select the volume from the Print Queue Volume pull down list on the Select Object window.**
6. **Click OK.**
7. **Click the Create button on the Create Print Queue window.**

## Adding the Printer

1. **Use the right mouse button to click the context to which the printer will be added.**
2. **Select Create from the displayed menu.**
3. **Select Printer Object.**

4 **Enter the Printer name as:**

`XNE`*`xxxxxx`*`_1` (for XNIC E'NET)

**or as:**

`XNT`*`xxxxxx`*`_1` (for XNIC T'RING).

where xxxxxx is the last six characters of the XNIC hardware address. Upper and lower case letters aren't important. For example, a valid name would be: `XNE`*`1076E3`*`_1` or `XNT`*`88E829`*`_1`

*If the printer name has been changed using the DS/P utility, print the Printer Configuration Sheet to verify the printer's name.*

5 **Click the Create button.**

6 **Double-click the printer icon for the printer you created.**

7 **Click the Configuration button.**

8 **Select Other/Unknown from the Printer Type window.**

9 **Click OK.**

## Linking the Print Queue to the Printer

1 **Double click the Printer icon for your newly created printer.**

2 **Click the Assignments button.**

3 **Click the Add... button.**

4 **Select a print queue. The name becomes the selected object.**

*The selected printer is automatically set as the default.*

5 **Click OK.**

6 **Click OK.**

## Associating the Printer with the Novell PServer

1. **Double click on the NetWare native PServer that exists in the context on the main NWAdmin window.**

   *The PServer must already exist.*

2. **From the Print Server window, click the Assignments button.**
3. **Select Add.**
4. **Select Printer.**
5. **Select OK.**
6. **Select OK at the Print Server window.**

---

**Note**

*Before continuing with the next section, "Restarting the Novell PServer", refer to the notes under "Network Considerations" (page 3-33)*

---

## Restarting the Novell PServer

1. **Follow Novell procedure to load PServer from the NetWare file server console.**
2. **Power off the printer and power it on.**

You have completed NPrinter configuration on the XNIC using NWAdmin. You can continue with the next section.

# XNIC Configuration Options

When the XNIC is shipped from the factory, it is ready to operate in most NetWare environments without customizing. However, depending upon your network needs, you can configure the XNIC with other optional settings.

The optional XNIC configuration procedures will enhance the performance of the XNIC and help reduce unnecessary traffic on the network.

Use the TES commands to customize your XNIC on NetWare. Refer to *"Setting Optional Configurations"* (page 3-50) and Table 3.2 *"XNIC Tasks and Commands"* (page 3-55) for details.

To verify XNIC settings, print the Network Interface Configuration sheets. Refer to page 1-11 for instructions on printing the configuration sheet.

The XNIC configuration options follow. You may want to perform one or more of them depending upon your network requirements.

The ">init delay 0" command is always the last command when either a single "define" TES command or a string of TES "define" commands is issued.

## 1. Disabling Specific Protocols on the XNIC (Optional)

The default is: All protocols enabled.

To reduce network traffic, you can disable any unused protocols on the XNIC.

Issue this command from TES:

```
>define server authorize protocol disabled
>init delay 0
```

For example:

```
>define server authorize TCP disabled
>init delay 0
```

## 2. Setting Frame Type (Optional)

The default is: Automatic.

The frame type options for Ethernet are:

- 802.2
- Ethernet II
- 802.3
- SNAP

The frame type options for Token Ring are:

- 802.2
- SNAP

When the printer is powered on, the XNIC will begin the process of discovering a Novell file server. The default operation is to search for an 802.2 frame type first.

If the XNIC finds any file server with an 802.2 frame type, it will automatically attach to it and the XNIC will be locked to this frame type as long as the printer remains powered on.

If the XNIC does not find a file server with an 802.2 frame type, it will automatically restart the discovery process by looking for the next frame type in the priority order listed above.

**Note**

*At any given time, the XNIC will be locked into only "one" frame type.*

To permanently lock the XNIC to a specific frame type, instead of letting the procedure occur automatically, issue this command from TES:

```
>define server netware frame_type
>init delay 0
```

## 3. Disabling RPrinter/NPrinter Mode (Optional)

The default is: Both RPrinter/NPrinter and PServer modes enabled.

If the XNIC will be running in PServer mode only, you can reduce network traffic caused by the XNIC initiating periodic autodiscovery for RPrinter/NPrinter mode, by disabling the RPrinter/NPrinter mode. You can do this by issuing this command from TES:

```
>define server netware rprinter disabled
>init delay 0
```

## 4. Setting Required / Preferred File Server Name (Recommended for Large Networks)

The default is: No name.

If the XNIC is running in PServer mode and it will service queues from Netware 3.x/BEM file servers, and if the network has 25 file servers or more, it is recommended to set either a “required” or a “preferred” file server name on the XNIC. This will reduce the time and traffic for the first job to print after the printer is powered on. Otherwise the XNIC will search the **entire** network for a file server with PServer configuration.

If the intended file server name is set as “preferred”, in the XNIC, the XNIC will attempt to connect to it. If that file server is unavailable, for any reason, the XNIC will fall back to the discovery process on the entire network until it finds another target file server.

If the intended file server name is set as “required” in the XNIC, the XNIC will attempt to connect to it. If that file server is unavailable, for any reason, the XNIC will stop the discovery process and will not communicate with any other file server on the network.

Issue these commands from TES to set a "preferred" file server name ("preferred" is the recommended option) in the XNIC.

```
>define server netware required disabled
>define node server_name nfserver
>init delay 0
```

Issue these commands from TES to set a "required" file server name in the XNIC.

```
>define server netware required enabled
>define node server_name nfserver
>init delay 0
```

Issue these commands to verify the required or preferred file server setting on the XNIC.

```
>show node
```

The "show node" command will display a list of values including "*name*". *Name* gives the name of the required or preferred file server.

```
>show server netware
```

The "show server netware" command will display a list of values including "*NFServer*". *NFServer* indicates if the file server has been set as required or preferred.

## 5. Disabling PServer Mode (Required for Large Networks)

The default is: Both PServer and RPrinter/NPrinter modes enabled.

If XNIC is running as an RPrinter/NPrinter only, you have the choice of disabling PServer on the XNIC.

Issue this command from TES:

```
>define server netware pserver disabled
>init delay 0
```

## 6. Setting the Remote PServer Name for RPrinter/NPrinter (Recommended for Large Networks)

The default is: No name.

When the XNIC is running RPrinter/NPrinter in large networks (over 25 file servers) it is recommended to set the XNIC with the PServer name that will remotely attach to the XNIC. This setting will reduce the waiting time for the first job to print after the printer is powered on.

Issue this command from TES to set a PServer name to attach to the remote printer:

```
>define node pserver_name npserver
>init delay 0
```

## 7. Setting NDS Context (Recommended for Large Networks)

The default is: No name.

If running in NetWare 4.x NDS in large networks (over 25 file servers), it is recommended to set the NDS context name where the PServer object exists.

Issue this command from TES to set the context name on the XNIC:

```
>define server netware context "context_name"
>init delay 0
```

Follow these examples to determine the *context_name*.

If the PServer object is created in the *Marketing* organization, then the "*context_name*" is "*marketing*".

If the PServer object is created in a unit under the *Marketing* organization called as *Printing*, then the "*context_name*" is "*marketing.printing*".

Issue this command from TES to verify the context name setting on the XNIC:

```
>list server netware
```

Do not use the *show server netware* command for this purpose.

## 8. Setting the NDS Tree (Recommended for Large Networks)

The default is: No name.

If running in NetWare 4.x NDS in large networks (over 25 file servers) it is recommended to set the XNIC with the NDS tree name where the PServer object exists. This setting will reduce the waiting time for the first job to print after the printer is powered on.

Issue this command from TES to set the tree name in the XNIC:

```
>define server netware nds "tree_name"
```

Issue this command from TES to verify the tree name setting on the XNIC:

```
>list server netware
```

Do not use the *show server netware* command for this purpose.

## 9. Disabling 3.x/BEM or NDS Discovery (Recommended for Large Networks)

The default is: Both 3.x/BEM and NDS discovery enabled.

When the printer is powered on, the XNIC discovers the PServer definition intended for the XNIC through the NDS file servers.

- If the XNIC does not find PServer definitions on NDS file servers within two routers reach, it stops NDS discovery and starts the discovery process through the 3.x/BEM file servers.
- If it finds the PServer definition during the NDS discovery process, it attaches to it and gathers information about other Novell file servers that hold PServer definitions for the XNIC.

If running in NDS mode only, it is recommended to disable 3.x/BEM discovery on the XNIC. Disabling BEM discovery will expedite the completion of the overall search process by the XNIC.

Issue this command from TES:

```
>define server netware pserver 4.x
>init delay 0
```

If running in 3.x/BEM mode only, it is recommended to disable NDS discovery on the XNIC.

Issue this command from TES:

```
>define server netware pserver 3.x
>init delay 0
```

# Setting Optional Configurations

This section describes procedures for communicating with the XNIC to monitor system parameters or to change the parameters from their factory defaults, as discussed in the previous section.

## Remote Logging into the XNIC via TES

To monitor or change configuration parameters on the XNIC, you must first login to the XNIC from your Novell workstation.

Novell workstations require the terminal emulation program, *TES*, and the *Kermit* protocol to access the XNIC remotely. Both of these are furnished on the *Utilities for: LAN Server, LAN Manager, Novell NetWare (TES)* diskette.

*TES* is a terminate-and-stay-resident (TSR) program that requires about 35K of base RAM. It can be loaded either from the DOS prompt or at boot up from the *AUTOEXEC.BAT* file.

Loading TES from the DOS prompt is the preferred method. Windows must not be running. Do not load TES into higher memory since unpredictable results may occur.

**Note**

*TES must be loaded after NetWare client software is installed and before starting Kermit. If TES is already present, do not repeat the installation.*

This procedure installs the TES/Kermit software on your Novell workstation and establishes a connection with the XNIC.

1. **Insert the** *Utilities for: LAN Server, LAN Manager, Novell NetWare (TES)* **diskette into your floppy disk drive and enter the following command to install the files from the floppy diskette in drive A: to hard drive C on your system:**

   ```
   a:\tes\install a:\tes c:
   ```

2. **Run TES by entering:**

   ```
   cd c:\tes-krmt
   ```

   ```
   tes
   ```

   *To display information about TES commands, at the DOS prompt, enter:* `tes help`

3. **Run Kermit by entering:**

   ```
   kermit
   ```

   **The MS-Kermit> prompt will appear.**

   **You can optionally enter the following command to view a listing of the XNIC cards on the network:**

   ```
   tes names
   ```

   For example, you will see: `XNEx`*xxxxxx* for XNIC-E'NET **or** XNT*xxxxxx* for XNIC-T'RING, where *xxxxxx* is the last six characters of the XNIC address.

4. **Specify which XNIC to use. Enter:**

   `set port tes XNE`*xxxxxx* *(*for XNIC-E'NET*)*

   **or**

   `set port tes XNT`*xxxxxx* *(*for XNIC-T'RING*)*

   For example:

   ```
   set port tes XNE1076E3
   ```

**5** **To connect to the XNIC, enter:**

```
connect
```

**6** **When the Kermit connection screen appears, press <Enter> until the XNIC login banner is displayed.**

- **At the Enter username, or HELP> prompt, enter** *first_name*
- **At the Server> prompt enter** su
- **At the Password>> prompt, enter** system

*On certain hosts, you need to enter a Backspace keystroke before you enter the password. For example:* <Backspace> system.

The **Server>** prompt is redisplayed and you can now enter XNIC commands. See the section *"Basic XNIC Commands"* (page 3-53).

**7** **To end the TES connection, press:**

```
<Alt><X>
```

**8** **To exit from the Kermit program, enter:**

```
exit
```

## Basic XNIC Commands

The basic XNIC commands are as follows:

- **SHOW** displays the XNIC's current information. Display screens vary according to the specific SHOW parameter. The syntax is:

  `show` *parameter*

- **MONITOR** is the same as SHOW, except that the display screen is updated every 10 seconds (every 1 second in privileged mode). Press any key to exit the display. The syntax is:

  `monitor` *parameter*

- **LIST** displays the XNIC's NVRAM (non-volatile RAM) parameter settings. Display screens vary according to the specific LIST parameter. The syntax is:

  `list` *parameter*

- **SET** temporarily changes a parameter to a given value. The change is valid until you log out from the XNIC or turn OFF the printer. The syntax is:

  `set` *parameter value*

- **DEFINE** permanently changes an NVRAM parameter to a given value. You must reinitialize the XNIC for the changes to take place. Use one of the following methods to reinitialize the XNIC:

  — Use the Reset All, Reset Ethernet command (for XNIC-E'NET), or Reset Token Ring command (for XNIC-T'RING) on the printer control panel. (DocuPrint 4517 printer only)

  — Power off the printer and then turn it back on.

  — Issue an `init delay 0` command remotely.

  The syntax is:

  `define` *parameter value*

- **CHANGE** is a combination of **SET** and **DEFINE.** It immediately changes a parameter and permanently updates it in the NVRAM as well. Reinitializing the XNIC is not needed for the changes to take effect. The syntax is:

  `change` *parameter value*

- **HELP** displays instructions on the use of the various commands. The syntax is:

  `help` *commandname*

  In XNIC, Version 5.x, the Help command is not available.

Refer to the table which begins on the next page for information about the commands.

Table 3.2 *"XNIC Tasks and Commands"* lists the most useful XNIC commands, organized by task.

**Table 3.2 XNIC Tasks and Commands**

| Task | Command |
|---|---|
| Display information about the XNIC characteristics. | **show server characteristics**<br>Each parameter displayed may be altered using the appropriate SET/CHANGE/DEFINE command.<br>If you have a VT100-compatible terminal, the show server characteristics command displays a "stack" of overlapping screens which can be cycled for display with the arrow keys. |
| Display Document Services for Printing (DS/P) parameters. (Refer to the *Document Services for Printing Guide*.) | **show server dsp** |
| Display the XNIC node parameters. | **show node** |
| Display the overall network configuration, including the XNIC hardware address and the protocols currently supported. | **show server network** |
| Print Network Interface Configuration for Ethernet or Token Ring sheets | **show config port 1**<br>If DS/P is enabled this command is disabled on the XNIC. |
| Change the privileged password from the default of "system" at the prompt showing "password>". | **define server privilege password *password_2***<br>(where *password_2* is the new privileged password)<br>This command changes the 'SU' user password. |
| Disable protocols on the XNIC. | **define server authorize *protocol* disabled**<br>(where *protoco*l is one of the following: NetWare, AppleTalk, TCP/IP, LAT, NetBIOS, All, or None.) |
| Enable protocols on the XNIC. | **define server authorize *protocol* enabled**<br>(where *protoco*l is one of the following: NetWare, AppleTalk, TCP/IP, LAT, NetBIOS, All, or None.) |

**Table 3.2 XNIC Tasks and Commands** *(continued)*

| Task | Command |
|---|---|
| Change the frame type. | **define server netware *frame_type***<br>(where Ethernet *frame_type* is one of the following:<br>• *default* — IPX will try 802.2, Ethernet II, 802.3, and 802.2 snap in order. The first one found will be selected.<br>• *802.2* — IPX will only look for Ethernet 802.2 frames.<br>• *snap* — IPX will only look for Ethernet snap frames.<br>• *802.3* — IPX will only look for Ethernet 802.3 frames.<br>• *ethernet_II* — IPX will only look for Ethernet II frames.<br>(where Token Ring *frame_type* is one of the following:<br>• *default* — IPX will try 802.2 and snap in order. The first one found will be selected.<br>• *802.2* — IPX will only look for Token Ring 802.2 frames.<br>• *snap* — IPX will only look for Token Ring snap frames)<br>This command sets the frame type for the XNIC. The default is *default*. |
| Reset the XNIC remotely (soft reset). | **init delay 0** |
| Reset the XNIC to factory defaults. | **init delay 0 default** |
| Display network configuration parameters. | **show server netware** |
| Display NDS tree and context settings on the XNIC. | **list server netware** |
| Disable PSERVER. | **define server netware pserver disabled** |
| Enable PSERVER. | **define server netware pserver enabled** |
| Disable RPRINTER. | **define server netware rprinter disabled** |
| Enable RPRINTER. | **define server netware rprinter enabled** |
| Define the PServer that will attach to the XNIC RPrinter. | **define node *pserver_name* npserver**<br>(where: *pserver_name* — Is the name of the PServer that will remotely attach to the XNIC)<br>More than one npserver node may be defined. |

**Table 3.2 XNIC Tasks and Commands** *(continued)*

| Task | Command |
|---|---|
| Enable/disable Bindery Emulation or NDS modes. | **define server netware pserver *mode***<br>(where *mode* is one of the following:<br>• *auto* — Discovers through both NDS and bindery. This is the default.<br>• *disabled* — Disables PServer mode printing.<br>• *3.x* — Only discovers through bindery.<br>• *4.x* — Only discovers through NDS.) |
| Define a preferred or required NetWare file server for the XNIC. | **define node *server_name* nfserver**<br>(where *server_name* is the Novell server name to be set as either "preferred" or "required") |
| Define the file server as required. | **define server netware required enabled**<br>The printer's XNIC will only operate if the required file server is available for connection. When the required file server is down, the printer's XNIC will not come up. |
| Define the file server as preferred. | **define server netware required disabled**<br>The printer's XNIC will first try to connect to the preferred file server. If it is down, the XNIC will connect to the first available file server. |
| Specify the NDS context where PServer object exists. | **define server netware context *"context_name"***<br>Enclose the *context_name* where the PServer object exists in quotes. The default is no context. To clear, enter " " in its place. |
| Specify the NDS tree where PServer object exists. | **define server netware nds *"tree_name"***<br>Enter the NDS *tree_name* where the printer server is located, enclosed in quotes. The default is no NDS tree name. To clear, enter " " in its place. |
| Disable the NetWare Forms feature. | **define service netware forms disabled**<br>The default is enabled<br>If the NetWare Forms on the file server is set to other than the default value of 0 for your printer, it is recommended to disable this feature on the XNIC for optimal operation. |

**Table 3.2 XNIC Tasks and Commands** *(continued)*

| Task | Command |
|---|---|
| Define the printer's IP address for TCP/IP. | **define server ip *ddd.ddd.ddd.ddd***<br>(where *ddd.ddd.ddd.ddd* is the new IP address of the printer.) |
| Redefine the subnet mask | **define server subnet *mmm.mmm.mmm.mmm***<br>(where *mmm.mmm.mmm.mmm* is the subnet mask for the network.) |
| Define gateway address. | **define node ip *ggg.ggg.ggg.ggg* gateway default**<br>(where *ggg.ggg.ggg.ggg* is the address of the default router for the printer's network segment) |

# Installing the Printer Driver

Your printer requires the installation of two types of software before printing can begin. The first is a PostScript printer driver that is optimized for use with many different Xerox printers. The second is known as a PostScript Printer Description (PPD) file and is written to take advantage of your printer's unique printing capabilities.

To install the printer driver, follow the steps below.

1. **Insert the OnPage II™ for Xerox Printers diskette into your Macintosh.**

2. **When the window appears, double-click on the OnPAGE™ II installation icon.**

   The credits screen will appear.

3. **Click the Continue button to enter the installer section.**

   An installation "Notes screen" will appear describing the various installation options available along with any late breaking news about the installation procedure.

4. **Click the Continue button.**

   The software install screen appears.

5. **For a complete installation, select All Software from the menu.**

6. **Click the Install button.**

   The following automatic sequence takes place:

   - The OnPAGE™ II driver and the OnPAGE™ FAX (and OnPAGE™ II/s if available) module(s) are placed in the Extensions folder in the System folder.
   - A "PPD Folder" is created in the System folder.
   - An "OnPAGE™ Extras" folder is created on the desktop. Contained in this folder are the "OnPAGE™ Printer Utility," the "OnPAGE™ FAX Utility," the (optional) "Echo" (serial) configuration utility, OnPAGE™ "Addendum" files (late breaking news) and any vendor (printer specific "Notes").

**Note**

*If you wish to rename your printer, it should be done before selecting the driver in the Chooser. See "Customizing a Printer Service" (page 4-7).*

*The default name of your printer in an AppleTalk environment can be changed only from a Macintosh. You can not use Xerox DS/P, TES, or Telnet to rename an AppleTalk printer.*

## Accessing a Remote Printer

The XNIC is preconfigured with AppleTalk services. Use the following procedure to access your printer on an AppleTalk network.

If your Macintosh is connected to more than one type of network, you may need to select the appropriate network before you can access your printer's XNIC card.

1. **Select Control Panels from the Apple menu.**
2. **Double-click the Network icon.**
3. **If the EtherTalk or TokenTalk icon isn't already selected, click on the appropriate icon.**
4. **Click OK.**
5. **If your network administrator has divided your AppleTalk network into zones, another dialog box will appear. Select the appropriate zone for your computer.**
6. **Verify that you are connected to a Phase 2 AppleTalk network and that PostScript is installed in the printer.**
7. **Select Chooser from the Apple menu.**
8. **Click the OnPage icon (or the LPS equivalent).**
9. **If the AppleTalk Active button isn't already on, click the Active button to turn AppleTalk ON, and restart your computer.**
10. **If your network administrator has divided your AppleTalk network into zones, click the zone that includes your printer.**

    **All of the AppleTalk printers that are on your network (or in the current zone) will appear in a list box. Select the name of your printer.**
11. **Click the Setup button.**

**12** **Choose the PostScript Printer Definition (PPD) utility that corresponds to your printer.**

**13** **Close the Chooser and return to your application.**

The computer will indicate that you have changed your current printer.

**14** **Click OK to return to your application.**

## Customizing a Printer Service

To change the AppleTalk configuration of your printer server, use the OnPage utility. This utility is in a folder named "OnPage Extras" and can be installed when the OnPage driver is installed. The utility has the following functions:

- Receive printer information
- Retrieve the printer's font list
- Download a PostScript file
- Download PostScript fonts to the printer
- Rezone a printer on an AppleTalk network
- Rename a printer

The instructions for these functions are contained in the OnPage documentation which comes with the driver.

**Caution**

**If combinations of network interface cards are installed in the printer, be aware that any changes to the printer name, printer device type and zone name will propagate through all AppleTalk capable cards (i.e., Ethernet, LocalTalk and Token Ring). However, the change may not propagate to the other installed XNICs until the printer is powered on.**

## EtherTalk or TokenTalk Problems

If your Macintosh jobs will not print and an "Out of memory" message is displayed on the Mac screen, an incorrect printer type was selected under the "Chooser" menu. The OnPage or LaserWriter printer type should be selected.

## Installing a Macintosh Printer on Ethernet or Token Ring

To install a Macintosh printer on your network, select EtherTalk or TokenTalk from the Chooser, then set up the printer.

## Selecting EtherTalk or TokenTalk

1. **Select the Apple Icon from the menu bar at the top of the screen.**
2. **Select the Control Panel option.**
3. **Select Network.**
4. **Select EtherTalk or TokenTalk.**

## Setting up the Printer

1. **Select Chooser from the Apple menu.**
2. **Click the OnPage icon (or the LPS equivalent).**
3. **If the AppleTalk Active button isn't already on, click the Active button to turn AppleTalk ON, and restart your computer.**
4. **If your network administrator has divided your AppleTalk network into zones, click the zone that includes your printer.**

   All of the AppleTalk printers that are on your network (or in the current zone) will appear in a list box.
5. **Select the name of your printer.**
6. **Click the Setup button.**
7. **Choose the PostScript Printer Definition (PPD) utility that corresponds to your printer.**
8. **Close the Chooser and return to your application.**

   The computer will indicate that you have changed your current printer.
9. **Click OK to return to your application.**

## Overview

The UNIX operating system comes in many different varieties. The following environments are supported:

- AT&T SYSTEM V releases 3.2 and 4.0
- Hewlett-Packard HP-UX releases 8.05 and 9.0
- IBM AIX releases 1.0, 3.1, 3.2.5, and 4.1
- INTERACTIVE UNIX System V/386 release 3.2
- SCO UNIX release 3.2
- SOLARIS releases 1.1, 2.2, 2.3, and 2.4
- SunOS releases 4.0, 4.1, 4.1.1, and 4.1.3
- DEC ULTRIX-32 releases 3.0, 4.0, and 4.3
- UNIXWare 2.01

## Installation

Installing a networked printer in the UNIX environment under TCP/IP requires these operations:

1. Setting up an IP address on the XNIC
2. Setting up print queues on the host system.

These procedures are discussed below.

### Setting up an IP Address on the XNIC

The IP address can be set by one of these methods:

- **Automatic installation**: Performed by using the user-friendly *Enstall* program contained on the UNIX Installation Utility diskette.
- **Manual installation**: Performed using one of these programs:
  - — ARP/PING (from UNIX, LAN Server, and Windows NT)
  - — BootP (from UNIX)
  - — DHCP (from UNIX and Windows NT)
  - — RARP (from UNIX)
  - — Telnet to change an existing IP address (from UNIX, LAN Manager, LAN Server, and Windows NT)
  - — The TES utility, available on the *Utilities for: LAN Server, LAN Manager, Novell NetWare (TES)* diskette, if Novell co-exists with the networks
  - — The NCP utility if DEC LAT co-exists with the networks.

Refer to the appropriate network chapters in this manual for specific instructions on using these programs in your printing environment.

The XNIC is shipped from the factory with these defaults:

- IP address = none
- Subnet mask = none (computed and saved dynamically once the IP address is assigned)
- Gateway = none

**Note**

*XNIC Version 5.x no longer supports the pre-configured default IP addresses of 138.239.254.253 for Ethernet and 138.239.254.252 for Token Ring.*

*When the printer is powered on without the network cable attached to the XNIC, the IP address will remain at "none" or at a previously set value.*

**Note**

*If, for some reason, the XNIC has an IP address that can not be accessed remotely from the network (for example, maybe you moved the printer to another location), the XNIC IP address can be reset to the factory default of "none", using one of these methods:*

- *Before the printer is moved, Telnet to the XNIC and set the IP address to None. Refer to Table 5.2 "XNIC tasks and commands" (page 5-39).*
- *Issue an "init delay 0 default" command remotely via TES in Novell (refer to Table 3.2 on page 3-55) or via NCP in DEC LAT (refer to Table 6.1 on page 6-9).*
- *Reset via a hardware jumper switch on the XNIC. Refer to "Resetting the XNIC to the Factory Defaults" (page 11-7).*

## Setting up Print Queues on the Host System

Print queues can be configured on the host system using one of the following methods:

- **Automatic installation**: Performed with the user-friendly *Enstall* program contained on the *UNIX Installation Utility* diskette.
- **Manual installation**: Performed by using one of these two methods:
  - — The *lpd* print protocol that is native on BSD hosts
  - — The *rprint* program supplied on the *UNIX Installation Utility* diskette for either BSD or System V hosts.

**Note**

*The XNIC does not support UNIX FTP (File Transfer Protocol).*

We recommend that you use the *Enstall* program both to automatically set the IP address on the XNIC and to set up print queues on the host. Refer to *"Automatic Installation Procedure"* (page 5-8).

However, if you prefer to set the IP address on the XNIC and to set up print queues on the host manually, refer to *"Manual Installation Procedure"* (page 5-12).

## Network Considerations

UNIX TCP/IP systems require:

- Support for *lpd* or *rprint* (Xerox-supplied)
- Client support of TCP/IP, TELNET, and UDP.

## XNIC Requirements

- XNIC versions 4.x, 5.x, or above
- The UNIX Installation Utility diskette.

## Printer Language Settings

Refer to Table 5.1 for the correct printer language settings.

**Table 5.1 Printer language settings**

| If your system is… | And you want to print… | At the host, set the printer model to… | At the printer, set System Language to… |
|---|---|---|---|
| AIX | PCL | hpjl-3si | PCL or PostScript |
| | PostScript | PostScript | PCL or PostScript<br>(Do not send header or trailer pages if set to PCL.) |
| HP | PCL | PCL1 | PCL or PostScript |
| | PostScript | PostScript | PCL or PostScript |
| Solaris 2.3 | PCL | none | PCL or PostScript |
| | PostScript | none | PCL or PostScript |

# Automatic Installation Procedure

Automatic installation is performed by a program called *Enstall*. The user-friendly *Enstall* program automatically:

- Installs the required files on your UNIX system,
- Allows you to enter an IP address for your XNIC, if the XNIC does not already have one, and
- Configures the print queues on the host for network printing.

**Note**

*Enstall will not work if the printer and the workstation on which Enstall is running are on different network segments.*

*A minimum of five to ten megabytes of disk space is required on the UNIX system to accommodate the Enstall software and spool queues.*

*Enstall* supports installation of pre-compiled host utilities for the following UNIX systems making the installation quicker and less sensitive to system variations:

- AT&T SYSTEM V releases 3.2 and 4.0
- IBM AIX release 4.1
- SCO UNIX release 3.2
- SOLARIS releases 2.2, and 2.3
- SunOS releases 4.0, 4.1, 4.1.1, and 4.1.3.

If your system is not listed above, the system is required to have a C compiler to enable *Enstall* to compile the *RPRINT.C* and *TELRCF.C* files also included on the *UNIX Installation Utility* diskette.

**Caution**

**If you are unsure of whether or not your UNIX host is 100% hardware and software compatible with the supplied pre-compiled host utilities, you should compile the utilities on your host.**

**Note**

*Do not install the Xerox printer drivers that are supplied with your printer before finishing the 'Enstall' installation for network printing.*

**Note**

*For complete installation procedures for the SUN environment, refer to Appendix B, at the back of this configuration guide.*

## Initial Installation

The following procedures allow you to install the *Enstall* program and to use it to create a print queue on your host spooling system the first time:

1. **Log on as `root` at the system prompt.**

2. **Insert the UNIX Installation Utility diskette into your floppy drive.**

3. **Change to the working directory where you wish to install the files.**

4. **At the system prompt, enter the command:**

   `tar xvf device_name ./xrx`

   where *`device_name`* refers to the drive in which the diskette is inserted, and *`xrx`* is the subdirectory into which the files are to be installed.

   For example:

   ```
   tar xvf /dev/fd0 ./xrx
   ```

   Or:

   ```
   tar xvf /dev/rdiskette ./xrx
   ```

   This installs the files in the *xrx* subdirectory of the current working directory.

5. **Enter the commands:**

   ```
   cd xrx
   ./enstall -s
   ```

6. **Read and follow the instructions on the screen.**

7. **When you are asked to enter the device full path and file specification of your distribution medium, type the name of your floppy drive.**

   For example:

   ```
   /dev/fd0, /dev/rdiskette
   ```

8. **When you are asked to which LAN Hardware Interface the Xerox servers will be connected, enter your Ethernet or Token Ring device name.**

   For example:

   ```
   le0, tr0, hm0
   ```

9. **If your XNIC has not been assigned an IP address, enter a new IP address when asked to do so.**

10. **When asked to enter the printer model, refer to Table 5.1 to find the correct value.**

11. **After completing the installation of a print queue on your host spooling system, the XNIC is ready for use on the UNIX TCP/IP network.**

12. **If necessary, you can now install the Xerox printer driver supplied with your printer.**

13. **If necessary, repeat this procedure for each UNIX system that requires access to the printer.**

## Adding or Removing Print Queues

After the initial installation of the *Enstall* program, follow these instructions either to add another print queue to the same host system or to delete an existing one:

1. **Log on as `root` at the system prompt.**
2. **Go to the xrx directory on your hard disk.**
3. **Enter:**

   ```
   cd./xrx
   ./enstall -m
   ```

4. **Read and follow the instructions on the screen.**

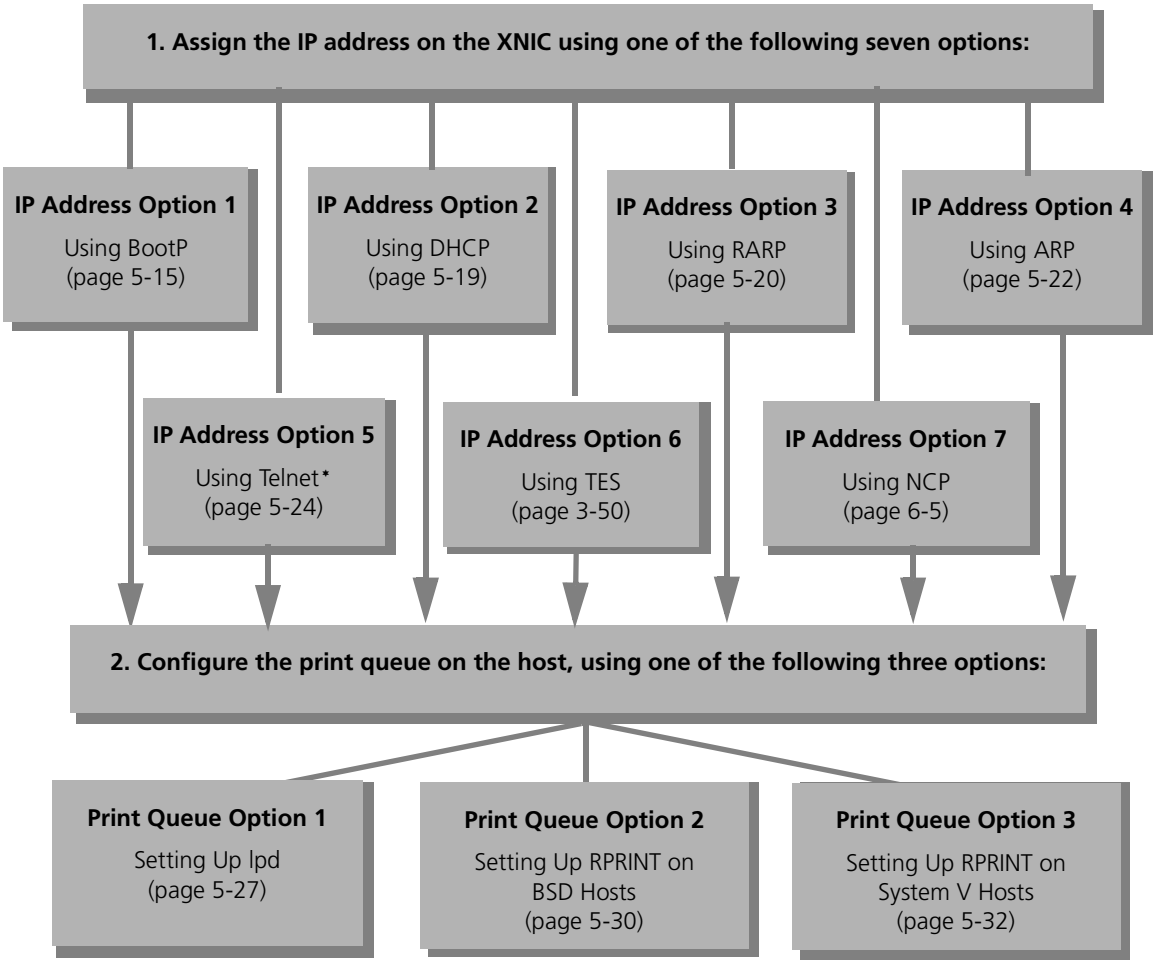
# Manual Installation Procedure

If you wish to install the Xerox printer manually, you must assign the IP address, configure some system files, and then configure the print queue.

Assigning the IP address is easiest if you have the BootP (Bootstrap Protocol), DHCP (Dynamic Host Configuration Protocol), or RARP (Reverse Address Resolution Protocol) daemon running on your network.

You may also use the standard UNIX ARP command to assign the IP address. Figure 5.1 shows the options for manual installation.

**Figure 5.1 Manual installation procedures**




*Telnet requires an initial IP address, and can be used to change an existing IP address.

.

**Note**

*In the following procedures, if the* /etc/ethers *or* /etc/hosts *file on your host is administered by NIS (formerly, Yellow Pages), you must update the appropriate NIS master hosts database instead.*

## BootP, DHCP, and RARP Parameters

When the printer is powered on, the default sequence of IP address acquisition is to attempt BootP first. If BootP fails, attempt DHCP. If DHCP fails, attempt RARP.

Using the following three commands will define how many times the XNIC printer server will attempt BootP, DHCP, and RARP.

- define server bootp n m
- define server dhcp n m
- define server rarp n m

These commands can also be used to disable BootP, DHCP, or RARP on the XNIC. They are detailed in Table 5.2 on page 5-39.

These commands can be issued remotely by:

- Telnet. Refer to page 5-39.
- TES in Novell. Refer to *"Remote Logging into the XNIC via TES"* (page 3-50)
- NCP in DEC LAT (Refer to *"Logging into the XNIC"* (page 5-35).

## IP Address Option 1: Using BootP

### Overview

BootP (Bootstrap Protocol) is a service provided under TCP/IP. XNIC versions 4.14 and above support BootP with the default being enabled.

When the printer is powered on, the XNIC attempts BootP requests as follows:

- Two requests are attempted if the IP address is unknown on the XNIC
- No requests are attempted if the IP address is known on the XNIC.

If a BootP server on the network is configured to accept BootP requests from a target XNIC, the following information can be sent from the BootP server to the XNIC:

- Server IP Address
- Server Subnet Mask
- Server Network Load Path Name and File Name
- Host IP Address
- Gateway IP Address
- Time Server IP Address
- Domain Name Server IP Address
- Server Node Name
- Server Domain Name

No initial configuration settings are required to enable BootP on the XNIC.

**Note**

*To configure the BootP server on your network, and to edit the BootPTAB file with the appropriate information, refer to your UNIX documentation.*

*To begin the BootP procedure, the IP address on the XNIC must be "none".*

## Installing the BootP Server on the Same Segment

**1** **Identify which UNIX platform will be the BootP server.**

**2** **Check to be sure that TCP/IP is running on the server:**

```
ps -ef | grep inetd
```

If TCP/IP is not running do not continue until you have TCP/IP running. BootP will not work until TCP/IP is running, as it is activated by the inetd (internet daemon).

**3** **Check to see if the BootPd is running:**

```
ps -ef | grep BootPd
```

If the BootPd is not running, you need to uncomment a line in the /etc/inetd.conf file. There will be a line with the beginning string of BootPd or BootPs. Uncomment that line.

**4** **Add entries into the BootPTAB file. Use an editor and edit the /etc/BootPTAB file.**

An example of what a BootPTAB file may look like on your UNIX System under the /etc directory follows:

```
ClientName:ht=ether:ha=000812342A7B:ip=13.241.4.10:
PrinterName:ht=tr:ha=00012A3B4D22:ip=13.241.4.22:
XeroxPrinter:ht=ether:ha=1234567890AB:ip=13.241.4.44:\
  :hd=/usr/tftpboot:bf=XNE10068:
```

The first field is the name that you want the BootP client (the XNIC) to be called. The colon separates each identifier and the slash is a line continuation.

The XNIC hardware address is listed on the Printer Configuration Sheet. Refer to page 1-11 for instructions on printing the configuration sheet.

Add the XNIC hardware address to the /etc/BootPTAB file with an IP address that you want to assign. Also include the hardware type as “ether” or “tr”.

## Installing the BootP Server on a Different Segment and Using a Router

1. **Perform Steps 1 through Step 4 beginning on page 5-16.**

2. **Determine which router is between the BootP server and the BootP client (XNIC).**

3. **Telnet into the above router and enable BootP service. This will allow the BootP request to be passed from the router.**

4. **While still logged in on the router, specify the address of the BootP server or the network segment where a BootP server can be found.**

5. **On the UNIX Platform that serves as the BootP server, be sure you include the routing path to the router by using the UNIX command:**

   `route add host` *`router_IPaddress host_IPaddress`*

   For example:

   ```
   route add host 200.1.106.11 200.1.106.4
   ```

6. **Verify that the routing path is valid with the following UNIX command:**

   ```
   netstat -r
   ```

7. **Verify the communication to the router by Pinging to the router using this format:**

   `ping` *`router's IP address`*

   For example:

   ```
   ping 200.1.106.11
   ```

## Verifying BootP Operation on the XNIC

1. **Power on the printer so that it can send a BootP request on the network.**

2. **Verify that the XNIC received the IP address by entering**

   ```
   arp -a
   ```

   **on the UNIX machine.**

   This will show you the entries made into the ARP Static Table.

3. **You can also verify that the printer received the IP address by printing out a Printer Configuration Sheet. Refer to page 1-11 for instructions on printing the configuration sheet.**

Next you will need to configure the print queue, using one of the following three options:

- *"Print Queue Option 1: Setting up lpd"* (page 5-27)
- *"Print Queue Option 2: Setting up RPRINT on BSD Hosts"* (page 5-30)
- *"Print Queue Option 3: Setting up RPRINT on System V Hosts"* (page 5-32).

## IP Address Option 2: Using DHCP

If the UNIX host is configured as a DHCP server, the IP address is assigned automatically. Refer to your UNIX documentation to configure your DHCP server on the network.

**Note**

*The XNIC must be configured as "reserved" client by the host DHCP administration facility. This guarantees that an IP address assigned by DHCP will be reserved exclusively for that printer through its LAN hardware address.*

*To begin the DHCP procedure, the IP address on the XNIC must be "none".*

*The workstation that has DHCP running on it and the printer that you wish to assign a new IP address to must be on the same network segment.*

Next you will need to configure the print queue, using one of the following three options:

- *"Print Queue Option 1: Setting up lpd"* (page 5-27)
- *"Print Queue Option 2: Setting up RPRINT on BSD Hosts"* (page 5-30)
- *"Print Queue Option 3: Setting up RPRINT on System V Hosts"* (page 5-32).

## IP Address Option 3: Using RARP

To determine if RARP is running on your host, enter:

```
ps -ax | grep rarpd      (BSD)
```

or

```
ps -ef | grep rarpd      (System V)
```

**Note**

*If the system does not display a process number for the RARP daemon, skip to the section "IP Address Option 4: Using ARP" (page 5-22).*

*To begin the RARP procedure, the IP address on the XNIC must be "none".*

If RARP is running on your host, proceed as follows:

**1** **Edit the file** */etc/ethers* **(or** */usr/etc/ethers***) by adding a line that describes the XNIC as follows:**

*00:00:c9:xx:xx:xx  server_node_name*

where *00:00:c9:xx:xx:xx* represents the XNIC-E'NET hardware address, or *00:00:93:xx:xx:xx* represents the XNIC-T'RING hardware address.

The default *server_node_name* is XNE*xxxxxx for* XNIC-E'NET, or XNT*xxxxxx for* XNIC-T'RING where *xxxxxx* is the last six characters of the XNIC hardware address.

**For example, if the Ethernet hardware address is 00-00-c9-88-E8-29, enter the following line in the** *ethers* **file:**

*00:00:c9:88:E8:29 XNE88E829*

**If the Token Ring hardware address is 00-00-93-10-76-E4, enter the following line in the** *ethers* **file:**

*00:00:93:10:76:E4 XNT1076E4*

*You may change the server node name to a more convenient name if desired. Refer to the section "Setting Optional Configurations" (page 5-35).*

**2** **Edit the file** */etc/hosts* **(or** */usr/etc/hosts***) by adding a line describing the XNIC as follows:**

```
ddd.ddd.ddd.ddd    server_node_name
```

where *ddd.ddd.ddd.ddd* is the IP address that the XNIC is assigned. The *server_node_name* must match the name entered in the */etc/ethers* file.

For example, if the IP address is 138.239.111.111, enter:

```
138.239.111.111    XNE88E829
```

*On some systems, such as those using a Domain Name Service, you may have to update the NIS master hosts database. Update the DNS database instead of /etc/hosts in this case.*

**3** **Power the printer off, then power it on.**

**When the XNIC is restarted, the UNIX host receives the RARP request from the XNIC and sends the IP address in the** */etc/hosts* **file to the XNIC, which then stores it in memory.**

**4** **Verify the newly assigned IP address on the XNIC by printing a Printer Configuration sheet. Refer to page 1-11 for instructions on printing the configuration sheet.**

**Caution**

**Be sure to write down the new IP address. Without it, you will not be able to locate the printer on the network.**

Next you will need to configure the print queue, using one of the following three options:

- *"Print Queue Option 1: Setting up lpd"* (page 5-27)
- *"Print Queue Option 2: Setting up RPRINT on BSD Hosts"* (page 5-30)
- *"Print Queue Option 3: Setting up RPRINT on System V Hosts"* (page 5-32).

## IP Address Option 4: Using ARP

This method offers a convenient means of assigning an IP address on the XNIC. The ARP command is standard on all UNIX platforms, although its syntax may vary from one system to another. You will need the XNIC's hardware address and the IP address you wish to assign for this procedure.

**Note**

*To begin the ARP procedure, the IP address on the XNIC must be "None".*

*The workstation you will be issuing the ARP/PING commands from and the printer you wish to assign a new IP address must be on the same network segment.*

If ARP is running on your host, proceed as follows:

1. **Logon to your UNIX host as root user.**

2. **Issue the ARP command.**
   **On most UNIX platforms, the syntax is:**

   `arp -s` *`ddd.ddd.ddd.ddd xx:xx:xx:xx:xx:xx`*

   where *`ddd.ddd.ddd.ddd`* is the newly assigned IP address in decimal dot notation and *`xx:xx:xx:xx:xx:xx`* is the XNIC hardware address in hexadecimal notation.

   *Do not use leading zeros in the IP or XNIC hardware address.*

   For example:

   ```
   arp -s 126.16.1.2 0:0:c9:0:80:2a
   ```

   On AIX, you need to include an additional argument to indicate which type of LAN interface is being used (Ethernet or Token Ring).

   For Ethernet, the command is:

   arp -s *HostName ddd.ddd.ddd.ddd* xx:xx:xx:xx:xx:xx

   For example:

   ```
   arp -s ether 126.16.1.2 0:0:c9:0:80:2a
   ```

On some systems, such as AT&T System V, the ARP command is implemented as "arpbypass" with the following syntax:

```
arpbypass -f1 set ddd.ddd.ddd.ddd
 0xnn.0xnn.0xnn.0xnn.0xnn.0xnn.0xnn
```

where the nn's are hexadecimal digits.

For example:

```
arpbypass -f1 set 126.16.1.2
 0x0.0x0.0xc9.0x0.0x8.0x2a
```

**3** **From the UNIX command prompt, enter:**

`ping ddd.ddd.ddd.ddd`

where *ddd.ddd.ddd.ddd* is the newly assigned IP address.

You should see response packets from the XNIC displayed on your screen. Your XNIC now has the new IP address in its memory.

If there is no response, even after a few minutes, type the command interrupt key (usually `<Ctrl><C>`) to stop the `ping` command and check your network setup.

Next you will need to configure the print queue, using one of the following three options:

- *"Print Queue Option 1: Setting up lpd"* (page 5-27)
- *"Print Queue Option 2: Setting up RPRINT on BSD Hosts"* (page 5-30)
- *"Print Queue Option 3: Setting up RPRINT on System V Hosts"* (page 5-32).

## IP Address Option 5: Using Telnet

On previous XNIC versions, the default IP address was 138.239.254.253 for Ethernet or 138.259.254.252 for Token Ring. These defaults have been eliminated in XNIC Version 5.x to avoid confusion. The default IP address of the XNIC is "None".

Telnet can be used only if the XNIC has already been assigned an IP address using one of the other options. Telnet will allow you to change an existing IP address.

**Note**

*The IP address, subnet mask, and routing table can be set up through the telnet utility, provided that the printer can be accessed from a workstation on the same network segment. This procedure will NOT work if the printer is on a different network, which may be the case if you are using subnetting to divide your network. An example explaining how to install a printer on a network with subnetting is provided in Appendix A.*

**1** **Print a Printer Configuration Sheet to identify the IP address of the printer.**

If the IP address is "none", then use one of the other options to set the address for the first time. If the configuration sheet lists a value for the IP address, you can continue using Telnet.

**2** **Set up a routing table on the UNIX workstation, if needed. Otherwise, move ahead to step 3.**

On the UNIX workstation, enter:

```
route add host yyy.yyy.yyy.yyy
    aaa.aaa.aaa.aaa 0
```

(where *yyy.yyy.yyy.yyy* is the XNIC IP address shown on the Printer Configuration Sheet and *aaa.aaa.aaa.aaa* is the IP address of the UNIX workstation).

*You may check the routing table by entering:*
`netstat -r.`

**3** **Login to the XNIC card on the printer through telnet by entering:**

`telnet` *`yyy.yyy.yyy.yyy`* `2048`

(where *`yyy.yyy.yyy.yyy`* is your printer's XNIC IP address)

The port number "2048" is important for proper terminal emulation.

**4** **At the "#" prompt enter** `access`

This password "access" will not appear on the screen.

**5** **At the Local> prompt, enter** `su`

**6** **At the Password>> prompt enter** `system`

This password will not appear on the screen.

*On certain hosts, you must press the Backspace key before you can enter the password.*
*For example:* <Backspace> `system`

**7** **Redefine the printer's IP address by entering:**

`define server ip` *`ddd.ddd.ddd.ddd`*

where *`ddd.ddd.ddd.ddd`* is the new IP address you wish to assign the printer.

**8** **If necessary, redefine the subnet mask (if your network uses subnet routing). Otherwise skip to Step 9.**

**To redefine the subnet mask, enter:**

`define server subnet` *`mmm.mmm.mmm.mmm`*

(where *`mmm.mmm.mmm.mmm`* is the subnet mask for the network).

**9** **Define routing tables in the XNIC card if the printer needs to know the address of routers in the network. Otherwise skip to the next step.**

**Enter:**

```
define node ip ggg.ggg.ggg.ggg gateway
    default
```

(where *ggg.ggg.ggg.ggg* is the address of the default router for the printer's network segment).

**10** **To enable the parameters set above, reset the XNIC by entering:**

```
init delay 0
```

**11** **Log out of the XNIC by entering:**

```
logout
```

**12** **Update the file** */etc/hosts* **(or** */usr/etc/hosts***) on your UNIX system by adding a line describing the XNIC as follows:**

*ddd.ddd.ddd.ddd  server_node_name*

where *ddd.ddd.ddd.ddd* is the new IP address you assigned in Step 7.

For example, if the IP address is 138.239.111.111, enter:

```
138.239.111.111   XNExxxxxx
```

**Caution**

**After you change an existing IP address, be sure to write down the new IP address. You will need it in order to locate the printer on the network.**

Next you will need to configure the print queue, using one of the following three options:

- *"Print Queue Option 1: Setting up lpd"* (page 5-27)
- *"Print Queue Option 2: Setting up RPRINT on BSD Hosts"* (page 5-30)
- *"Print Queue Option 3: Setting up RPRINT on System V Hosts"* (page 5-32).

## Print Queue Option 1: Setting up *lpd*

Follow this procedure to use the native *lpd* print protocol on a BSD host with the XNIC. Exact syntax may vary from one UNIX system to another. First, determine if *lpd* is supported on your system by entering:

```
ps -ax | grep lpd
```

**Note**

*The* lpd *service is only defined for port 1 on the XNIC. This 'port' is the interface between the XNIC and the printer controller board.*

*If the system does not return a process number for* lpd*, you must use* rprint *as described in the section "Print Queue Option 2: Setting up RPRINT on BSD Hosts" (page 5-30)*

If *lpd* is supported, proceed as follows:

**1** **On your host, check to see if an error log exists. If not, create it. Then edit the** */etc/printcap* **file to contain an entry similar to the following:**

```
XRX_PCL|Xerox4505|XNIO port:\
    :lp=:\
    :rm=node_name:\
    :rp=queue_name:\
    :mx#0:\
    :lf=/usr/spool/lpd/errorlog:\
    :sd=/usr/spool/lpd/xrx_pcl:
```

where `XRX_PCL` is the printer name, `node_name` is the machine name for the remote printer, and `queue_name` is the queue name. Valid queue names are:

- TEXT - Adds a carriage return after each linefeed in the file. Use this queue for standard document files.
- PASSTHRU - Passes the file directly to the printer without modification. Use this queue for binary files such as PostScript, PCL, and HPGL, as well as screen dumps and graphics.

*If the TEXT queue is used, PostScript and HPGL files cannot be sent using this entry. However, a second printer definition can be used for PostScript and/or HPGL files.*

**2** **Create the spooling directory. For example:**

```
mkdir /usr/spool/lpd/xrx_pcl
```

**3** **Add the server's node_name to the** */etc/hosts* **file. The node_name must match the name entered in the printcap file in step 1.**

For example:

```
138.239.111.111        node_name
```

Be sure that *node_name* is the same name you entered in the */etc/printcap* file in step 1.

*Update the DNS database instead of /etc/hosts if the system uses a Domain Name Service.*

**4** **Start the printer queue by entering:**

```
lpc start printer_name
```

**5** **To print via the spooler, use the command:**

```
lpr -Pprinter_name file_name
```

Refer to your host system documentation for a list of spooler commands.

## Print Queue Option 2: Setting up RPRINT on BSD Hosts

Follow this procedure to configure your BSD host with *rprint*, so that it can initiate a print job.

**Note**

*A C compiler is required to perform this procedure, or you may use one of the pre-compiled binary sets on the UNIX Installation Utility diskette (if applicable).*

**1** Using the compiler, *tar* **the Xerox utility** *rprint.c* **from the UNIX Installation Utility diskette to your host system and change to the subdirectory where it is loaded (for example,** */usr/xrx***).**

**2** **Edit the file** *environ.h* **to reflect the appropriate system type.**

The following are typical system parameters for Sun SparcStations:

```
#define SOCK   1
#define SYSV   0 (0 because a BSD system)
#define LING   1
#define ROBUST 1
```

**3** **Compile and link** *rprint.c* **by entering the command (your compiler commands may differ):**

```
cc rprint.c -o rprint
```

**4** **Create a dummy device file with the following commands:**

```
touch /dev/xrx
chown daemon /dev/xrx
chmod 666 /dev/xrx
```

where *xrx* is the name of the printer.

*Some systems may also require a* chgrp *command. Refer to your system manuals.*

**5** **Create the directory for the spooled files.**

For example:

```
mkdir /usr/spool/xrx
chown daemon /usr/spool/xrx
chmod 666 /usr/spool/xrx
```

where *xrx* is the name of the spooler.

**6** **Edit** */etc/printcap* **to add an entry for the Xerox printer.**

For example, the following entry defines a printer with the PostScript option, on the XNIO port (port 1, TCP port 2501), the rprint program residing in the usr/xrx directory, and the spooler residing in the usr/spool/xrx directory.:

```
xrx|xrx|XNIO printer:\
:lp=/dev/xrx:\              (dummy device name)
:sd=/usr/spool/xrx:\        (dir for spooled files)
:of=/usr/xrx/rprint:\ (location of rprint program)
:xrx_n=138.239.111.111:\     (server IP address)
:xrx_p=2501:\                (TCP port number)
```

The following additional entries are recommended for PostScript printers:

```
:mx#0:\                      (unlimited buffer space)
:sh:\              (suppress burst page headersheet)
:sf:\                         (suppress form feeds)
:xrx_text=disable:        (required for PostScript)
```

*The last line should not end with the backslash (\). All preceding lines do.*

**7** **Initialize the new spool device. For example:**

```
lpc start xrx      (printer name in printcap file)
```

**8** **Print a PostScript test file using a command similar to the following:**

```
lpr -Pxrx ps_file
```

## Print Queue Option 3: Setting up RPRINT on System V Hosts

Follow this procedure to configure your System V host so that it can initiate a print job:

**Note**

*A C compiler is required to perform this procedure, or you may use one of the pre-compiled binary sets on the UNIX Installation Utility diskette (if applicable).*

1. Using the compiler, *tar* **the Xerox utility** *rprint.c* **from the UNIX Installation Utility diskette to your host system and change to the subdirectory where it is loaded (for example,** */usr/xrx***).**

2. **Edit the file** *environ.h* **for the appropriate system type.**

   The following are typical system parameters for a generic System V system:

```
#define SOCK    1  (0 if sockets are not supported)
#define SYSV    1  (1 because System V UNIX)
#define LING    1
#define ROBUST  1
#define PRINTCAP "/usr/xrx/printcap"
```

3. **Compile and link** *rprint.c* **as follows:**

   (your compiler commands may differ)

```
cc rprint.c -o rprint
```

**4** **Edit the */usr/xrx/printcap* file to include an entry for the Xerox printer(s).**

*If you are using the rprint precompiled binary, the printcap file must be in the* `/etc` *directory.*

For example, the following entry defines a printer on the XNIO port (port 1, TCP port 2501):

```
xrx_pcl|xrx_1|XNIO printer:\
   :lp=xrx_pcl:\          (dummy device name)
   :xrx_n=138.239.111.111:\   (IP address)
   :xrx_p=2501:             (TCP port number)
```

If this printer will be used for PostScript or graphic image files, include the following line in the printcap entry:

```
   :xrx_text=disable:\
```

**5** **Edit the printer interface script file. First copy the sample Xerox printer interface file, *lp_dumb*, to another file that corresponds to the printer name you selected.**

For example:

```
cp lp_dumb lp_xrx_pcl
```

**6** **Edit the *lp_xrx_pcl* file to specify the correct path to the rprint program. Assuming that the rprint program is kept in */usr/xrx*, enter the second to the last line of the *lp_xrx_pcl* file as follows:**

*(shell commands)*

```
| /usr/xrx/rprint `basename $0` $1 $5
exit $?
```

If you are familiar with UNIX bourne shell script programming, you can edit the *lp_xrx_pcl* file and modify the banner page that precedes the printed output to suit your needs.

**7** **Install the printer into the System V spooler system. Before shutting down the spooling system, check to see that there are no print jobs running (enter:** `lpstat -o printer_name`**).**

**If jobs are running, wait until they are completed. Then, enter the following:**

```
/usr/lib/lpshut

/usr/lib/lpadmin -pxrx_pcl   -v/dev/null
  -i/usr/xrx/lp_xrx_pcl

/usr/lib/lpsched

/usr/lib/accept xrx_pcl

enable xrx_pcl
```

**8** **To make the printer the default system printer, enter:**

```
/usr/lib/lpadmin -dxrx_pcl
```

**9** **Test the printer spooler operation by entering:**

```
lp -dxrx_pcl test.dat
```

If the host is configured correctly, a banner page and the contents of the *test.dat* file will be printed.

If the test fails, check to see if the printer is in proper emulation mode, or refer to your UNIX system administration manual for information on printer spooler operation.

# Setting Optional Configurations

This section describes optional procedures for communicating with the XNIC to monitor system parameters or to change the parameters from their factory defaults.

## Logging into the XNIC

To monitor or change configuration parameters on the XNIC, you must first login to the XNIC from your host.

**Note**

*The permanently-set IP address on your printer must be set at a value other than "none" for you to be able to perform these instructions.*

*To use Telnet, the workstation or host must be on the same network segment as the printer.*

Use the following procedure to login to the XNIC from your host:

1. **Login to the XNIC using the following command:**

   `telnet` *`ddd.ddd.ddd.ddd 2048`*

   where *`ddd.ddd.ddd.ddd`* is the printer's IP address.

2. **At the # prompt, enter the password.**

   The default is `access`. You will not see what you type.

3. **At the Local> prompt, enter:**

   `su`

**4** **At the Password>> prompt, enter the password.**

The default is `system`. You will not see what you type.

*On certain hosts, you must press the Backspace key before you can enter the password.*
*For example: <Backspace>`system.`*

After the password is entered, the Local> prompt is redisplayed and you can then enter XNIC commands.

See Table 5.2 on page 5-39 for a list of basic commands.

**5** **To end the Telnet connection, enter:**

```
logout
```

## Basic XNIC Commands

The basic XNIC commands are as follows:

- **SHOW** displays the XNIC's current information. Display screens vary according to the specific SHOW parameter. The syntax is:

  `show` *parameter*

- **MONITOR** is the same as SHOW, except that the display screen is updated every 10 seconds (every 1 second in privileged mode). Press any key to exit the display. The syntax is:

  `monitor` *parameter*

- **LIST** displays the XNIC's NVRAM (non-volatile RAM) parameter settings. Display screens vary according to the specific LIST parameter. The syntax is:

  `list` *parameter*

- **SET** temporarily changes a parameter to a given value. The change is valid until you log out from the XNIC or turn OFF the printer. The syntax is:

  `set` *parameter value*

- **DEFINE** permanently changes an NVRAM parameter to a given value. Use one of the following methods to reinitialize the XNIC:

  — Use the Reset All, Reset Ethernet command (for XNIC-E'NET), or Reset Token Ring command (for XNIC-T'RING) on the printer control panel (DocuPrint 4517 printer only).

  — Power off the printer and then turn it back on.

  — Issue an `init delay 0` command remotely.

  The syntax is:

  `define` *parameter value*

- **CHANGE** is a combination of **SET** and **DEFINE**; it immediately changes a parameter and permanently updates it in the NVRAM as well. The syntax is:

  `change` *parameter value*

- **HELP** displays instructions on the use of the various commands. The syntax is:

  `help` *commandname*

  In XNIC, Version 5.x, the Help command is not available.

Refer to the table which begins on the next page for information about commands.

Table 5.2 lists the most useful XNIC commands, organized by network environment and task.

**Table 5.2 XNIC tasks and commands**

| Task | Command |
|---|---|
| Display information about the XNIC characteristics and the specific options that are enabled. | **show server characteristics**<br>Each parameter displayed may be altered using the appropriate SET/CHANGE/DEFINE command.<br>If you have a VT100-compatible terminal, the show server characteristics command displays a "stack" of overlapping screens which can be cycled for display with the arrow keys. |
| Display Document Services for Printing (DS/P) parameters (refer to the *Document Services for Printing Guide*). | **show server dsp** |
| Display the overall network configuration. | **show server network** |
| Print a Network Configuration Sheet for Ethernet or Token Ring | **show config port 1** |
| Change the login password from the default of "access" at the prompt showing "#". | **define server login password *"password_1"***<br>(where *password_1* is the new login password) |
| Change the privileged password from the default of "system" at the prompt showing "password>". | **define server privilege password *"password_2"***<br>(where *password_2* is the new privileged password)<br>This command changes the 'SU' user password. |
| Disable protocols on the XNIC. | **define server authorize *protocol* disabled**<br>(where *protoco*l is one of the following: NetWare, AppleTalk, TCP/IP, LAT, NetBIOS, All, or None.) |
| Enable protocols on the XNIC. | **define server authorize *protocol* enabled**<br>(where *protoco*l is one of the following: NetWare, AppleTalk, TCP/IP, LAT, NetBIOS, All, or None.) |
| Reset the XNIC remotely (soft reset). | **init delay 0** |
| Reset the XNIC to factory defaults. | **init delay 0 default** |
| Display network configuration parameters. | **show server TCP** |

**Table 5.2 XNIC tasks and commands** *(continued)*

| Task | Command |
|---|---|
| Define the printer's IP address. | **define server ip *ddd.ddd.ddd.ddd*** (where *ddd.ddd.ddd.ddd* is the IP address of the printer) |
| Set the IP address to none. | **define server ip none** |
| Redefine the subnet mask. | **define server subnet *mmm.mmm.mmm.mmm*** (where *mmm.mmm.mmm.mmm* is the subnet mask for the network) |
| Define routing tables. | **define node ip *ggg.ggg.ggg.ggg* gateway default** (where *ggg.ggg.ggg.ggg* is the address of the default router for the printer's network segment) |
| Define how many times printer will attempt BootP or disable BootP completely. | **define server bootp *n m*** (where • *n* — Is the number of broadcast requests that will be made if the printer server does not know its IP address. Acceptable values are 0 through 7. The default is 2. • *m* — Is the number of broadcast requests that will be made if the printer server IP address is known. The default is 0.) To disable BootP, set both the *n* and *m* values at 0. |
| Define how many times printer will attempt DHCP or disable DHCP completely. | **define server dhcp *n m*** (where • *n* — Is the number of broadcast requests that will be made if the printer server does not know its IP address. Acceptable values are 0 through 7. The default is 2. • m — Is the number of broadcast requests that will be made if the printer server IP address is known. The default is 1.) To disable DHCP, set both the *n* and *m* values at 0. |
| Define how many times printer will attempt RARP or disable RARP completely. | **define server rarp *n m*** (where • *n* — Is the number of broadcast requests that will be made if the printer server does not know its IP address. Accepted values are 0 through 7. The default is 2. • m — Is the number of broadcast requests that will be made if the printer server IP address is known. The default is 1.) To disable RARP, set both the *n* and *m* values at 0. |

# Chapter 6

# *Using the Printer with LAT on XNIC-E'NET Only*

# Overview

This chapter provides a procedure to follow when configuring a Xerox printer on a LAT host system. The procedure requires the VMS access privileges of the system administrator.

## Network Considerations

LAT systems require:

- Client support of the LAT protocol under the VAX/VMS or ULTRIX-32 operating systems
- XNIC-E'NET.

# Configuring an OpenVMS LAT Host for LATSYM

The following is a procedure that the system administrator may use to set up the printer queue on the host. The actual commands will vary according to system configuration, type of printer, and application requirements.

**1** **At the $ prompt enter the following command:**

```
run sys$system:latcp
```

**2** **To set up a VMS application port, at the LATCP> prompt enter the following sequence of commands:**

```
create port ltannn: /log
set port ltannn: /application -
    /node=XNExxxxxx /service=XNExxxxxx_1
exit
```

where *ltannn* is the port name assigned by the network administrator.

*The qualifier* node *represents the XNIC-E'NET's server name and the qualifier* service *represents the LAT service name. Both can be found in the Ethernet portion of the Printer Configuration Sheet. The service name is the one identified under DEC LAT. The server name is the service name without the "_1" at the end.*
*For example: If the Service name is XNE1076E3_1, the Server name is XNE1076E3.*
*If the name was changed, the new name must be used instead. Be sure you match the case (upper/lower) of the node name and port name. (To preserve case, use quotation marks.)*

**3** **To set up the terminal parameters, at the $ prompt enter the following sequence of commands:**

```
set terminal ltannn: /perm -
 /device=la36 /width=80 /page=66 -
 /lowercase /nobroadcast

set protection=(s:rwlp,o,g,w:rwlp) -
 /device ltannn:

set device ltannn: -
 /spooled=(queue_name, -
 sys$sysdevice:)
```

where *queue_name* is defined by you or the system administrator.

**4** **To initialize the printer queue, at the $ prompt enter the following command:**

```
initialize /queue /start -
 /processor=latsym -
 /retain=error -
 /on=ltannn: -
 /default=(noburst, flag=one, -
 notrailer) -
 /record_blocking -
 queue_name
```

**5** **Print a file.**

For example:

```
print /queue=queue_name file_name.ext
```

*If you do not use* `/noflag` *in the print command, a banner page will print at a width of 132 characters.*

# Setting Optional Configurations

This section describes optional procedures for communicating with the XNIC-E'NET to monitor system parameters or to change the parameters from their factory defaults.

## Logging into the XNIC-E'NET

To monitor or change configuration parameters on the XNIC-E'NET, you must first log into the XNIC-E'NET from your host.

Use the following procedure to log into the XNIC-E'NET from your host:

1. **Run the NCP utility on the VAX by entering:**

   `run sys$system:NCP` (or `mcr ncp`)

2. **Connect to the XNIC-E'NET RCF port by entering:**

   `connect via` *qna-0* `physic addr` *nn-nn-nn-nn-nn-nn*

   where *qna-0* is your actual circuit type, and *nn-nn-nn-nn-nn-nn* is the XNIC-E'NET's Ethernet hardware address.

3. **At the # prompt, enter the password.**

   The default is `access`. You will not see what you enter.

4. **Enter your user name if the following prompt is displayed:**

   **Enter username or HELP>**

   (Any name is acceptable as a user name.)

5. **At the Local> prompt, enter** `su`

**6** **At the Password>> prompt, enter the password.**

The default is `system`. You won't see what you enter.

After entering the password, the Local> prompt is redisplayed and you can enter XNIC commands.

See Table 6.1 on page 6-9 for a list of basic commands.

**7** **To end the connection, press:**

`<Ctrl><D>`

# Basic XNIC-E'NET Commands

The basic XNIC-E'NET commands are as follows:

- **SHOW** displays the XNIC-E'NET's current information. Display screens vary according to the specific SHOW parameter. The syntax is:

  `show` *parameter*

- **MONITOR** is the same as SHOW, except that the display screen is updated every 10 seconds (every 1 second in privileged mode). Press any key to exit the display. The syntax is:

  `monitor` *parameter*

- **LIST** displays the XNIC-E'NET's NVRAM (non-volatile RAM) parameter settings. Display screens vary according to the specific LIST parameter. The syntax is:

  `list` *parameter*

- **SET** temporarily changes a parameter to a given value. The change is valid until you log out from the XNIC-E'NET or turn OFF the printer. The syntax is:

  `set` *parameter value*

- **DEFINE** permanently changes an NVRAM parameter to a given value. You must reinitialize the XNIC-E'NET for the changes to take place:

  — Use the Reset All or Reset Ethernet command on the printer control panel (DocuPrint 4517 printer only).

  — Power off the printer and then turn it back on.

  — Issue an `init delay 0` command remotely.

  The syntax is:

  `define` *parameter value*

- **CHANGE** is a combination of **SET** and **DEFINE**; it immediately changes a parameter and permanently updates it in the NVRAM as well. The syntax is:

  `change` *parameter value*

- **HELP** displays instructions on the use of the various commands. The syntax is:

  `help` *commandname*

  In XNIC-E'NET, Version 5.x, the Help command is not available.

You will need to refer to the table which begins on the next page for information about commands.

Table 6.1 lists the most useful XNIC-E'NET commands, organized by network environment and task.

**Table 6.1 XNIC-E'NET tasks and commands**

| Task | Command |
|---|---|
| Display information about the XNIC-E'NET characteristics and the specific options that are enabled. | **show server characteristics**<br>Each parameter displayed may be altered using the appropriate SET/CHANGE/DEFINE command.<br>If you have a VT100-compatible terminal, the show server characteristics command displays a "stack" of overlapping screens which can be cycled for display with the arrow keys. |
| Display revision levels and the self-test results. | **show server hardware** |
| Display Document Services for Printing (DS/P) parameters (refer to the *Document Services for Printing Guide*). | **show server dsp** |
| Display the overall server configuration and start-up parameter setting. | **show server local**<br>This command is disabled on the XNIC-E'NET if DS/P is enabled. |
| Print a Network Configuration Sheet for Ethernet. | **show config port 1**<br>This command is disabled on the XNIC if DS/P is enabled. |
| Display the overall network configuration, including the Ethernet hardware address and the protocols currently supported. | **show server network** |
| Change the login password from the default of "access" at the prompt showing "#". | **define server login password *"password_1"***<br>(where *password_1* is the new login password) |
| Change the privileged password from the default of "system" at the prompt showing "password>". | **define server privilege password *"password_2"***<br>(where *password_2* is the new privileged password). |
| Disable protocols on the XNIC-E'NET. | **define server authorize *protocol* disabled**<br>(where *protoco*l is one of the following: NetWare, AppleTalk, TCP/IP, LAT, NetBIOS, All, or None.) |
| Enable protocols on the XNIC-E'NET. | **define server authorize *protocol* enabled**<br>(where *protoco*l is one of the following: NetWare, AppleTalk, TCP/IP, LAT, NetBIOS, All, or None.) |

**Table 6.1 XNIC-E'NET tasks and commands** *(continued)*

| Task | Command |
|---|---|
| Reset the XNIC-E'NET to factory defaults. | **init delay 0 default** |
| Display network configuration parameters. | **show server lat** |
| Change enabled LAT group codes. | **define server groups *n1-n2,n3-n4,...***<br>**define port 1 authorized group *n1-n2, n3-n4,...***<br>The *n1, n2, n3,* and *n4* represent group numbers and *n1-n2* represents a range of group numbers. Group numbers must be between 0 and 255.<br>**define server groups *n5-n6,...enabled***<br>adds one or more groups to the existing group list.<br>**define server groups *n1-n2, n3-n4,...disabled***<br>Removes one or more groups from the existing group list.<br>If neither enabled or disabled is chosen, the printer server replaces the entire existing group with the new group list specified in the command. |
| Change LAT "circuit timer" mode. | **define server lat option 15 enabled**<br>The LAT "circuit timer" mode is set to work in all supported environments. The default setting is "disabled". This command should be used carefully. Modification of this value increases performance in some LAT environments at the risk of frequent connection loss in a few others. |

# Chapter 7

# *Using the Printer with LAN Manager*

## Overview

This chapter discusses the configuration of the XNIC in a LAN Manager network. It is assumed that the system administrator has already configured the LAN Manager and related software. Therefore the chapter focuses on adding the XNIC printer server to an existing LAN Manager network.

The OS/2 Print Manager running on LAN Manager allows up to 16 print queue connections per server (an OS/2 limitation). An unlimited number of LAN Manager servers may redirect their output to an unlimited number of XNIC printer servers.

## Network Considerations

LAN Manager systems require:

- An installed XNIC with an assigned IP address
- Microsoft LAN Manager Version 2.1 or higher
- OS/2 Version 1.3
- TCP/IP or NetBIOS running on each LAN Manager file server or client.
  - — TCP/IP is included in LAN Manager 2.2. Previous LAN Manager versions must have the TCP/IP stack installed.
  - — NetBIOS is included in LAN Manager, Versions 2.1 and 2.2.

XNIC Version requirements are as follows:

- XNIC Version 4.11, or above, if printing via TCP/IP
- XNIC Version 5.x, or above, if printing via TCP/IP or NetBIOS/NetBEUI
- The *Utilities for: LAN Server, LAN Manager, Novell NetWare (TES)* diskette.

The LAN Manager file server and the printer must be on the same network segment for printing via NetBIOS/NetBEUI.

Client workstations on the network can include the following:

- PC DOS, Version 6.0 or higher with IBM DOS LAN Requester
- OS/2, Version 2.1 or higher with OS/2 LAN Requester
- OS/2 Warp Connect, Version 3.0 with NetBIOS installed
- WIN-OS/2
- Windows 3.1, or higher, with TCP/IP installed
- Windows NT running TCP/IP
- Windows 95 running TCP/IP

## Navigating through This Chapter

To enable printing to the XNIC from LAN Manager using TCP/IP, refer to the following sections, in order:

- TCP/IP Requirements
  - — Testing TCP/IP on LAN Manager
  - — IP Address on the XNIC
- Configuring LAN Manager for TCP/IP or NetBIOS

To enable printing to XNIC from LAN Manager using NetBIOS, skip to *"Configuring LAN Manager for TCP/IP or NetBIOS"* (page 7-7).

# TCP/IP Requirements

This section describes the procedures for configuring the LAN Manager file server to communicate with your XNIC via TCP/IP.

## Testing TCP/IP on LAN Manager

Follow the instructions below to make sure your LAN Manager system is properly set up for TCP/IP.

**1** **Log into the LAN Manager Server as ADMIN (or ADMIN equivalent).**

**2** **Verify that the OS/2 LAN Manager is installed with the TCP/IP protocol stack.**

- **Go to the LANMAN directory and enter SETUP.**
- **Select Configuration.**
- **Select Network Drivers.**
- **Verify that TCP/IP is listed as one of the network drivers.**
- **Exit SETUP**.

**3** **Using the OS/2 System editor, open the CONFIG.SYS file and verify it includes a line similar to:**

`DEVICE=`*`LanRoot`*`\ARPA\SOCKDRV.OS2`

where *`LanRoot`* is the LAN Manager root directory.

**4** **If necessary, adjust the settings for sockets and sessions.**

- Check the setting for NumSockets in the SOCKETS section of the TCPUTILS. INI file. (This file is located in the LAN Manager root directory.)

  If there are other applications using TCP/IP sockets, or if you are installing many printers, increase the number of sockets to handle your network needs. (Remember that the maximum number of queue connections per server is 16.)

- Check the setting for Sessions in the PROTOCOL.INI file. (This file is located in the LAN Manager root directory.)

  Each Xerox Printer Manager's print process uses one socket per session (one socket session for each print job activated). Make sure you have enough sessions to handle your network needs.

## IP Address on the XNIC

When you are using TCP/IP as your print protocol, the XNIC needs to be assigned an IP address.

The factory default for the IP address on the XNIC is "None".

**Note**

*XNIC Version 5.x no longer supports the pre-configured default IP addresses of 138.239.254.253 for Ethernet and 138.239.254.252 for Token Ring.*

*When the printer is powered on without the network cable attached to the XNIC, the IP address will remain at "none" or at a previously set value.*

Refer to *"Setting up an IP Address on the XNIC"* (page 5-4) for instructions on setting up an IP address on the XNIC.

# Configuring LAN Manager for TCP/IP or NetBIOS

The Xerox LAN Manager Printer Utility Program provided on the *Utilities for: LAN Server, LAN Manager, Novell NetWare (TES)* diskette will be installed on the LAN Manager file server. It allows you to configure the file servers and clients for TCP/IP or NetBIOS printing.

The XNIC can receive multiple print jobs from file servers and clients, simultaneously printing via TCP/IP and NetBIOS.

Sixteen printer queues can be created on the same file server. The same XNIC can accept jobs from all these queues.

## Before Installation

We recommend that you write these values from the Printer Configuration Sheet or the Network Interface Configuration sheets before you begin:

- XNIC Server Name: XNE*xxxxxx* (for XNIC-E′NET) or XNT*xxxxxx* (for XNIC-T′RING)

  where xxxxxx is the last six characters of the XNIC hardware address. Upper and lower case letters aren′t important.

- XNIC Printer Name: XNE*xxxxxx*_1 or XNT*xxxxxx*_1

  which is the XNIC Server Name followed by an underscore "_" and a "1".

- IP Address: *yyy.yyy.yyy.yyy*

  (Required only if running TCP/IP)

- TCP Port: 2501

  (Required only if running TCP/IP).

## Installation from the Diskette

1. **Insert the** *Utilities for: LAN Server, LAN Manager, Novell NetWare (TES)* **diskette into the floppy drive on the LAN Manager file server.**

2. **Open an OS/2 window.**

3. **Select the drive where you inserted the diskette.**

   For example, A:

4. **Run the installation program.**

   For example, if the diskette is in the A drive, enter:

   ```
   A:\LANMAN\install
   ```

   This displays the Installation Screen.

5. **Click on Install LAN Manager button.**

6. **Enter the directory where the files will be installed.**

   **The default is: `C:\Xerox`**

7. **Click the Install box.**

   The Install program will create the necessary icons.

8. **When you see the completion message, click OK.**

   If you would like to see a list of the files that were installed on your hard disk, refer to the Readme icon in the Xerox LAN Manager Printer Utility folder.

9. **Remove the diskette from the floppy drive.**

You are now ready to create print queues on the file server which is discussed in the next section.

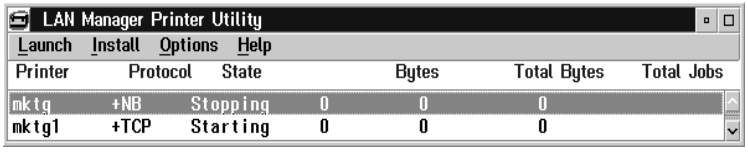
## Creating a Print Queue on the File Server

**1** **Install the Xerox OS/2 driver (for PCL or PostScript) that is shipped with your printer. This is done via the OS/2 Print Manager.**

**2** **Double click on the Xerox LAN Manager Printer Utility in the Desktop Manager Group.**

This displays the LAN Manager Printer Utility - Icon View window.

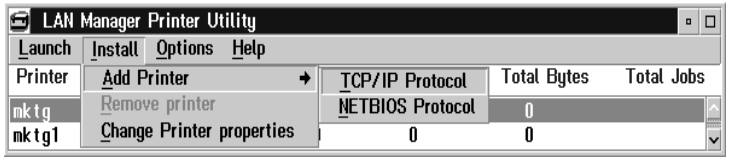
**3** **Double click on the Xerox LAN Manager Printer Utility icon to display the LAN Manager Printer Utility window.**




**4** **Pull down the Install menu on the LAN Manager Printer Utility window.**

Select Add Printer.

The window should look like this.



**5** **Select one of these two protocols:**

- TCP/IP Protocol
- NetBIOS Protocol.

**Depending upon your choice, you should see one of these two windows on your display:**

- Add New TCP/IP RPrint Printer window
- Add New NetBIOS Printer window.

**6** **If you selected TCP/IP, turn to** *"Creating a TCP/IP Print Queue"* **(page 7-10) to continue the printer installation.**

**If you selected NetBIOS, turn to** *"Creating a NetBIOS Print Queue"* **(page 7-14) to continue the printer installation.**

## Creating a TCP/IP Print Queue

This TCP/IP-specific activity is a continuation of "Creating a Printer Queue on the File Server".

**1** **The Add New TCP/IP RPrint Printer window should be displayed on your screen.**

**Enter the Printer name of your choice.**

The name can be up to eight characters long.

For example: *Unicorn*

**2** **Select Share Printer On the Network by clicking the box.**

This option allows automatic sharing of the printer on the network.

*This option is enabled by default and works only if you are logged into the LAN Manager file server as "admin".*

**3** **Enter a Comment.**

This is an optional field. It appears in the remark field when the print queue is viewed as a remote share on the network.

**4** **Select a printer Driver.**

The Xerox OS/2 driver that you installed earlier should appear in this field.

**Select the Xerox OS/2 driver for your printer.**

*To add additional printer drivers to the Xerox LAN Manager Printer Utility driver list, install a new printer driver from the OS/2 Print Manager and select the desired driver for the new printer.*

**5** **Enter the Service Name.**

This is the XNIC Printer Name

For example: XNE1076E3_1 for XNIC-E'NET or XNT*88E829*_1 for XNIC-T'RING.

**Refer to** *"Before Installation"* **(page 7-7) where you wrote this earlier.**

**6** **Enter the IP Address.**

This is the XNIC IP Address (For example: *138.236.99.26*).

**Refer to** *"Before Installation"* **(page 7-7) where you wrote this earlier.**

**7** **Enter the Port Number:** `2501`

This is the TCP port number associated with the printer port on the XNIC.

**8** **Click on `More >>>` to optionally modify timing parameters.**

This opens the **Advanced Options** window.

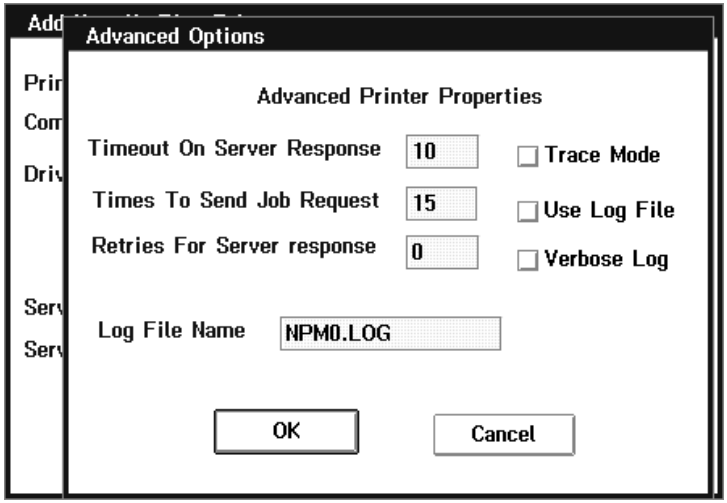



*Table 7.1 "Advanced printer properties options"* **(page 7-13)** lists these options and describes their purposes.

**Select any desired options.**

**Click OK when you have entered your options.**

This returns you to the **Add New TCP/IP RPrint Printer** window.

**9** **Click Add.**

A new printer will be created on the desktop.

**10** **The printer queue is now ready for use. Submit a print job to the queue for verification.**

**Continue with** *"Testing the Printer"* **(page 7-17)**.

## Advanced Printer Properties Options

This table explains the Advanced Printer Properties options that can be set in the Advanced Options window during printer installation.

**Table 7.1 Advanced printer properties options**

| Option | Function |
|---|---|
| **Trace Mode** | **Enabling this option is not recommended.**<br>Sends debugging information to RPRINTNB.EXE stdout file. |
| **Use Log File** | Creates a log file of RPRINTNB activities for each print job. |
| **Log File Name** | Used to enter a name for the log files. |
| **Verbose Log** | **Enabling this option is not recommended.**<br>Expands the amount of debugging information in both the log file and RPRINTNB's stndout. |
| **Timeout on Server Response** | Sets the number of seconds the LAN Manager waits for an XNIC response before sending a new request. |
| **Times to Send Job Request** | Sets the number of requests the LAN Manager file server sends before considering the printer unavailable. |
| **Retries for Server Response** | **Enabling this option is recommended.**<br>Sets the number of retries when waiting for an XNIC response.<br>Although this is an optional field, we recommend that you enter "–1" in this field. The value "–1" indicates an indefinite retry. |

## Creating a NetBIOS Print Queue

This NetBIOS-specific activity is a continuation of "Creating a Print Queue on the File Server".

**Note**

*To print using the NetBIOS protocol, the user must logon to the server's domain. To do this, add the command: "logon/D:domain" before the NPMST.EXE line and after the Net Start line in the STARTUP.CMD file.*

*For NetBIOS printing, the LAN Manager file server and the printer must be on the same network segment.*

**1** **The Add New NetBios Printer window should be displayed on your screen.**

**Enter the Printer Name of your choice.**

The name can be up to eight characters long.

For example: *Pegasus.*

**2** **Select Share Printer On the Network by clicking the box.**

This option allows automatic sharing of the printer on the network.

*This option is enabled by default and works only if you are logged on the LAN Manager File Server as "admin".*

**3** **Enter a Comment.**

This is an optional field. This option field is used to further define a print queue.

**4** **Select a printer Driver.**

The Xerox OS/2 driver that you installed earlier should appear in this field.

**Select the Xerox OS/2 driver for your printer.**

*To add additional printer drivers to the Xerox LAN Manager Printer Utility driver list, install a new printer driver from the OS/2 Print Manager and select the desired driver for the new printer.*

**5** **Enter the Server Name.**

This is the XNIC Server Name

For example: XNE1076E3 for XNIC-E'NET or XNT*88E829* for XNIC-T'RING.

**Refer to** *"Before Installation"* **(page 7-7) where you wrote this earlier.**

**6** **Enter the Service Name.**

This is the XNIC Printer Name (XNExxxxxx_1 or XNTxxxxxx_1).

**Refer to** *"Before Installation"* **(page 7-7) where you wrote this earlier.**

**7** **Click on `More >>>` to optionally modify timing parameters.**

This opens the **Advanced Options** window.

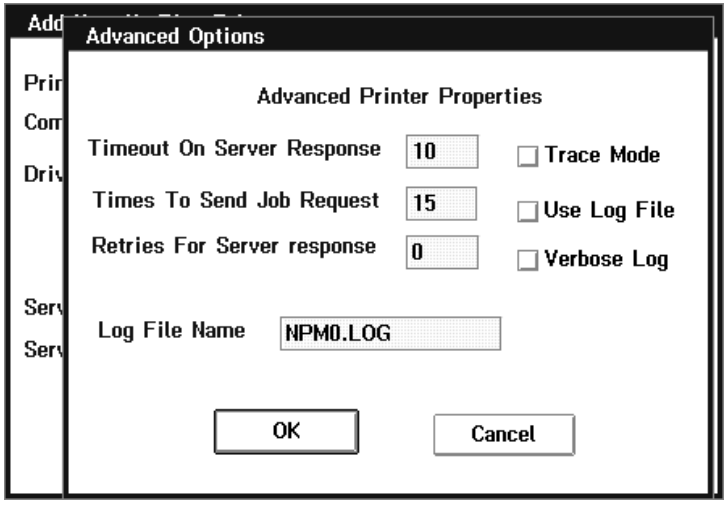



Table 7.1 *"Advanced printer properties options"* (page 7-13) lists these options and describes their purposes.

**Select any desired options.**

**Click OK when you have entered your options.**

This returns you to the **Add New NetBios Printer** window.

**8** **Click Add.**

A new printer will be created on the desktop.

**9** **The printer queue is now ready for use.**

**Submit a print job to the queue for verification.**

**Continue with** *"Testing the Printer"* **(page 7-17)**.

## Testing the Printer

Test the printer you have just installed following this procedure:

1. **Verify that the printer is powered on and that the printer control panel indicates that the printer is Online.**
2. **Select a file to print.**
3. **Drag the file to the newly created printer icon on the desktop.**
4. **In the pop-up window that asks you to select the type of data in the object, select either:**
   - **Plain Text, if the file is a plain text file**
   - **Printer-specific if the file is in either PCL or PostScript.**
5. **The file should print.**

   **If the file does not print, verify your network configuration settings.**

# Deleting Print Queues (TCP/IP or NetBIOS)

To delete print queues, begin from the Xerox LAN Manager Printer Utility icon.

**Caution**

**Always delete created print queues from the LAN Manager Printer Utility. This ensures that the printer queue and its properties are deleted properly.**

1. **Double click on the Xerox LAN Manager Printer Utility folder on the LAN Manager desktop.**

   This displays the **LAN Manager Printer Utility** window.

2. **Double click on the Xerox LAN Manager Printer Utility icon.**

3. **Select an existing printer to remove from the pop-up window.**

4. **Pull down the Launch menu.**

5. **Select Stop printer.**

6. **Pull down the Install menu bar.**

7. **Select Remove Printer.**

8. **Click on Remove.**

   This removes the printer you selected.

## Changing Printer Properties (TCP/IP or NetBIOS)

To change printer properties, begin from the Xerox LAN Manager Printer Utility.

1. **Double click on the Xerox LAN Manager Printer Utility folder on the LAN Manager desktop.**

   This displays the **LAN Manager Printer Utility** window.

2. **Double click on the Xerox LAN Manager Printer Utility icon.**
3. **Select an existing printer to change its properties.**
4. **Pull down the Install menu.**
5. **Click on Change Printer Properties.**
6. **Make any necessary changes.**
7. **Click OK to save the changes.**

## The Telrcf Utility (Optional)

The telrcf utility allows you to log into any XNIC with a valid IP address from any host terminal on the network. The Telrcf utility is automatically installed along with the other LAN Manager files from the *Utilities for LAN Server, LAN Manager, Novell NetWare (TES)* diskette. You need only to configure Telrcf for your application.

## Configuring Telrcf

The following steps configure Telrcf for a single connection. You may use this procedure to configure multiple connections.

For example, to set up an icon for an interactive session, use the following procedure:

1. **Open the Xerox LAN Manager Printer Utility window and select the TelRcf icon.**
2. **Pull down the Program menu and select Copy.**
3. **In the Copy Program window, enter a name in the Change title to: field.**
4. **Click on the Copy button to create a new icon.**
5. **Select your new icon.**

   **Next, pull down the Program menu and select Properties to open the Properties window.**
6. **Enter the XNIC IP address in the Parameters box.**
7. **Select either OS/2 Full Screen or OS/2 Window.**
8. **Click the Change button to close the window.**

   Telrcf is configured and ready for an interactive session.

## Using the Telrcf Script Facility

Telrcf may be used to execute XNIC command scripts for remotely configuring your XNIC. Telrcf is especially useful if you want to configure many XNIC servers remotely from your LAN Manager host. Refer to the *"XNIC tasks and commands"* tables in each chapter of this guide for specific XNIC commands.

To execute scripts, Telrcf should be run directly from an OS/2 window. To do this, open an OS/2 window and `cd` to the `\xerox` directory. For information on the telrcf options type telrcf without any arguments and the program will display a list of its runtime arguments.

To see an example of a telrcf script file, enter:

```
type script.txt
```

Use a text editor to create a script file in a form similar to the sample. You may use any valid XNIC command in your script to set or display any XNIC parameters.

To send a telrcf configuration script file named "`servcnfg.scr`" to an XNIC with IP address 138.239.1.2:

1. **At the OS/2 prompt, enter:**

   ```
   telrcf 138.239.1.2 -f servcnfg.scr
   ```

2. **The commands in the script will be echoed to the screen. When the script execution completes, press:**

   `<Ctrl> <Break>`.

# Overview

This chapter discusses the configuration of the XNIC in a LAN Server network. It is assumed that the system administrator has already configured the LAN Server and related software. Therefore the chapter focuses on adding the XNIC printer server to an existing LAN Server network.

The OS/2 Print Manager running on LAN Server allows up to 16 print queue connections per server (an OS/2 limitation). An unlimited number of LAN Server servers may redirect their output to an unlimited number of XNIC printer servers.

## Network Considerations

LAN Server systems require any of the following OS/2 Versions:

- OS/2, Version 2.1 or higher (including OS/2 TCP/IP Version 2.0)
- OS/2 Warp, Version 3.0 or higher (including OS/2 TCP/IP Version 3.0)
- OS/2 Warp Connect, Version 3.0 or higher (including OS/2 TCP/IP Version 3.0)
- OS/2 LAN Server, Versions 3.0 or 4.0
- TCP/IP or NetBIOS running on each LAN Server file server or client

XNIC Version requirements are the following:

- XNIC Version 4.11, or above, if printing via TCP/IP
- XNIC Version 5.x, or above, if printing via TCP/IP or NetBIOS/NetBEUI.
- The *Utilities for: LAN Server, LAN Manager, Novell NetWare (TES)* diskette.

For NetBIOS/NetBEUI printing, the LAN Server file server and the printer must be on the same network segment.

Client workstations on the network can include the following:

- PC DOS, Version 6.0 or higher with IBM DOS LAN Requester
- OS/2, Version 2.1 or higher with OS/2 LAN Requester
- OS/2 Warp Connect, Version 3.0 with NetBIOS installed
- WIN-OS/2
- Windows 3.1, or higher, with TCP/IP installed
- Windows NT running TCP/IP
- Windows 95 running TCP/IP

## Navigating through This Chapter

To enable printing to XNIC from LAN Server using TCP/IP, refer to the following section, in order:

- Establishing an IP/Network Connection (TCP/IP Only)
  - — Assigning a Node Name
  - — Assigning an IP Address
- Testing an IP/Network Connection (TCP/IP Only)
- Configuring LAN Server for TCP/IP or NetBIOS

To enable printing to XNIC from LAN Server using NetBIOS, skip to *"Configuring LAN Server for TCP/IP or NetBIOS"* (page 8-8).

# Establishing an IP/Network Connection (TCP/IP Only)

To establish an IP/network connection, use the following procedures to assign a node name and the hardware address.

These procedures are required for printing in LAN Server via TCP/IP.

**Note**

*To start this procedure, the IP address on the XNIC must be "None".*

*The workstation or host from which the IP address will be assigned for the printer must be on the same network segment as the printer.*

## Assigning a Node Name

**1** **Assign a node name by opening the TCP/IP folder. Then open the TCP/IP configuration window.**

- Click the **Services** tab and select page 3 of 3.
- Click in the **HOST** box (even if no entries are present).

**2** **Select Add.**

The **HOST Entry-Add** window appears.

**3** **Enter the new settings for the following:**

- **IP Address (required)**
- **HostName (required)**
- **Alias (optional)**
- **Comments (optional).**

**4** **When you finish entering the required settings and any optional ones, save them and exit from the TCP/IP folder.**

## Assigning the IP Address

You must now assign the IP address to the XNIC.

**1** **Open an OS/2 command prompt window.**

**2** **At the command prompt, enter:**

```
[C:\] arp -s HOSTNAME Hardware_address
```

where *Hardware_address* is the XNIC hardware address in hexadecimal notation.

*Do not use leading zeroes in the IP address on the XNIC hardware address.*

For example, if you have a HOSTNAME of "Coletrane" and a hardware address of 00:00:c9:10:03:BD

you would enter:

```
[C:\] arp -s Coletrane 0:0:C9:10:3:BD
```

**3** **Check to see if your IP address has been correctly entered by typing:**

```
[C:\] arp -a
```

This will display the hardware address and the IP address. For example:

| Interface | Hardware address | IP address | Minutes since last use |
|---|---|---|---|
| 0 | 00:00:C9:10:03:BD | 200.1.105.95 | 0 |

**4** **Enter:**

```
[C:\] ping HOSTNAME
```

# Testing the IP/Network Connection (TCP/IP Only)

To test the installation, use the following procedure:

1. **At the OS/2 command prompt, enter:**

   `[C:\] ping HOSTNAME 32 2`

   The printer should respond back that 2 packets were transmitted, 2 packets received, and 0% packets lost.

   If the system responds that 2 packets were transmitted, 0 packets received, and 100% packets lost, print a Printer Configuration Sheet. Compare the IP address on the Printer Configuration Sheet to the IP address you entered in the TCP/IP Services window in Step 3 on page 8-5.

2. **In the command window, use the *lpr* command to print a simple text file, as follows:**

   `[C:\] lpr -pTEXT -sHOSTNAME filename`

   For example:

   `[C:\] lpr -pTEXT -sColetrane config.sys`

   The text file you designate must print at the designated printer.

.

# Configuring LAN Server for TCP/IP or NetBIOS

The Xerox LAN Server Printer Utility Program provided on the *Utilities for: LAN Server, LAN Manager, Novell NetWare (TES)* diskette will be installed on the LAN Server file server. It allows you to configure the file servers and clients for TCP/IP or NetBIOS printing.

The XNIC can receive multiple print jobs from file servers and clients, simultaneously printing via TCP/IP and NetBIOS.

Sixteen printer queues can be created on the same file server. The same XNIC can accept jobs from all these queues.

## Before Installation

We recommend that you write these values from the Printer Configuration Sheet or the Network Interface Configuration sheets before you begin:

- XNIC Server Name: XNE*xxxxxx* (for XNIC-E′NET) or XNT*xxxxxx* (for XNIC-T′RING)

  where xxxxxx is the last six characters of the XNIC hardware address. Upper and lower case letters aren′t important.

- XNIC Printer Name: XNE*xxxxxx*_1 or XNT*xxxxxx*_1

  which is the XNIC Server Name followed by an underscore "_" and a "1".

- IP Address: *yyy.yyy.yyy.yyy*

  (Required only if running TCP/IP)

- TCP Port: 2501

  (Required only if running TCP/IP).

## Installation from the Diskette

1. **Insert the** *Utilities for: LAN Server, LAN Manager, Novell NetWare (TES)* **diskette into the floppy drive on the LAN Server file server.**

2. **Open an OS/2 window.**

**3** **Enter the following at the command prompt in the OS/2 window:**

```
a:\LANsvr\install
```

This displays the Installation Screen.

**4** **Click the Install LAN Server button.**

The Install program will create the Xerox LAN Server Utility folder.

**5** **A completion message will appear when the installation is finished.**

**6** **Click on OK.**

*If you would like to see a list of the files that were installed on your hard disk, refer to the Readme icon in the Xerox LAN Server Printer Utility folder.*

**7** **Remove the diskette from the floppy drive.**

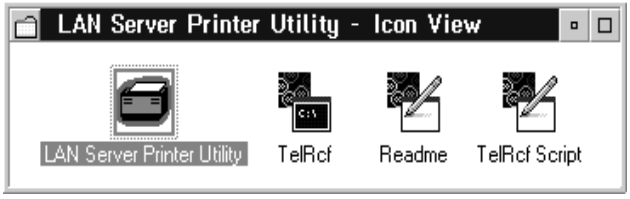
You are now ready to create print queues on the file server which is discussed in the next section.

## Creating a Print Queue on the File Server

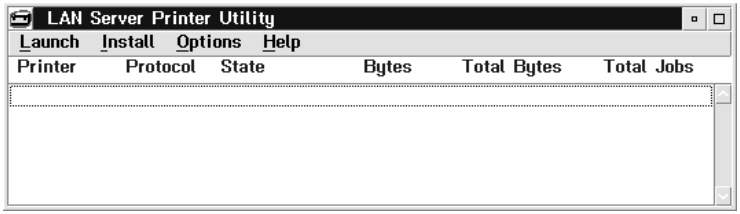
**1** **Install the Xerox OS/2 driver (for PCL or PostScript) shipped with your printer. This is done via the OS/2 Print Manager.**

**2** **Double click on the Xerox LAN Server Printer Utility folder on the LAN Server desktop.**

This displays the **LAN Server Printer Utility - Icon View** window.



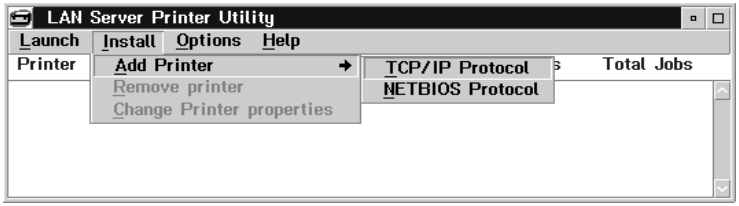
**3** **Double click on the Xerox LAN Server Printer Utility icon to display the LAN Server Printer Utility window.**




**4** **Pull down the Install menu on the LAN Server Printer Utility window.**

**Select Add Printers**

This window will appear.




**5** **Select one of these two protocols:**

- **TCP/IP Protocol**
- **NETBIOS Protocol.**

**Depending upon your choice, you should see one of these two windows on your display:**

- Add New TCP/IP RPrint Printer window
- Add New NetBIOS Printer window.

**6** **If you selected TCP/IP, refer to** *"Creating a TCP/IP Print Queue"* **(page 8-11) to continue the printer installation.**

**If you selected NetBIOS, refer to** *"Creating a NetBIOS Print Queue"* **(page 8-14) to continue the printer installation.**

## Creating a TCP/IP Print Queue

This TCP/IP-specific activity is a continuation of "Creating a Print Queue on the File Server".

**1** **The Add New TCP/IP RPrint Printer window will be displayed.**

**Enter the Printer name of your choice.**

The name can be up to eight characters long.

For example: *Eagle*

**2** **Select Share Printer On the Network by clicking the box.**

This option allows automatic sharing of the printer on the network. This option is valid only on domain controllers. If the Xerox LAN Server Printer Utility is installed on an additional server, then LAN Server commands should be used to share the printer.

*This option is enabled by default and works only if you are logged into the LAN Server file server as "admin".*

**3** **Enter a Comment.**

This is an optional field. The comment provides another name for a printer icon.

**4** **Select a printer Driver.**

The Xerox OS/2 driver that you installed earlier should appear in this field.

**Select the Xerox OS/2 driver.**

*To add additional drivers to the Xerox LAN Server Printer Utility driver list, install a new printer under the OS/2 Print Manager and select the desired driver for the new printer.*

**5** **Enter the Service Name.**

This is the XNIC Printer Name (for example: XNE1076E3_1 for XNIC-E'NET or XNT88E829_1 for XNIC-T'RING).

**Refer to** *"Before Installation"* (page 8-8) **where you wrote this earlier.**

**6** **Enter the IP Address.**

This is the XNIC IP Address

For example: 138.236.99.26).

**Refer to** *"Before Installation"* **(page 8-8) where you wrote this earlier.**

**7** **Enter the Port Number:** `2501`

This is the TCP port number associated with the printer port on the XNIC.

**8** **Click on `More >>>` to optionally modify timing parameters.**

This opens the **Advanced Options** window**.**

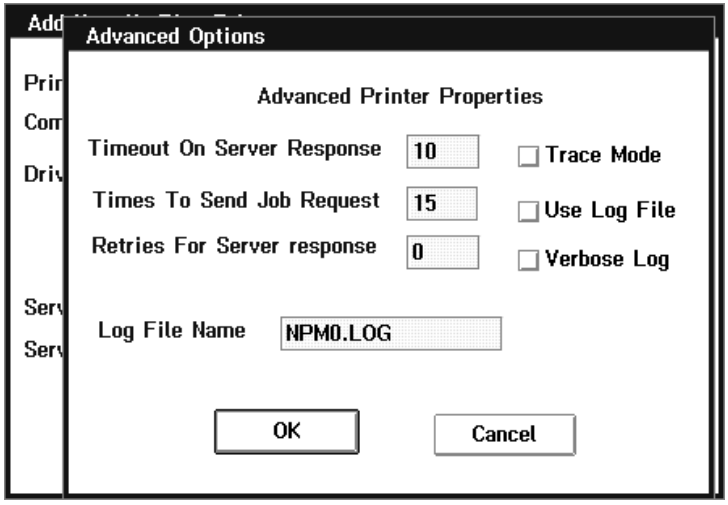



**Table 8.1** *"Advanced printer properties options"* **(page 8-13) lists these options and describes their purposes.**

**Select any desired options.**

**Click OK when you have entered your options.**

This returns you to the **Add New TCP/IP RPrint Printer** window.

**9** **Click Add.**

A new printer icon will be created on the desktop.

**10** **The printer is now ready for use.**

**Continue with** *"Testing the Printer"* (page 8-17)**.**

## Advanced Printer LAN Properties Options

This table explains the Advanced Printer Properties options that can be set in the Advanced Options window during installation of printers.

**Table 8.1 Advanced printer properties options**

| Option | Function |
|---|---|
| **Trace Mode** | **Enabling this option is not recommended.**<br>Sends debugging information to RPRINTNB.EXE stdout file. |
| **Use Log File** | Creates a log file of RPRINTNB activities for each print job. |
| **Log File Name** | Used to enter a name for the log files. |
| **Verbose Log** | **Enabling this option is not recommended.**<br>Expands the amount of debugging information in both the log file and RPRINTNB's stndout. |
| **Timeout on Server Response** | Sets the number of seconds the LAN Server file server waits for an XNIC response before sending a new request. |
| **Times to Send Job Request** | Sets the number of requests the LAN Server file server sends before considering the printer unavailable. |
| **Retries for Server Response** | **Enabling this option is recommended.**<br>Sets the number or retries when waiting for an XNIC response.<br>Although this is an optional field, we recommend that you enter "–1" in this field. The value "–1" indicates an indefinite retry. |

## Creating a NetBIOS Print Queue

This NetBIOS-specific activity is a continuation of "Creating a Print Queue on the File Server".

**Note**

*To print using the NetBIOS protocol, the user must logon to the server's domain. To do this, add the command: "logon/D:domain" before the NPMST.EXE line and after the Net Start line in the STARTUP.CMD file.*

*For NetBIOS printing, the LAN Server file server and the printer must be on the same network segment.*

**1** **The Add New NetBIOS Printer window will be displayed.**

**Enter the Printer Name of your choice.**

The name can be up to eight characters long.

For example: `Falcon`

**2** **Select Share Printer On the Network by clicking the box.**

This option allows automatic sharing of the printer on the network. This option is valid only on domain controllers.

If the Xerox LAN Server Printer Utility is installed on an additional server, then LAN Server commands should be used to share the printer.

*This option is enabled by default and works only if you are logged into the LAN Server file server as "admin".*

**3** **Enter a Comment.**

This is an optional field. The comment provides another name for a printer icon.

**4** **Select a printer Driver.**

The Xerox OS/2 driver that you installed earlier should appear in this field.

**Select the Xerox OS/2 driver for your printer.**

*To add additional drivers to the Xerox LAN Server Printer Utility driver list, install a new printer under the OS/2 Print Manager and select the desired driver for the new printer.*

**5** **Enter the Server Name.**

This is the XNIC Server Name (XNExxxxxx for XNIC-E'NET or XNTxxxxxx for XNIC-T'RING).

**Refer to** *"Before Installation"* (page 8-8) **where you wrote this earlier.**

**6** **Enter the Service Name.**

This is the XNIC Printer Name (XNExxxxxx_1 for XNIC-E'NET or XNTxxxxxx_1 for XNIC-T'RING).

**Refer to** *"Before Installation"* **(page 8-8) where you wrote this earlier.**

**7** **Click on `More >>> to` optionally modify timing parameters.**

This opens the **Advanced Options** window.

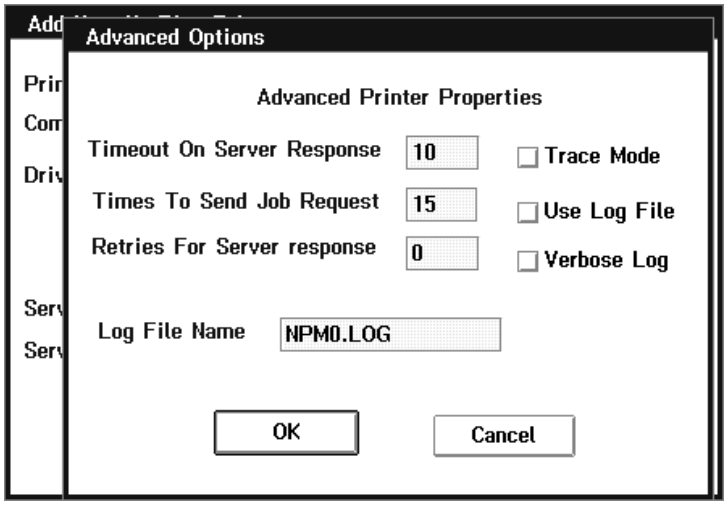



**Table 8.1** *"Advanced printer properties options"* **(page 8-13) lists these options and describes their purposes.**

**Select any desired options.**

**Click OK when you have entered your options.**

This returns you to the **Add New NetBIOS Printer** window.

**8** **Click Add.**

A new printer icon will be created on the desktop.

**9** **The printer is now ready for use.**

**Continue with** *"Testing the Printer"* **(page 8-17).**

## Testing the Printer

Test the printer you have just installed following this procedure:

1. **Verify that the printer is powered on and that the printer control panel indicates that the printer is Online.**
2. **Select a file to print.**
3. **Drag the file to the newly created printer icon on the desktop.**
4. **In the pop-up window that asks you to select the type of data in the object, select either:**
   - **Plain Text, if the file is a plain text file**
   - **Printer-specific if the file is in either PCL or PostScript.**
5. **The file should print.**

   **If the file does not print, verify your network configuration settings.**

# Deleting Print Queues (TCP/IP or NetBIOS)

To delete print queues, begin from the Xerox LAN Server Printer Utility folder on your desktop.

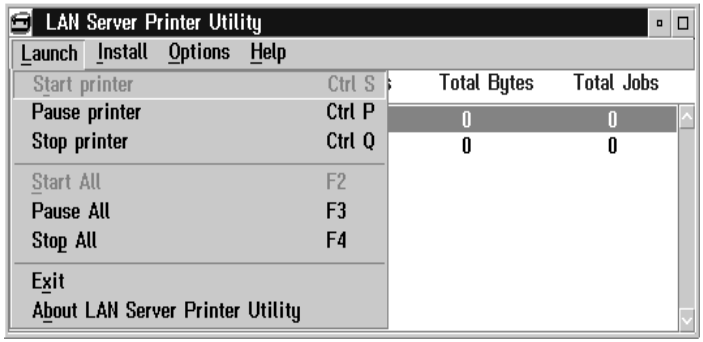
1. **Double click on the Xerox LAN Server Printer Utility folder on the LAN Server desktop**.

   This displays the **LAN Server Printer Utility** window**.**

2. **Double click on the Xerox LAN Server Printer Utility icon.**

3. **Select an existing printer to remove from the pop-up window.**

4. **Pull down the Launch menu. This menu is displayed:**




5. **Select Stop printer.**

6. **Pull down the Install menu bar.**

7. **Select Remove printer.**

8. **Click on Remove.**

   This removes the printer you selected**.**

# Changing Printer Properties (TCP/IP or NetBIOS)

To change printer properties, begin from the Xerox LAN Server Printer Utility folder on your desktop.

1. **Double click on the Xerox LAN Server Printer Utility folder** icon **on the LAN Server desktop.**

   This displays the **LAN Server Printer Utility** window**.**

2. **Double click on the Xerox LAN Server Printer Utility** icon**.**

3. **Select an existing printer to modify from the pop-up window.**

4. **Pull down the Install menu.**

5. **Click on Change Printer Properties.**

6. **Depending upon which queue you have selected to modify, either the TCP/IP Protocol or NetBIOS Protocol screen will appear.**

   - If you are modifying a TCP/IP queue, continue with the next step.
   - If you are modifying a NetBIOS queue, go to step 11.

7. **If you selected a TCP/IP printer, the TCP/IP RPRINT Printer Properties screen is displayed on your screen.**

8. **Change the Service Name, IP Address, or Port Number, as needed.**

9. **Click More >>> to view the Advanced Options screen.**

   **Make any needed changes.**

10. **Click OK to save the changes.**

    This saves your modifications to the TCP/IP printer.

11. **If you selected a NetBIOS printer, the Change NetBIOS Printer Properties screen is displayed on your screen.**

12. **Change the Service Name or Server Name, as needed.**

**13** **Click More >>> to view the Advanced Options screen.**

**Make any necessary changes.**

**14** **Click OK to save the changes.**

This saves your modifications to the NetBIOS printer.

## Changing Printer Options (TCP/IP or NetBIOS)

To change printer options, begin from the Xerox LAN Server Printer Utility folder on your desktop.

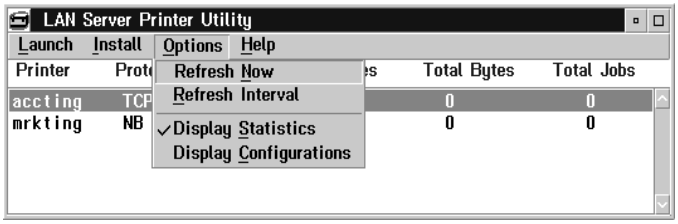
1. **Double click on the Xerox LAN Server Printer Utility folder** icon **on the LAN Server desktop**.

   This displays the **LAN Server Printer Utility** window.

2. **Double click on the Xerox LAN Server Printer Utility icon.**

3. **Select the Options pop-up window.**

   The window will look like this.




4. **Select one of these options:**
   - **Refresh Now**
   - **Refresh Interval** (available in tenths of a second)
   - **Display Statistics**
   - **Display Configuration**

5. **Make the necessary changes and exit.**

## The Telrcf Utility (Optional)

For details on the Telrcf Utility refer to *"The Telrcf Utility (Optional)"* (page 7-20). LAN Manger is referenced in that chapter. The same information also pertains to LAN Server.

# Setting Optional Configurations (TCP/IP Only)

This section describes optional procedures for communicating with the XNIC via TCP/IP to monitor system parameters or to change the parameters from their factory defaults using Telnet.

## Logging into the XNIC

To monitor or change configuration parameters on the XNIC, you must first log into the XNIC from your host.

**Note**

*The permanently-set IP address on your printer must be set at a value other than "none" for you to be able to perform these instructions. To assign an IP address to your printer, refer to "Establishing an IP/Network Connection (TCP/IP Only)" (page 8-5).*

*To use Telnet, the workstation or the host must be on the same network segment as the printer.*

Use the following procedure to log into the XNIC from your workstation:

1. **At the command prompt, enter:**

   `Telnet host_name -p 2048`

2. **At the # prompt, enter the password.**

   The default is `access`. You will not see what you enter.

3. **At the Local> prompt, enter:** `su`

**4** **At the Password>> prompt, hit <Backspace>. Then enter the password.**

The default password is `system`. You will not see what you enter.

**After the password is entered, the Local> prompt is redisplayed and you can enter server commands.**

**Refer to Table 8.2** *"XNIC tasks and commands"* **(page 8-26) for a list of basic commands.**

**5** **To end the connection, enter:**

```
logout
```

## Basic XNIC Commands

The basic XNIC commands are as follows:

- **SHOW** displays the XNIC's current information. Display screens vary according to the specific SHOW parameter. The syntax is:

  `show` *parameter*

- **MONITOR** is the same as SHOW, except that the display screen is updated every 10 seconds (every 1 second in privileged mode). Press any key to exit the display. The syntax is:

  `monitor` *parameter*

- **LIST** displays the XNIC's NVRAM (non-volatile RAM) parameter settings. Display screens vary according to the specific LIST parameter. The syntax is:

  `list` *parameter*

- **SET** temporarily changes a parameter to a given value. The change is valid until you log out from the XNIC or power OFF the printer. The syntax is:

  `set` *parameter value*

- **DEFINE** permanently changes an NVRAM parameter to a given value. You must reinitialize the XNIC for the changes to take place:

  — Use the Reset All, Reset Ethernet command (for XNIC-E'NET), or Reset Token Ring command (for XNIC-T'RING) on the printer control panel (DocuPrint 4517 Printer only).

  — Power off the printer and then power it back on.

  — Issue an `init delay 0` command remotely.

  The syntax is:

  `define` *parameter value*

- **CHANGE** is a combination of **SET** and **DEFINE.** It immediately changes a parameter and permanently updates it in the NVRAM as well. Reinitializing the XNIC is not necessary for the changes to take place.The syntax is:

  `change` *parameter value*

- **HELP** displays instructions on the use of the various commands. The syntax is:

  `help` *commandname*

  In XNIC, Version 5.x, the Help command is not available.

Refer to the table which begins on the next page for information about commands.

Table 8.2 lists the most useful XNIC commands, organized by network environment and task.

**Table 8.2 XNIC tasks and commands**

| Task | Command |
|---|---|
| Display information about the XNIC characteristics. | **show server characteristics**<br>Each parameter displayed may be altered using the appropriate SET/CHANGE/DEFINE command.<br>If you have a VT100-compatible terminal, the show server characteristics command displays a "stack" of overlapping screens which can be cycled for display with the arrow keys. |
| Display Document Services for Printing (DS/P) parameters. (Refer to the *Document Services for Printing Guide*.) | **show server dsp** |
| Display the overall server configuration and start-up parameter setting. | **show server local** |
| Display the server node configuration. | **show node** |
| Display the overall network configuration, including the XNIC hardware address and the protocols currently supported. | **show server network** |
| Print Network Interface Configuration for Ethernet or Token Ring sheets | **show config port 1**<br>If DS/P is enabled this command is disabled on the XNIC. |
| Change the login password from the default of "access" at the prompt showing "#". | **define server login password *password_1***<br>(where *password_1* is the new login password) |
| Change the privileged password from the default of "system" at the prompt showing "password>". | **define server privilege password *password_2***<br>(where *password_2* is the new privileged password)<br>This command changes the 'SU' user password. |
| Disable protocols on the XNIC. | **define server authorize *protocol* disabled**<br>(where *protoco*l is one of the following: NetWare, AppleTalk, TCP/IP, LAT, NetBIOS, All, or None.) |
| Enable protocols on the XNIC. | **define server authorize *protocol* enabled**<br>(where *protoco*l is one of the following: NetWare, AppleTalk, TCP/IP, LAT, NetBIOS, All, or None.) |

**Table 8.2 XNIC tasks and commands** *(continued)*

| Task | Command |
|---|---|
| Reset the XNIC remotely (soft reset). | **init delay 0** |
| Reset the XNIC to factory defaults. | **init delay 0 default** |
| Display NetBIOS characteristics. | **show server netbios** |
| Display network configuration parameters. | **show server TCP** |
| Create a new remote printer service. | **change service *name tcp_port* priority *nn***<br>(where *name* is the new service name, *tcp_port* is a value between 3000 and 5000, and *nn* is a value of 0 to 15, with 15 being the highest)<br>Default services all have a priority of 0 (lowest priority). All files sent to a new service set with a higher priority take priority over files sent to the default services.<br>Quotation marks around the service name are required when using upper and lower case characters in the name. |
| Define the printer's IP address. | **define server ip *ddd.ddd.ddd.ddd***<br>(where *ddd.ddd.ddd.ddd* is the IP address of the printer) |
| Redefine the subnet mask. | **define server subnet *mmm.mmm.mmm.mmm***<br>(where *mmm.mmm.mmm.mmm* is the subnet mask for the network) |
| Define gateway address. | **define node ip *ggg.ggg.ggg.ggg* gateway default**<br>(where *ggg.ggg.ggg.ggg* is the address of the default router for the printer's network segment) |

**Table 10.1 SNMP Requests** *(continued)*

| SNMP Request | Definition |
|---|---|
| psPermServerApple | Provides Apple Server System information which contains the following attributes:<br><br>psPermServerAppleChecksum<br>psPermServerAppleNetwork<br>psPermServerAppleDesiredZone<br>psPermServerAppleFlowQuantum<br>psPermServerAppleNode |
| psTempServerApple | Provides Apple Server System information which contains the following attributes:<br><br>psPermServerAppleChecksum<br>psPermServerAppleNetwork<br>psPermServerAppleDesiredZone<br>psPermServerAppleFlowQuantum<br>psPermServerAppleNode<br>psPermServerAppleEtherTalkStatus<br>psPermServerAppleCurrentZone<br>psPermServerAppleMulticast<br>psPermServerAppleRouterAddress |
| psPermServerLat | Provides Lat Server System information which contains the following attributes:<br><br>psPermServerLatKeepalive<br>psPermServerLatRetransmitLimit<br>psPermServerMulticastTimer<br>psPermServerLatEltAnnounce<br>psPermServerLatRcfAnnounce<br>psPermServerEltRevision<br>psPermServerEltFramesize |
| psTempServerLat | Provides Lat Server System information which contains the following attributes:<br><br>psTempServerLatKeepalive<br>psTempServerLatRetransmitLimit<br>psTempServerMulticastTimer<br>psTempServerLatEltAnnounce<br>psTempServerLatRcfAnnounce<br>psTempServerEltRevision<br>psTempServerEltFramesize |

**Table 10.1 SNMP Requests** *(continued)*

| SNMP Request | Definition |
|---|---|
| psPermServerNetware | Provides Netware Server System information which contains the following attributes:<br>psPermServerNetwareEtherMode<br>psPermServerNetwareEtherType<br>psPermServerNetwareRediscover<br>psPermServerNetwareFast |
| psTempServerNetware | Provides Netware Server System information which contains the following attributes:<br>psTempServerNetwareEtherMode<br>psTempServerNetwareEtherType<br>psTempServerNetwareRediscover<br>psTempServerNetwareFast<br>psTempServerNetwareNum<br>psTempServerNetwareFileServer<br>psTempServerNetwareCurrSocks<br>psTempServerNetwareHighSocks<br>psTempServerNetwarePrinters |
| psPermServerQueue | Specifies the maximum number of queued requests for remote access to server ports which contain one attribute:<br>psPermServerQueueLimit |
| psPermServerSession | Specifies the maximum number of sessions that the server may have active at the same time which contain one attribute:<br>psPermServerSessionLimit |

**Table 10.1 SNMP Requests** *(continued)*

| SNMP Request | Definition |
|---|---|
| psPermServerSystem | Provides server system information which contains the following attributes:<br><br>psPermServerName<br>psPermServerNumber<br>psPermServerId<br>psPermServerPhysicalAddr<br>psPermServerRevFirmware<br>psPermServerAuthorized<br>psPermServerConsole<br>psPermServerLock<br>psPermServerSecurity<br>psPermServerHeartbeat<br>psPermServerAutoReinit<br>psPermServerInactivity<br>psPermServerEmulexOptions<br>psPermServerPasswdLimit<br>psPermServerPrompt<br>psPermServerLoginPrompt<br>psPermServerLoginBanner<br>psPermServerWelcomeMessage |

**Table 10.1 SNMP Requests** *(continued)*

| SNMP Request | Definition |
|---|---|
| psTempServerSystem | Provides server system information which contains the following attributes:<br><br>psTempServerName<br>psTempServerNumber<br>psTempServerId<br>psTempServerPhysicalAddr<br>psTempServerRevFirmware<br>psTempServerAuthorized<br>psTempServerConsole<br>psTempServerLock<br>psTempServerSecurity<br>psTempServerHeartbeat<br>psTempServerAutoReinit<br>psTempServerInactivity<br>psTempServerEmulexOptions<br>psTempServerPasswdLimit<br>psTempServerPrompt<br>psTempServerLoginPrompt<br>psTempServerLoginBanner<br>psTempServerWelcomeMessage<br>psTempServerInit |
| psPermServerTcp | Provides TCP Server information which contains the following attributes:<br><br>psPermServerTcpAlias<br>psPermServerTcpAnnounce<br>psPermServerArp<br>psPermServerTcpKeepalive<br>psPermServerTcpRetransmitLimit<br>psPermServerSubnetMask<br>psPermServerTcpNodeEntry<br>psPermServerDomain<br>psPermServerIpVersion<br>psPermServerTcpFramesize<br>psPermServerIpAddr |

**Table 10.1 SNMP Requests** *(continued)*

| SNMP Request | Definition |
|---|---|
| psTempServerTcp | Provides TCP Server information which contains the following attributes:<br>psTempServerTcpAlias<br>psTempServerTcpAnnounce<br>psTempServerArp<br>psTempServerTcpKeepalive<br>psTempServerTcpRetransmitLimit<br>psTempServerSubnetMask<br>psTempServerTcpNodeEntry<br>psTempServerDomain<br>psTempServerIpVersion<br>psTempServerTcpFramesize<br>psTempServerIpAddr |
| psPermSnmp | Provides SNMP information which contains the following attributes:<br>psPermSnmpNumber<br>psPermSnmpTrapHostIp |
| psTempSnmp | Provides SNMP information which contains the following attributes:<br>psTempSnmpNumber<br>psTempSnmpTrapHostIp |
| psPermSnmpTable | Provides a list of SNMP community entries on the server which contains the following attributes:<br>psPermSnmpCommIndex<br>psPermSnmpCommName<br>psPermSnmpCommAccess<br>psPermSnmpCommStatus |
| psTempSnmpTable | Provides a list of SNMP community entries on the server which contains the following attributes:<br>psTempSnmpCommIndex<br>psTempSnmpCommName<br>psTempSnmpCommAccess<br>psTempSnmpCommStatus |

**Table 10.1 SNMP Requests** *(continued)*

| SNMP Request | Definition |
|---|---|
| psTempServerApplePtrTable | A table containing all printers serviced by an Emulex Printer Server in an AppleTalk environment which contains the following attributes:<br><br>KEY<br>psTempServerApplePtrName<br>psTempServerApplePtrPortList<br>psTempServerApplePtrAddress |
| psTempServerNetwarePserverTable | A table containing all the printers and associated queues serviced by an Emulex Print Server (network card) functioning as a NetWare Pserver which contains the following attributes:<br><br>psTempServerNetwarePserverIndex<br>psTempServerNetwarePserverPtrNum<br>psTempServerNetwarePserverPtrName<br>psTempServerNetwarePserverPort<br>psTempServerNetwarePserverState<br>psTempServerNetwarePserverNcpState<br>psTempServerNetwarePserverStatus<br>psTempServerNetwarePserverQueues |
| psTempStatEther | Provides statistical information about ethernet transmission which contains the following attributes:<br><br>psTempStatEtherSendFails<br>psTempStatEtherRcvFails<br>psTempStatEtherUnrecDests<br>psTempStatEtherUnkProts<br>psTempStatEtherNoRxBufs<br>psTempStatEtherNoTxBufs<br>psTempStatEtherDirBRcvs<br>psTempStatEtherDirBXmits<br>psTempStatEtherDirFRcvs<br>psTempStatEtherDirFXmits<br>psTempStatEtherBroadBRcvs<br>psTempStatEtherBroadBXmits<br>psTempStatEtherBroadFRcvs<br>psTempStatEtherBroadFXmits |

# Chapter 11

# *Troubleshooting*

# Overview

This chapter describes some methods you can use to troubleshoot problems with the XNIC. It also tells you how to obtain further assistance.

When connected to an Ethernet network, there is a certain maximum number of devices per network segment and per network. To avoid network problems, check the device limitation for your network type and the number of devices on your network to make sure you are not exceeding the recommended limit. If necessary, subdivide the network using bridges and routers.

## Basic Check Procedure

If you experience problems printing to the printer, first check for the following:

- Is the printer powered on?
  - The printer's Control Panel display reads:

    ```
    Online          ___
    Ready
    ```

  - If the Control Panel display reports an error, refer to your printer's user guide for further information.
  - Print a Printer Configuration Sheet from the Test Menu and verify that the network settings are correct.
- If using the XNIC-E'NET, is it properly installed in the printer and connected to the Ethernet network? Check that:
  - The XNIC-E'NET is connected to the network via a Thinnet **or** UTP (10BaseT) cable. If the UTP is used, then the green LED on the XNIC-E'NET's connection panel will be lit.
  - The yellow LED on the XNIC-E'NET's connection panel is ON or flashes to indicate network activity for UTP or Thinnet. If the LED is always off, verify that the network is active and is connected to both the host computer and the printer.
- If using the XNIC-T'RING, is it properly installed in the printer and connected to the Token Ring network? Check that:
  - The XNIC-T'RING is connected to the network via STP or UTP connector.
  - The Token Ring Speed jumper in the printer is set to the same speed as the Token Ring MAU.
  - The LED on the Token Ring MAU that the printer network cable is attached to remains lit.

# Network Operational Problems

Table 11.1 lists common network operational problems, the possible causes, and recommended corrective actions.

**Table 11.1 Network Operational Problems**

| Problem | Possible Causes | Corrective Actions |
|---|---|---|
| Files won't print. | Bad cable connections. | Check the network:<br>**If XNIC-E'NET:**<br>• Observe the green and yellow LEDS between the twisted pair and coaxial on the XNIC connection panel.<br>  • The green LED is on when the printer is powered on and connected to the network through the twisted pair connector. This LED will not be lit with a thinnet connection.<br>  • The yellow LED flashes when the interface card receives any network traffic.<br>• If the connection is twisted pair, observe the LEDs on the Ethernet hub. They should be on if the device is connected and powered on.<br>• If these LEDs are not on, try replacing hardware starting with cables.<br>**If XNIC-T'RING:**<br>• Observe the LEDs on the Token RIng MAU. They should be on if the printer is connected and powered on.<br>• If these LEDs are not on, try replacing hardware starting with cables. |
| | There is a problem with the DS/P connection. | See the troubleshooting section in the Document Services for Printing Guide. |

**Table 11.1 Network Operational Problems** *(continued)*

| Problem | Possible Causes | Corrective Actions |
|---|---|---|
| There are intermittent breaks in transmission. | A network cable is damaged. | A damaged cable may still be capable of intermittent throughput, with occasional breaks in transmission. It is difficult to detect if no external cable damage is visible.<br><br>Try to disassemble and test each section separately until the bad cable or connectors are found. Replace cable or connectors immediately. |
| | The maximum cable length is exceeded. | Check cable length specifications for your network.<br><br>**Ethernet networks** have limitations on the maximum cable length for each network segment. Exceeding these limitations can cause problems such as ghosting (intermittent appearance and disappearance of network services or devices).<br><br>Following are the recommended maximum allowable cable lengths:<br>• ThinNet (10Base2, uses RG-58/U coaxial cable with T connectors to attached devices, and two 50 ohm terminators, one at each end of the bus.)<br>A maximum of 185 meters (607 feet) and 30 attachments per segment.<br>• 10BaseT (10Base-T uses 24 gauge, unshielded twisted pair cables with RJ-45 connectors. The cables run from attached printers to a central hub.)<br>100 meters (330 feet) per cable.<br><br>**Token Ring networks** have limitations on the maximum cable length for each network segment. Exceeding these limitations can cause problems such as ghosting (Intermittent appearance or disappearance of network services or devices.) |

**Table 11.1 Network Operational Problems** *(continued)*

| Problem | Possible Causes | Corrective Actions |
|---|---|---|
| Performance is degraded. | A slowdown in network performance may be caused by an inappropriate use of network services. (Example: Running a print job from a file server instead of from a local hard disk may cause unnecessary slowdown in performance.) | Observe proper network usage. |
| | There may be an incompatible software driver on the computer requesting the service. | All computers using a particular network service should have the same version of the driver installed. These include the printer drivers, and network service devices such as file servers, print servers and mail servers, etc. When printer drivers are incompatible, messages will appear for users to reinitialize the driver.<br>Remove the driver on the user's computer, install the correct version that is consistent with the other network users, and then restart the computer. |
| | There may be system software conflicts.<br>Any device may cause network problems if it is operating with system software that differs from the standard version used on the network. Symptoms might be limited to the affected device or might affect network performance in other ways. | Determine whether or not there are system software conflicts. |

# Resetting the XNIC to the Factory Defaults

If you want to return XNIC settings to their factory defaults such as IP address, and Required/Preferred File Server Name, or in the event that you are unable to log into the XNIC remotely (as explained in the *"Setting Optional Configurations"* section of the applicable network chapter), use the following procedure:

1. **Power OFF the printer and remove the network connections.**
2. **Remove the controller board from the printer.**

   Refer to the printer's User Guide for instructions, if necessary.
3. **Locate the JX1 jumper on the XNIC-E'NET or the XNIC-T'RING.**

   Refer to Figure 1.1 on page 1-7, or to Figure 1.3 on page 1-9, if necessary.
4. **Move the jumper from its current position (connecting pins 2 and 3) so that it connects pins 1 and 2.**
5. **Replace the controller board in the printer.**
6. **Power ON the printer and wait 30 seconds after the printer displays the ready message.**
7. **Power OFF the printer.**
8. **Remove the controller board from the printer.**
9. **Move the JX1 jumper back to connect pins 2 and 3.**
10. **Replace the controller board in the printer.**
11. **Power On the printer. The Network Configuration sheets will automatically print. Or, print a Printer Configuration Sheet.**

    **Use either of the configuration sheets to verify that the IP address is set to NONE and that the PSERVER NAME has returned to XNE**xxxxxx **or XNT**xxxxxx**, where xxxxxx is the last six characters of the XNIC hardware address.**

12 **Power Off and replace the network connections.**

13 **Power On the printer.**

You are now ready to use your printer.

# Novell NetWare Problems

Table 11.2 lists common Novell NetWare problems, the possible causes, and recommended corrective actions. Before you take any action, however, refer to the Novell Print Server Guide, and verify that the queue, print server, and printer were configured correctly.

**Table 11.2 Novell NetWare problems**

| Problem | Possible Causes | Corrective Actions |
|---|---|---|
| Print job doesn't print. | Printer is on a large network which has 25 or more Novell fileservers. | Refer to XNIC Configuration Options, page 3-43 for setting the following parameters on the XNIC:<br>• Tree name and context name (for NDS mode)<br>• Preferred/Required fileserver (for 3.x)<br>• PServer name for RPrinter/NPrinter mode. |
| Printer's Print Server name is not displayed in the list after the command "tes name" or "set port tes" is entered.<br>Printer's Print Server name is not displayed in the list after the Novell console command "display servers" is entered. | Bad cabling. | See your network administrator for the wiring problem. |
| | XNIC's SAP IDs are filtered out by a network router that is located between your printer and the Novell file server. | Ask your network administrator to reconfigure the router, or<br>Move the printer to the network segment where the Novell fileserver resides. |
| The "tes name" or "set port tes" command displays your printer server name, but you are unable to log into the XNIC remotely. | Your client workstation does not have the latest update about the XNIC from the fileserver. | At the C:\TES-KRMT prompt, enter "tes unload" to unload the program from memory. Then enter "tes" again. |
| | The NetWare protocol on the XNIC is disabled by someone. | Use Telnet to log into the XNIC. Enable the NetWare protocol feature again. Refer to Table 3.2 on page 3-55 for the XNIC command. |
| | The XNIC is in an unknown state. | Refer to *"Resetting the XNIC to the Factory Defaults"* (page 11-7). |

**Table 11.2 Novell NetWare problems** *(continued)*

| Problem | Possible Causes | Corrective Actions |
|---|---|---|
| Files won't print. | Print Queue is not attached to print server. | Use PCONSOLE to make sure the print queue is attached to the print server. The steps are as follows:<br>1. Type PCONSOLE at the command line.<br>2. Select Print Queue Information.<br>3. Select the print queue associated with the printer.<br>4. Select Currently Attached Servers. The Print Server name should be located here. If the print server name is not located here, verify the configuration procedures in the Novell chapter. |
| | Print Server not running on file server. | Use PCONSOLE to check the status of the print server. The steps are as follows:<br>1. Type PCONSOLE at the command line.<br>2. Select Print Server Information.<br>3. Select the print server name that matches the name on the printer's configuration sheet.<br>4. Select Print Server Status/Control menu.<br>5. Select Server Info.<br>6. The print server status is located in the Current Server Status field. If it is not running, contact the system administrator to verify that the printer is properly installed. |
| | Print job is still in queue. | Use PCONSOLE to see if there are other print jobs queued up to be printed before your print job. The steps are as follows:<br>1. Type PCONSOLE at the command line.<br>2. Select Print Queue Information.<br>3. Select Current Print Job Entries.<br>4. Look to see if your print job is still in the print queue. If it is, wait until your job is at the front of the queue. |

**Table 11.2 Novell NetWare problems** *(continued)*

| Problem | Possible Causes | Corrective Actions |
|---|---|---|
| NetWare File Server console message: "XNExxxxxx can't add printer 0, no resources". | Incorrect installation of Print Server XNExxxxxx for XNIC-E'NET. | Delete print server XNExxxxxx and associated print queues. Re-do install.<br><br>When the configuration is correct, Print Queues and Print Servers have directories in the SYSTEM directory of the file server. These directories correspond to the Object IDs that can be viewed with Pconsole.<br><br>The print queue directory will be named xxxxxxxx.QDR, where the xxxxxxxx corresponds to the Print Queue ID. It will be empty after jobs are printed.<br><br>The print server directory will be named yyyyyyyy, where the yyyyyyyy corresponds to the Print Server ID. It will typically have at least 2 files: queue.000 and print.000. |
| Corruption of downloaded fonts or forms on NetWare systems. | Netware replaces tabs (x'09') with spaces. | Override the default CAPTURE and NPRINT "Tabs" parameter with /NT for no tabs. |
| NetWare jobs break up. | CAPTURE and NPRINT "Timeout" parameter is too short. | Increase the "Timeout" parameter. |
| PostScript prints error sheets for NetWare banner sheets. | The PostScript interpreter incorrectly interprets the NetWare banner sheet. | Suppress the NetWare banner sheet or change the default emulation on the printer port to PCL and turn Language Sensing on. (These steps are performed at the printer.) |

**Table 11.2 Novell NetWare problems** *(continued)*

| Problem | Possible Causes | Corrective Actions |
|---|---|---|
| Jobs sent by Microsoft Windows applications are not re-routed from LPT1 to the network printer after the NetWare Capture command is run. | "Fast Printing Direct to Port" is selected under the Control Panel options in Windows, causing the application to drive LPT1 directly. | De-select fast printing. The path under Windows is:<br>Main<br>Control Panel<br>Printers<br>Connect<br>Remove the "X" from the "Fast Printing Direct to Port" box. |
| No communication between XNIC and the intended file server. | Mismatch of frame types between XNIC and the file server. | Sometimes, when XNIC is left to automatically set its frame type, it may lock its frame type to an undesired setting. Because of this, it is recommended that you force the XNIC to have a permanently set frame type.<br>Also, If the XNIC will need to be connected to Novell file servers that have different frame types, it is recommended that the Novell file servers include the "bind" and "load" commands. It is the file server's task to receive and transmit with more than just one frame type. |

# EtherTalk Problems

If your Macintosh jobs will not print and an "Out of memory" message is displayed on the Mac screen, an incorrect printer type was selected under the "Chooser" menu. The LaserWriter printer type should be selected.

For installing a Macintosh printer on the Ethernet network:

## To select EtherTalk or TokenTalk:

1. **Select the apple icon from the menu bar at the top of the screen.**
2. **Select the Control Panel option.**
3. **Select Network.**
4. **Select EtherTalk or TokenTalk.**

## To set up the printer:

1. **Select Chooser from the Apple menu.**
2. **Click the OnPage icon (or the LPS equivalent.).**
3. **If the AppleTalk Active button isn't already on, click the Active button to turn AppleTalk On, and restart you computer.**
4. **If your network administrator has divided your AppleTalk network into zones, click the zone that includes your printer.**

   All the AppleTalk printers that are on your network (or in the current zone) will appear in a list box.
5. **Select the name of your printer.**
6. **Click the Setup button.**

# UNIX TCP/IP Problems

Table 11.3 *"UNIX TCP/IP problems"* (page 11-16) lists common UNIX TCP/IP problems, their possible causes, and recommended corrective actions. Before you take any action, however, first check for the following:

- On a TCP/IP network host computer, enter the command:

  `ping` *`ddd.ddd.ddd.ddd`*

  where *`ddd.ddd.ddd.ddd`* is the printer's IP address. If you do not succeed, the problem is most likely with the network facility or configuration parameters.

- Attempt a remote login to the RCF port as described in the section *"Logging into the XNIC"* (page 5-35).

  — If you do not succeed, the problem is most likely with the network facility or configuration parameters.

  — If you can perform a remote login, the problem is most likely with the print queue definitions.

- Have you changed the IP address, server name, or service name in the XNIC? Be sure the correct information is also found in your host configuration files.

- On TCP hosts, ensure that the server name (XNExxxxxx or XNTxxxxxx), IP address, and Ethernet hardware address are entered in the */etc* files, such as */etc/ethers*, */etc/hosts*, and */etc/printcap*. (Only some of these files might be used.) If you are using NIS (Yellow Pages), this information must be entered in the NIS master hosts file.

- If you encounter trouble printing from a TCP host using *lpd*:

  — Examine the */etc/printcap* file to ensure the correct printer name, queue name, and node (server) names are entered.

  — Verify that you used the correct queue for the type of file: *rp=PASSTHRU* for Postscript, PCL, or binary files; *rp=TEXT* for ASCII files.

- If you are printing from a TCP host using *rprint*, error events are written to a default log file named */tmp/rpn[pid].log*, where *[pid]* is a process number.

— Check the error log(s) in the */tmp* directory for possible problems. If errors are not reported or if the error log does not exist, verify the printer status using the *lpc* (BSD) or *lpstat -t* commands (System V).

— Examine the */etc/printcap* file for the *xrx_text* entry and change *disable* to *enable*.

- Log into the XNIC and verify that the print definitions are enabled for the protocol you are using. Also verify that the service you are trying to use is authorized for the desired protocol. Authorized protocols for the server are displayed using the *SHOW SERVER NETWORK* command. These commands are discussed in the section *"Basic XNIC Commands"* (page 5-37).
- If you experience difficulties locating the problem on TCP/IP networks, use the *Log File* or *Trace Mode* options.

**Table 11.3 UNIX TCP/IP problems**

| Problem | Possible Causes | Corrective Actions |
|---|---|---|
| Cannot access the XNIC from your workstation. | Card was previously installed, and the IP address is from a different network (i.e., subnet) than the network you are trying to reach it from (e.g., 13.0.0.18). | Use a manual routine to set the IP address.<br><br>Set up a routing table on the workstation. The workstation in this example has IP address 13.1.217.153.<br>route add host 13.0.0.18 13.1.217.153 0<br><br>To check the routing table, enter:<br>netstat -r<br><br>The workstation screen will display your entry, as well as others.<br><br>Ping the device you are trying to reach:<br>ping 13.0.0.18<br><br>The device will answer "13.0.0.18 is alive" if it is connected. If the connection times out, stop here and re-check cables, routing tables, etc., because there is no path to the device.<br><br>Telnet to the XNIC:<br>telnet 13.0.0.18 2048<br><br>Log onto the XNIC in order to redefine the IP address to 13.1.217.156 (instead of 13.0.018). Press <ENTER> to get the # prompt, and then "access" at the # prompt. The Local> and Password> prompts will appear automatically.<br>Local> su<br>Password> system<br>Local> define server ip 13.1.217.156<br>Local> init delay 0<br>Local> logout<br><br>Modify UNIX files (/etc/hosts and /etc/printcap) as described in the UNIX Installation and Configuration Guide.<br><br>Power OFF and ON the printer to enable the new IP address. |

**Table 11.3 UNIX TCP/IP problems** *(continued)*

| Problem | Possible Causes | Corrective Actions |
|---|---|---|
| Cannot access the XNIC from your workstation (continued). | Printer is not on the same network. | Telnet into the printer from a workstation on the same network. Set route to workstation with either of the following commands:<br>For a specific workstation:<br>change route ip *workstation_ip_address*<br>where *workstation_ip_address* is the IP address of the workstation.<br>For a default router:<br>Define node *name* IP *gateway_ip_address* gateway default<br>where *name* is the name of the gateway and *gateway_ip_address* is the IP address of the gateway. |
| Unable to reach the XNIC from your TCP/IP host. | There is a router between the UNIX host and the printer being installed, and the router is unaware of the printer's IP address. | Modify the XNIC IP address by connecting to the XNIC through another XNIC server using the "Connect RCF" command. |
| *arp* command not successful. | Host Name incorrect.<br>Printer not on same physical and logical net as server.<br>XNIC already has an IP address. | Check TCP/IP configuration.<br>Move printer to the same physical or logical net as the File Server. Follow the XNIC documentation on how to change the IP address manually and set routing.<br>Set IP address of XNIC back to NONE or reset the XNIC to its factory defaults to return the IP address to "None". Refer to *"Resetting the XNIC to the Factory Defaults"* (page 11-7). |

**Table 11.3 UNIX TCP/IP problems** *(continued)*

| Problem | Possible Causes | Corrective Actions |
|---|---|---|
| UNIX files won't print. | Missing entries in /etc/hosts and /etc/printcap files. | Check the /etc/hosts and /etc/printcap files, and rectify if needed. The following examples are from a SUN workstation connected to an XNIC-E'NET.<br>/etc/hosts<br>/etc/hosts connects the IP address with the server name. The server name is case sensitive. The name must match exactly wherever it is used on the UNIX host.<br>For example:<br>13.1.217.156 XNE00024E<br>/etc/printcap<br>/etc/printcap is the "printer capability" file. This entry in /etc/printcap goes with the above /etc/hosts entry:<br>xrx_pcllXerox PCL Printer:\<br>:lp:\<br>:rm= XNE00024E:\<br>:rp=TEXT:\<br>:mx#0:\<br>:sd=/usr/spool/lpd/xrx_pcl:<br>A spool directory, /usr/spool/lpd/xrx_pcl, must be made with the "mkdir" UNIX command.<br>To print a file named "test" using lpr:<br>lpr -Pxrx_pcl test |
| UNIX text files print off the right edge of the page. | Incorrect value for the rp parameter in /etc/printcap. | For ASCII text, to add a carriage return for each linefeed, enter<br>:rp=TEXT: |
| Problems with printing PostScript files under UNIX. | Incorrect value for the rp parameter in /etc/printcap. | For a PostScript passthrough (binary) mode, enter<br>:rp=PASSTHRU: |

# LAT Problems

If you are printing from a LAT host, ensure that the queue was set up and is running.

If the printer will not print, the XNIC's name has been changed. Follow these steps to correct the problem:

1. **Connect to the card using the instructions in the section *"Logging into the XNIC-E'NET"* (page 6-5)**

2. **Issue the command:** `show server lat`

   Verify the name is the same as the node name you set up in the section Configuring an OpenVMS LAT Host for LATSYM (page 6-3).

3. **Issue this command only if your XNIC is Version 4.x:**

   `show port 1`

4. **Verify that the port name is PORT_1.**

   Note that the port name must end in an "_1." If the port name is incorrect, then rename the port. The command is:

   `change port 1 name` *`new_name`*.

5. **If either of these items is different than those defined in the section Configuring an OpenVMS LAT Host for LATSYM (page 6-3), then repeat the step using this new XNIC name.**

# LAN Manager Problems

Table 11.4 *"LAN Manager problems"* (page 11-21) lists common LAN Manager problems using the TCP/IP protocols, the possible causes, and recommended corrective actions.

If you are having trouble reaching the XNIC on the network, first verify the following points:

- Verify that all network connections are functioning.
- Verify that the TCP/IP protocol stack is correctly installed on your file server and that you are using the correct IP addresses. Also verify the subnet mask, if any.
- Ensure that you have low level TCP/IP connection between the LAN Manager file server and the XNIC by using the *ping* utility.
- If other applications are using the TCP/IP sockets, ensure that your *NumSockets* is configured for the correct value. This value may also be increased to add multiple printers. NumSockets is located in the [SOCKETS] section of TCPUTIL.INI.

  The XNIC's LAN Manager process uses one TCP/IP socket for each active printer.
- Ensure the value of *TcpConnection* in the PROTOCOL.INI is the sum total of:

  TCP/IP NetBIOS sessions + sockets sessions + telnet sessions.

  The correct values for these are given in your LAN Manager documentation.

**Table 11.4 LAN Manager problems**

| Problem | Possible Causes | Corrective Actions† |
|---|---|---|
| TelRcf does not connect. | Printer is OFF, off-line, or disconnected from the network. | Make sure the printer is ON. |
| | There are problems with the network. | Check that cables are properly connected to the network and to the printer. |
| | XNIC IP address has been incorrectly defined in the TelRcf icon. | Check the IP address of the TelRcf Icon. |
| Printer does not get a ready status. | Connection with the XNIC is incomplete.<br>The printer is OFF. | From the **Xerox LAN Manager Printer Utility** window:<br>1. Select the printer with problem (highlighted).<br>2. From **Launch** pull down menu, select **Stop Printer**.<br>3. After a minute, select **Start Printer** from **Launch** pull down menu. The printer's control panel should now display the online message: `Ready` |
| Erroneous paper jammed message. | Network communication problems.<br>The file server crashed. | Hold queue, delete job, then release the queue. |
| Queueing status for long time. | The printer may have timed out.<br>The printer may be OFF. | Check that printer is `Online Ready`. Then down the XNIC by powering off and powering on the printer. |
| Waiting connection for long time. | Printer might be busy, such as when it is printing another job.<br>The printer is off-line or OFF.<br>Network communication problems. | Check that printer control panel displays `Online Ready`. |

† If the printer still does not work after taking the appropriate corrective actions, down the LAN Manager server, then bring it back up again.

# LAN Server Problems

Table 11.5 lists common LAN Server problems, the possible causes, and recommended corrective actions.

**Table 11.5 LAN Server problems**

| Problem | Possible Causes | Corrective Actions |
|---|---|---|
| Printer will not print. | IP address not defined in Host Table. | Check Services screen 3 in the TCP/IP configuration folder. |
| | Host Name incorrect. | See above. Also check Host Name in LPD Pipe. This is located in the Printer set-up under Output. |
| | *lprportd* not running–with XNIC Version 4.x, only. | Execute *lprportd* in an OS/2 session. Be sure not to close the session. |
| | Printer (-p) not set to TEXT or PASSTHRU. | Verify that the printer is set to TEXT or PASSTHRU in the LPD/PIPE. |
| *arp* command not successful. | Printer not set to IP address of "none". | Print a Printer Configuration Sheet and check the IP address setting for TCP/IP listed in the Ethernet or Token Ring column. |
| | Host Name incorrect. | Check TCP/IP configuration. |
| | Printer not on same physical and logical net as file server. | Move printer to the same physical or logical net as the File Server. Follow the XNIC documentation on how to change the IP address manually and set routing. |
| Text file running off the page. | The printer is set to PASSTHRU in the LPD Pipe. | The TEXT setting is for text only files without control codes. The PASSTHRU setting is for PostScript or PCL 5e emulation files. |
| Attempt to Telnet into XNIC, and XNIC does not accept password. | A <Backspace> is required before entering the password. | Enter a <Backspace> before entering the password. |
| Printer will not print a banner page. | XNIC functionality does not support a banner page at this time. | Create a file that can act as a banner page. This can be done in the printer set-up. |

# Windows NT Problems

Table 11.6 lists common Windows NT problems when printing via TCP/IP, the possible causes, and recommended corrective actions.

**Table 11.6 Windows NT Problems**

| Problem | Possible Causes | Corrective Actions |
|---|---|---|
| Cannot access the XNIC from your workstation. | XNIC cannot complete workstation request for connection. | Make sure the printer is on the same physical segment as the workstation. |
| Files do not print from NT Server workstation. | Incorrect value for **Print Destinations** field. | Make sure that the LPR Port is selected in the **Print Destinations** dialogue box.<br>Refer to Step 9 on page 9-17. |
| | Incorrect IP address entered. | Make sure that the correct IP address of the printer has been entered in the **Name or address of host providing lpd** box.<br>See the section *"Creating a TCP/IP Printer Queue"* Step 10 on page 9-17. |
| Files do not print from NT clients. | The **Share this printer on the network** field was not set. | Make sure that the field **Share this printer on the network** was checked. It is located in the **Add LPR Compatible Printer** window and allows other users to share this printer.<br>See the section *"Configuring the XNIC for Windows NT,"* Step 7 on page 9-17. |

**Table 11.6 Windows NT Problems** *(continued)*

| Problem | Possible Causes | Corrective Actions |
|---|---|---|
| A new IP address cannot be set using ARP/PING | Initial IP address was not set as "None". Either the XNIC was already given a pre-defined IP address by a system administrator, or a DHCP server is enabled on a file server. | Print a Printer Configuration Sheet and check the IP address setting for TCP/IP listed in the top portion.<br>See the section *"Setting the Address Manually with ARP/PING (Option 1)"* (page 9-8). |
| | The client host and the printer are separated by a router. | The client host issuing the commands to newly assign the IP address using ARP/PING and the target printer should be on the same subnet. |
| | The ARP table on the client host has empty entries or error ARP 2 is occurring. | Try Pinging to another IP node on the network to add an entry into the ARP table.<br>Refer to the Microsoft knowledge base (such as their Web pages) for symptoms, workarounds, and status of the ARP command in Windows NT. |
| Print jobs come out incorrect. | Incorrect value in the **Name of printer on that machine** field. | For print jobs that use a printer driver, enter `PASSTHRU` in the **Name of printer on that machine** box. This box is located in the **Add LPR Compatible Printer** window.<br>See the section *"Configuring the XNIC for Windows NT,"* Step 11 on page 9-18. |
| | Banner page causes problems with the Auto Emulation Switching. | Add the following lines to the SYSPRINT.sep file:<br>`@L %% Title:separator`<br>`@L %% Adobe-PS20 ESPF-1.2`<br>The file should end in a control-D. Therefore, insert the following line at the end of the SYSPRINT.sep file:<br>`@L <HEX 04>`<br>This file is located in the C:\windows\system32 directory. |

**Table 11.6 Windows NT Problems** *(continued)*

| Problem | Possible Causes | Corrective Actions |
|---|---|---|
| Text files print off the right edge of the page. | Incorrect value in the **Name of printer on that machine** field. | For ASCII text, to add carriage return for each linefeed, enter TEXT in the **Name of printer on that machine** box. This box is located in the **Add LPR Compatible Printer** window.<br>See the section *"Configuring the XNIC for Windows NT,"* Step 11 on page 9-18. |

**Table 11.6 Windows NT Problems** *(continued)*

| Problem | Possible Causes | Corrective Actions |
|---|---|---|
| A General Protection error occurs in CorelDraw! when printing. | CorelDraw! does not accept the string of the Printer Port as PASSTHRU. | Change the printer service to the printer's model number using the following commands:<br>1. Open a telnet session from a DOS prompt:<br>telnet print_server_ip_address 2048<br>2. Logon to the XNIC as privileged user:<br>Enter user name or help> su<br>Server> su<br>Password> system<br>3. Enter the following server command:<br>CHANGE SERVICE LPD PORT 1 DISABLE<br>This effectively configures the physical port on the default lpd service as "NONE," which allows "redirecting" of the LPD service to other service records.<br>4. Define a new service for lpd printer queue (Queue_Name), assign a new TCP Port number (TCP Port), and assign a physical port (n). By default, no filtering is performed on the data stream (PASSTHRU). If carriage return insertion is desired as for text data, enable the filter parameter.<br>CHANGE SERVICE Queue_Name TCP_Port [FILTER ENABLED] TELNET DISABLED PORT n<br>On the Windows NT host, the new printer queue is referenced by the service name; that is, the "-p" argument in the lpr command would be set to the service name (Queue_Name). |

**Table 11.6 Windows NT Problems** *(continued)*

| Problem | Possible Causes | Corrective Actions |
|---|---|---|
| A General Protection error occurs in CorelDraw! when printing (continued). | CorelDraw! does not accept the string of the Printer Port as PASSTHRU (continued). | For example, to configure a text printer named "4517" on physical port 1 using TCP Port 3001, type:<br>CHANGE SERVICE 4517 3001 FILTER ENABLED TELNET DISABLED PORT 1<br>Note: The above command is typed all on one line; do not type a <cr> until all information (shown on two lines above) is entered.<br>Note: The TCP Port specified (3001) is required mainly for syntactical purposes to define a new TCP/IP service. The LPD protocol will still use TCP Port 515. However, any print jobs sent to TCP Port 3001 will also utilize the "4517" service and be directed to physical port 1.<br>5. Log out of the XNIC telnet session by entering "logout."<br>6. Create a new printer from the Program Manager. In Step 10, the new input for "B" will be the new Queue Name (e.g., 4517). |

# Before Obtaining Technical Assistance

If you continue to experience problems with your XNIC and cannot resolve them with the procedures discussed above, contact your dealer, Xerox, or Rank Xerox. Before calling, please have the following information available:

- A Printer Configuration Sheet
- Model of the printer in which the XNIC is installed
- Type of host, operating system, and release level
- Network operating environment
- Type of connection to the network
  - — BNC or UTP for Ethernet
  - — STP or UTP for Token Ring
- Contents of the host files:
  - — **TCP**: */etc/printcap*, */etc/hosts*, */etc/ethers,* and*/or /etc/inetd.conf* (if relevant to your system)
  - — **LAT**: *SYS$SYSTEM* and *MOM$LOAD*
  - — **Novell NetWare**: *PRINTDEF* and/or *PRINTCON* setups (if relevant to your system)
  - — **EtherTalk or TokenTalk**: System level, application, printer software (drivers, PPD, etc.)
- Serial number and XNIC hardware address
- Contents of any error logs, such as */tmp/rpn[pid].log*

If possible, you should be at your host and near the printer when you call. This allows you to perform any suggested actions and immediately report the results.

# Appendix A

## Subnetting Example

Subnetting is a process often used to divide a TCP/IP network into different logical networks. This process requires special considerations to be taken when installing the XNIC. The following subnetting example is provided to illustrate these considerations and procedures.

Consider the following situation:

- The subnet mask is 255.255.255.224, which subdivides a class B network into smaller networks consisting of a maximum of 30 nodes each.
- You want to install a printer that is on a different network than the workstation.
- The printer address is node 29 on network 129.9.62.96.
- The workstation is node 27 on network 129.9.61.224.
- The gateway is node 25 on network 129.9.62.97.

A routing information table must be set up on the XNIC card so that the printer will know the address of the router it must go through to communicate with the workstation. Until this communication link is working, Telnet will not work. Two solutions are possible:

Solution 1: Put the printer on the same network as the UNIX workstation, and use Telnet to install the printer.

Solution 2: Log into the XNIC following Step 1 on page 5-35 through Step 5 on page 5-36, then at the Local> prompt, enter the following commands:

```
define server ip 129.9.62.96
define server subnet 255.255.255.224
define node ip 129.9.62.97 gateway default
sync
init delay 0
```

The XNIC will automatically reboot and the printer will then be ready for use.

# Appendix B

# *Installation on Sun Platforms*

# Overview

This appendix describes the complete installation of your Xerox printer is the SunOS and Solaris environments.

## Document Conventions

The following conventions are used throughout this appendix:

- The # sign indicates the UNIX prompt. Do not type it.
- Characters to be entered are in **`computer typeface`**.
- The ¬ sign indicates that the command line continues, and that what follows should be typed as a continuation of the command string. Do not type the ¬ sign.
- Variables, directory paths, and text that is displayed on the computer screen are in *italics*.

**Note**

*All installation procedures require you to be logged in as a root user.*

# Initial Installation

Choose *"Network Printing"* (below), *"Parallel Port Printing"* (page B-8), or both.

## Network Printing

### From a Local Floppy Device

**1** **Decide where you want to store the Xerox Installation Files on the hard disk of your workstation and create a directory. Change to the directory you just created.**

**2** **Insert the UNIX Installation Utility diskette that is shipped with the XNIC into the floppy drive and enter the following at the command line to begin the installation:**

```
# /etc/init.d/volmgt  stop        (only on Solaris Systems)
# tar xvf /dev/fd0 ./xrx          (this will extract the
                                   installation files)
# cd ./xrx
# ./enstall -s                    (this will start the
                                   installation program)
```

**3** **When the program asks you to enter the number corresponding to your system, enter the number that relates to the selection for SunOS or Solaris.**

**4** **When asked to enter the device full path and file specification of your distribution medium, enter the name of your floppy device.**

For example:

```
# /dev/fd0, /dev/rdiskette        (or whatever it may be)
```

**5** **When asked to which LAN Interface the Xerox servers will be connected, enter either your Ethernet or Token Ring device name.**

For example:

```
le0, tr0, hme0                    (or whatever is on your
                                   system)
```

**6** **When asked to enter the number corresponding to the file type for this printer:**

1) Plain text (ASCII)

2) PASSTHRU

**For PCL, Postscript, HPGL or graphic image files, enter selection 2 PASSTHRU to handle all the 3 types of files.**

**For Plain text (ASCII) files, you may choose to do either of the following:**

- Create a printer (queue) to handle the text files (selection 1)
- Edit the */etc/printcap* file by setting the *xrx_text* variable to **`enable`**, and then use the PASSTHRU queue as a common queue to also handle the text files.

## From a Remote Floppy Device

**1** **Decide where you want to store the Xerox installation files on the hard disk of your local workstation and create a directory.**

**2** **Change to the directory you just created.**

You will be using the *BSD R* commands and may need assistance from a system or network administrator to modify the following files:

/.rhosts

~/hosts.equiv

/etc/hosts

/etc/inetd.conf

**3** **Insert the UNIX Installation Utility diskette that is shipped with the XNIC into the floppy drive of your remote workstation and follow this procedure to begin the installation.**

**4** **At your remote workstation, enter:**

```
# /etc/init.d/volmgt stop
```
(only on Solaris System)

**All commands from here on will be on your local workstation.**

**5** **At your local workstation, enter:**

```
# rsh remote_server_name -n dd ¬
  if=/dev/fd0 | tar -xvf-
```
(extracts the installation files)

```
# rsh remote_server_name eject
# rsh remote_server_name ¬
  /etc/init.d/volmgt start
```

**6** **If your workstation is SunOS, enter:**

```
# cp ./hostbin/sunsparc/* ./xrx
```

**If your workstation is Solaris, enter:**

```
# cp ./hostbin/solsparc/* ./xrx
```

**7** **Enter:**

```
# cd ./xrx
# ./enstall -s
```

(this will start the installation program)

**8** **When asked to which LAN Interface will the Xerox servers be connected, enter either your Ethernet or Token Ring device name.**

For example:

```
le0, tr0, hme0
```

(or whatever is on your system)

**9** **When asked to enter the number corresponding to the file type for this printer:**

1) Plain text (ASCII)

2) PASS THRU

**For PCL, Postscript, HPGL or graphic image files, enter selection 2 PASSTHRU to handle all the 3 types of files.**

**For Plain text (ASCII) files, you may choose to do either of the following:**

- Create a printer (queue) to handle the text files (selection 1)
- Edit the */etc/printcap* file by setting the *xrx_text* variable to **`enable`**, and then use the Postscript queue as a common queue to also handle the text files.

## From an FTP Server

Refer to *"Installing Files from an FTP Server"* (page B-17) for the instructions to retrieve and install the files from the FTP server.

## From a Local CD-ROM Device

Refer to *"Installing Xerox DocuPrint 4517 Files from a Local CD-ROM Device"* (page B-22) for the instructions to retrieve and install files from the local CD-ROM device.

### From a Remote CD-ROM Device

Refer to *"Installing Files from a Remote CD-ROM Device"* (page B-26) for the instructions to retrieve and install files from the remote CD-ROM device.

## Parallel Port Printing

### On SunOS Systems

Installation instructions for this section are currently not available. You may need to ask your system administrator to assist you on setting up the */etc/printcap* file correctly to work with your printer's parallel port.

### On Solaris Systems

1. **Bring up** *Openwin***. Enter:**

   ```
   # /usr/openwin/bin/openwin
   ```

2. **Click the right mouse button and select** *Command Tool***.**

3. **In Command Tool, bring up the** *Admintool***. Enter:**

   ```
   # admintool &
   ```

4. **When the Admintool window comes up, click** *Printer Manager***.**

5. **When the** *Printer Manager* **window comes up, click** *Edit* **and select** *Add Printer***, then select** *Add Local Printer***.**

6. **When the** *Add Local Printer* **window comes up, select the** *Printer Port***.**

   It will display a list of devices. The parallel port device will most likely be */dev/term/bpp0*.

7. **While you are still in the** *Add Local Printer* **window, give the name of your printer and set file contents. Click** *OK* **when you are done.**

## PostScript Driver Installation

To obtain updated driver diskettes for your printer, contact your dealer, Xerox/Rank Xerox, or obtain the files from the Xerox FTP site.

The Xerox DocuPrint 4517 Printer includes three diskettes for Solaris 2.3+ drivers and three other diskettes for SunOS 4.1.3+ drivers.

### From a Local Floppy Device

**1** **Decide where you want to store the Xerox installation files on the hard disk of your workstation and create a directory. Change to the directory you just created.**

**2** **If your workstation is Solaris, enter:**

```
# /etc/init.d/volmgt stop
```
(only on Solaris)

**3** **To install printer drivers for the Xerox DocuPrint 4517 printer, insert diskette 1 of 3 of the Xerox DocuPrint 4517 Printer Drivers into the floppy drive.**

**4** **Enter:**

```
# mkdir driver_install_scratch_area
```
(creating a scratch area for driver installation)

```
# cd driver_install_scratch_area
```

```
# cpio -icuB user_guide.txt < /dev/fd0
```
(this will extract the user guide file)

```
# more user_guide.txt
```
(read the user guide or print it out)

```
# cpio -icvdB < /dev/fd0
```
(this will extract the installation files)

```
# eject
```
(eject the 1st floppy disk)

**5** **Insert diskette 2 of 3 into the floppy drive.**

**6** **Enter:**

```
# cpio -icvdB < /dev/fd0
```
(this will extract more installation files)

```
# eject
```
(eject the 2nd floppy disk)

**7** **Insert diskette 3 of 3 into the floppy drive.**

**8** **Enter:**

```
# cpio -icvdB < /dev/fd0
# eject                    (eject the 3rd floppy disk)
# ./install                (begin the print driver installation)
```

**9** **When asked to enter install directory, enter the name of the directory where you want the driver software to be installed.**

*Do not use the scratch area directory for this purpose. Create a new directory other than the scratch area.*

*For example: /home/xerox/driver_software.*

**10** **When asked to run the** *xpconfig* **program to configure the printers, you can change to the bin directory or run it with the full path name.**

For example:

```
# /home/xerox/driver_software/bin/xpconfig
                           (your directory path might be different)
#  /etc/init.d/volmgt start (start volume manager, optionally. Only on Solaris System)
```

## From a Remote Floppy Device

**1** **Decide where you want to store the Xerox installation files on the local hard disk of your workstation and create a directory.**

**2** **Change to the directory you just created.**

You will be using the BSD R commands and may need assistance from a system or network administrator to modify the following files:

/.rhosts

~/hosts.equiv

/etc/hosts

/etc/inetd.conf

**3** **To install printer drivers for the Xerox DocuPrint 4517 printer, insert diskette 1 of 3 of the Xerox DocuPrint 4517 Printer Drivers into the floppy drive.**

**4** **At your remote workstation, enter:**

```
# /etc/init.d/volmgt stop
```
(only on Solaris System)

**5** **Enter:**

```
# mkdir /home/driver_install_scratch_area
```
(creating a scratch area for driver installation)

```
# cd /home/driver_install_scratch_area
# cpio -icvdB < /dev/fd0
```
(this will extract the user guide file)

```
# eject
```
(eject the 1st floppy disk)

**6** **Insert diskette 2 of 3 into the remote floppy drive.**

**7** **Enter:**

```
# cpio -icvdB < /dev/fd0
```
(this will extract more installation files)

```
# eject
```
(eject the 2nd floppy disk)

**8** **Insert diskette 3 of 3 into the remote floppy drive.**

**9** **Enter:**

```
# cpio -icvdB < /dev/fd0
```
(this will extract more installation files)

```
# eject
```
(eject the 3rd floppy disk)

```
# /etc/init.d/volmgt start
```
(start volume manager, optionally. Only on Solaris System)

**10** **At your local workstation, enter:**

```
# mkdir /home/xerox
# cd /home/xerox
# rcp -r remote_hostname:/home/¬
  driver_install_scratch_area /home
```
(copying files from the remote machine)

```
# more user_guide.txt
```
(read the user guide or print it out)

```
# cd /home/xerox/driver_install_scratch_area
# ./install
```
(begin the print driver installation)

**11** **When asked to enter install directory, enter the name of the directory where you want the driver software to be installed.**

*Do not use the scratch area directory for this purpose. Create a new directory other than the scratch area.*

*For example: /home/xerox/driver_software.*

**12** **When asked to run the xpconfig program to configure the printers, you can change to the bin directory or run it with the full path name.**

For example:

```
# /home/xerox/driver_software/bin/xpconfig
```
(your directory path may be different)

## From an FTP server

Refer to *"Installing Files from an FTP Server"* (page B-17) for the instructions to retrieve and install the files from the FTP server.

## From a Local CD-ROM Device

Refer to *"Installing Xerox DocuPrint 4517 Files from a Local CD-ROM Device"* (page B-22) for the instructions to retrieve and install the files from the local CD-ROM device.

## From a Remote CD-ROM Device

Refer to *"Installing Files from a Remote CD-ROM Device"* (page B-26) for the instructions to retrieve and install the files from the remote CD-ROM device.

# Addition or Deletion of Printers on the Host

## Network Printers

### Adding or Deleting Printers

**1** **Go to the *xrx* directory on the hard disk of your workstation.**

**2** **Enter:**

| | |
|---|---|
| `# cd ./xrx` | (this is an example of using a relative path to the xrx directory) |
| `# ./enstall -m` | (this will start the program) |

**3** **When asked to enter the number corresponding to the file type for this printer:**

1) Plain text (ASCII)

2) PASSTHRU.

**For PCL, Postscript, HPGL or graphic image files, you can define one type of printer (queue) on your host such as PASSTHRU (selection 2) to handle all the 3 types of files.**

**For Plain text (ASCII) files, you may choose to do either of the following:**

- Create a printer (queue) to handle the text files (selection 1)
- Edit the */etc/printcap* file by setting the *xrx_text* variable to **`enable`**, and then use the PASSTHRU queue as a common queue to also handle the text files.

### Adding or Deleting Respective Drivers

To configure printers, run the *xpconfig* program. For example, enter:

```
# /home/xerox/driver_software/bin/xpconfig
```
(your directory path might be different)

## Parallel Port Printers

### Adding or Deleting Printers On SunOS

Installation instructions for this section is currently not available. You need to ask your system administrator to assistant you on setting up the */etc/printcap* file correctly to work with the parallel port of your printer.

## Adding or Deleting Printers On Solaris

1. **Bring up** *Openwin*. **enter:**

   ```
   # /usr/openwin/bin/openwin
   ```

2. **Click the right mouse button and select** *Command Tool*.

3. **In** *Command Tool*, **bring up the** *Admintool* **window. Enter:**

   ```
   # admintool &
   ```

4. **When the** *Admintool* **window comes up, click** *Printer Manager*.

5. **Deleting a Printer:**

   **When the** *Printer Manager* **window comes up, select a printer, click on** *Edit* **and select** *Delete Printer*.

   **Adding a Printer:**

   **When the** *Printer Manager* **window comes up, click on** *Edit* **and select** *Add Printer*.

## Adding or Deleting Respective Drivers

To configure printers, run the *xpconfig* program. For example, enter:

```
# /home/xerox/driver_software/bin/xpconfig
```

(your directory path might be different)

# Installing Files from an FTP Server

## Retrieving Installation Files

There are two FTP sites that maintain the necessary files:

*spectrum.xerox.com*

*ftp.xerox.com*

**1** **Decide where you want to store the Xerox installation files on the hard disk of your local workstation and create a directory.**

**2** **Login as the root user. Enter:**

# ftp spectrum.xerox.com (use iftp instead of ftp or whatever command your environment requires)

**3** **At the login prompt, enter the username: `anonymous`.**

**4** **At the password prompt, enter your e-mail address.**

**5** **Enter:**

```
# cd /pub/drivers/Black&White/English/ ¬
  UNIX/Generic
```

```
# bin
```
(ensures that the file transfer is in 'binary' mode)

```
# get xnicinst.tar
```
(retrieves the XNIC Installation Utility)

The following directory paths on the FTP site will navigate you to acquire the Xerox DocuPrint 4517 printer driver files. `If your printer is different than the Model 4517, contact Xerox Technical Support for the correct directory path.`

```
# cd ..
```

```
# get README
```
(retrieves the 4517 Driver User's Guide for UNIX)

**6** **If your workstation is SunOS, enter:**

```
# cd SunOS
# get suno1of3.cpio      (retrieves the 4517 Drivers installation file 1 of 3)
# get suno2of3.cpio      (retrieves the 4517 Drivers installation file 2 of 3)
# get suno3of3.cpio      (retrieves the 4517 Drivers installation file 3 of 3)
```

**If your workstation is Solaris, enter:**

```
# cd Solaris
# get sol21of3.cpio      (retrieves the 4517 Drivers installation file 1 of 3)
# get sol22of3.cpio      (retrieves the 4517 Drivers installation file 2 of 3)
# get sol23of3.cpio      (retrieves the 4517 Drivers installation file 3 of 3)
```

**7** **Enter:**

```
# bye
```

Once the necessary files from the ftp server are retrieved into the local hard disk of your workstation, start the installation procedure as discussed in the next section.

## Initial Installation for Network Printing

For the initial installation of the your printer for Network Printing, follow these instructions:

**1** **At the command line, enter:**

```
# tar -xvf xnicinst.tar      (this will extract the installation files)
```

**2** **If your workstation is SunOS, enter:**

```
# cp ./hostbin/sunsparc/* ./xrx
```

**If your workstation is Solaris, enter:**

```
# cp ./hostbin/solsparc/* ./xrx
# cd ./xrx
# ./enstall -s
```

(this will start the installation program)

**3** **When asked to which LAN Interface will the Xerox servers be connected, enter either your Ethernet or Token Ring device name.**

For example:

```
le0, tr0, hme0
```

(or whatever is on your system)

**4** **When asked to enter the number corresponding to the file type for this printer:**

1) Plain text (ASCII)

2) PASSTHRU

**For PCL, Postscript, HPGL or graphic image files, you can define one type of printer (queue)on your host such as PASSTHRU (selection 2) to handle all the 3 types of files.**

**For Plain text (ASCII) files, you may choose to do either of the following:**

- Create a printer (queue) to handle the text files (selection 1)
- Edit the */etc/printcap* file by setting the *xrx_text* variable to **`enable`**, and then use the PASSTHRU queue as a common queue to also handle the text files.

## Initial Installation of the PostScript Driver

For the installation of the Xerox DocuPrint 4517 Postscript Driver, follow these instructions:

**1** **Enter the following commands:**

```
# cd ..                                  (change to the directory where the ftp files were copied to)
# mkdir driver_install_scratch_area      (creating a scratch area for driver installation)
# mv *.cpio driver_install_scratch_area
# cd driver_install_scratch_area
```

**2** **If your workstation is SunOS 4.1.3+, enter:**
(extracting driver installation files)

```
# cpio -icuBd <suno1of3.cpio
# cpio -icuBd <suno2of3.cpio
# cpio -icuBd <suno3of3.cpio
```

**If your workstation is Solaris 2.3+, enter:**
(extracting driver installation files)

```
# cpio -icuBd <sol21of3.cpio
# cpio -icuBd <sol22of3.cpio
# cpio -icuBd <sol23of3.cpio
# more user_guide.txt                    (read the user guide or print it out)
# ./install                              (begin the print driver installation)
```

**3** **When asked to enter install directory, enter the name of the directory where you want the driver software to be installed.**

*Do not use the scratch area directory for this purpose. Create a new directory other than the scratch area.*

*For example: /home/xerox/driver_software.*

4 **When asked to run the xpconfig program to configure the printers, you can change to the bin directory or run it with the full path name.**

For example:

```
# /home/xerox/driver_software/bin/xpconfig
```

(your directory path might be different)

Once the network and Postscript driver files are stored and extracted on the hard disk of your local workstation, use these files, as needed, to add or delete network printers and respective drivers.

# Installing Xerox DocuPrint 4517 Files from a Local CD-ROM Device

To acquire the Xerox UNIX Installation CD-ROM for the Xerox DocuPrint 4517 Printer, contact your dealer or Xerox or Rank Xerox.

## Retrieving Installation Files

1. **Login to your workstation as root.**

2. **Decide where you want to store the Xerox Installation Files on the hard disk, create a directory, and change to the directory you created.**

   For example:

   ```
   # mkdir /home/xerox
   # cd /home/xerox
   ```

3. **Insert the Xerox UNIX Installation CD-ROM in the CD-ROM drive.**

4. **Mount the CD-ROM on your workstation.**

   **If your workstation is SunOS, enter:**

   ```
   # mount -rt hsfs /dev/sr0 /cdrom
   ```

   **If your workstation is Solaris, enter:**

   ```
   # mount -rF hsfs /dev/sr0 /cdrom
   ```

5. **Copy the files from the CD-ROM to the hard disk.**

   For example, if you created a directory called *xerox* under the *home* directory, enter:

   ```
   # cp -r /cdrom/* /home/xerox
   ```

6 **Unmount the CD-ROM and eject it. Enter:**

```
# umount /cdrom
# eject
```

7 **If your workstation is SunOS, enter:**

```
# cp /home/xerox/network/hostbin/sunsparc/* ¬
  /home/xerox/network/xrx
```

**If your workstation is Solaris, enter:**

```
# cp /home/xerox/network/hostbin/solsparc/* ¬
  /home/xerox/network/xrx
```

Once the necessary files from the CD-ROM are retrieved into the hard disk of your local workstation, start the installation procedure as discussed in the next section.

## Initial Installation for Network Printing

For the initial installation of the Xerox DocuPrint 4517 for Network Printing, follow these instructions:

1 **At the command line, enter the following:**

```
# cd /home/xerox/network/xrx
# ./enstall -s
```

(this will start the installation program)

2 **When asked to which LAN Interface will the Xerox servers be connected, enter either your Ethernet or Token Ring device name.**

For example:

```
le0, tr0, hme0
```

(or whatever is on your system)

**3** **When asked to enter the number corresponding to the file type for this printer:**

1) Plain text (ASCII)

2) PCL

3) PostScript

4) HPGL or other graphic image files

**For PCL, Postscript, HPGL or graphic image files, you can define one type of printer (queue)on your host such as PostScript (selection 3) to handle all the 3 types of files.**

**For Plain text (ASCII) files, you may choose to do either of the following:**

- Create a printer (queue) to handle the text files (selection 1)
- Edit the */etc/printcap* file by setting the *xrx_text* variable to **`enable`**, and then use the PASSTHRU queue as a common queue to also handle the text files.

## Initial Installation of the PostScript Driver

All the files for the PostScript Drivers have been retrieved from the CD-ROM to the hard disk of your workstation in Step 5 on page B-22. For the installation of the Xerox DocuPrint 4517 Postscript Driver, follow these instructions:

**1** **If your workstation is SunOS, enter:**

```
# cd /home/xerox/drivers/sunos
# more user_guide.txt          (read the user guide or print it out)
# ./install                    (begin the print driver installation)
```

**If your workstation is Solaris, enter:**

```
# cd /home/xerox/drivers/solaris
# more user_guide.txt          (read the user guide or print it out)
# ./install                    (begin the print driver installation)
```

**2** **When asked to enter install directory, enter the name of the directory where you want the driver software to be installed.**

*Do not use the current directory for this purpose. Create a new directory other than the current directory.*

*For example: # /home/xerox/driver_software.*

**3** **When asked to run the xpconfig program to configure the printers, you can change to the bin directory or run it with the full path name.**

For example:

```
# /home/xerox/driver_software/bin/xpconfig
```

(your directory path might be different)

Once the network and PostScript driver files are stored and extracted on the hard disk of your local workstation, use these files, as needed, to add or delete network printers and respective drivers.

# Installing Files from a Remote CD-ROM Device

## Retrieving Installation Files Remotely

1. **At your workstation, follow steps Step 1 through Step 7 in the section** *"Retrieving Installation Files"* **(page B-22).**

2. **At your local workstation, login as root.**

3. **Decide where you want to store the Xerox Installation Files and change to that directory.**

   For example:

   ```
   # cd /home
   ```

4. **Enter:**

   ```
   # rcp -r remote_server_name:/home/xerox /home
   ```

   (copying files from the remote machine to your local machine)

Once the necessary files from the remote CD-ROM are retrieved into the hard disk of your local workstation, start the installation procedure as discussed in the sections *"Initial Installation for Network Printing"* (page B-23) and *"Initial Installation of the PostScript Driver"* (page B-24).