

**Windows NT
for Emulex Servers**

Installation Guide

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Windows NT Installation

Overview of Windows NT Printing

Users on any Windows NT networking computer can print to direct-connect TCP/IP printers or to printers that are physically attached to UNIX computers if at least one Windows NT computer has TCP/IP printing installed.

This section describes how to create a TCP/IP printer when TCP/IP is installed on a Windows NT computer, and how to print to the Windows NT NETQue/NETJet from a UNIX computer.

***Note:** Version 3.5 of Windows NT is the minimum version required to install a NETQue/NETJet as described in this manual, since customers with earlier versions do not have LPR/LPD. See Tech Note TN_50.TXT on the Emulex BBS for information on how to run the NETQue/NETJet with Windows NT 3.1, which requires the use of additional software or AppleTalk.*

For complete information about working with printers, see Chapter 6, "Print Manager," in the **Windows NT System Guide**.

Overview of TCP/IP Printing

In a Windows NT network with multiple computers and operating systems, users can take advantage of TCP/IP to easily print to computers connected via NETQue/NETJet.

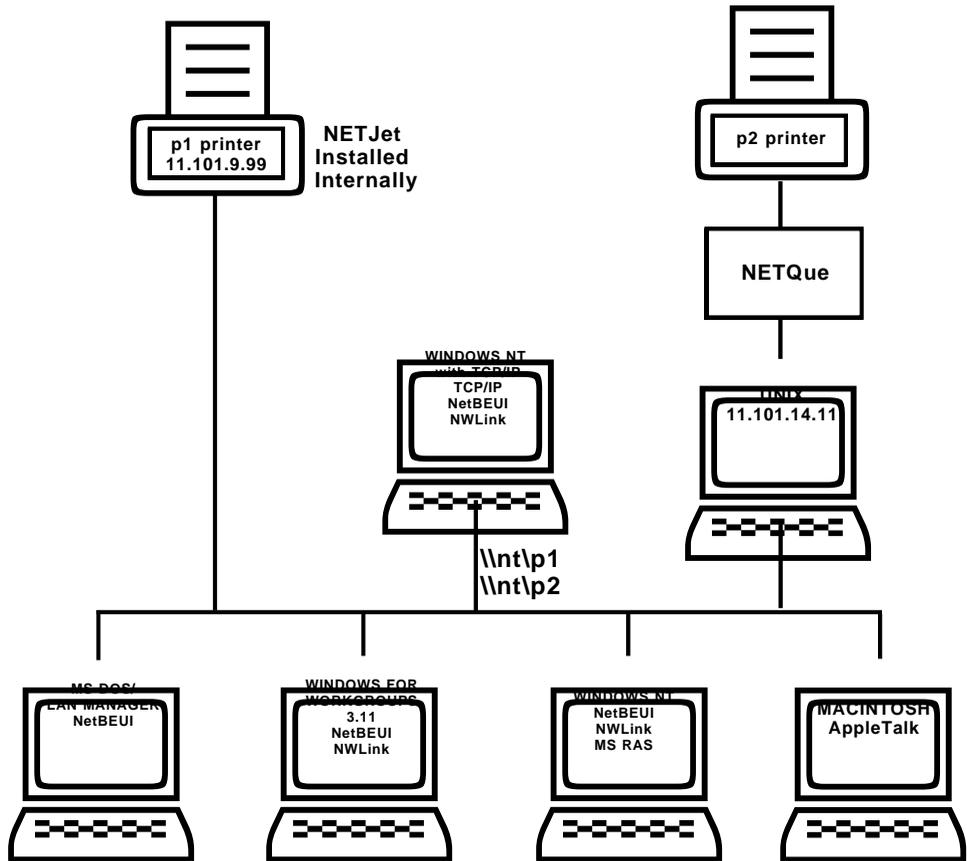
Such a network might include computers running Windows NT Workstation and Windows NT Server, plus computers with only Microsoft Windows for Workgroups 3.11 or MS-DOS with LAN Manager networking software.

To take advantage of the printing capabilities of TCP/IP, only the single Windows NT computer that defines a TCP/IP printer needs to have TCP/IP installed. *The other client computers do not need to have TCP/IP installed.*

All other computers can print to the TCP/IP printers over any protocol they share with the Windows NT TCP/IP print server. That is, the computer acting as the Windows NT TCP/IP print server must be configured with all protocols used by any clients that will be printing to the TCP/IP printer.

Any Windows NT computer with TCP/IP printing installed can print directly to these kinds of printers and can function as a gateway for other network users.

In the sample configuration of a network shown on the next page, the Windows NT computer with TCP/IP installed is named **nt**. This system created the TCP/IP printers--a direct-connection NETJet printer named `\\nt\p1`, and the printer connected to a UNIX computer via NETQue named `\\nt\p2`. All computers on the network can connect to these printers.



Printing to TCP/IP or to UNIX Printers Using TCP/IP

Setting Up Windows NT for TCP/IP Printing

Any Windows NT computer can be used to create a TCP/IP printer if TCP/IP is installed with TCP/IP printing support, as shown in the steps below:

1. Start the **Network** option in **Control Panel**. When the **Network Settings** dialog box appears, choose the **Add Software** button to display the **Add Network Software** dialog box.
2. Select **TCP/IP Protocol and Related Components** in the **Network Software** list box, and then choose the **Continue** button.
3. In the Windows NT TCP/IP **Installation Options** dialog box, check the **TCP/IP Network Printing Support** option.

If TCP/IP is not already installed on this computer, check the other options you want, as described in Chapter 2, "Installing and Configuring Microsoft TCP/IP and SNMP" of the *Windows NT System Guide*.

4. Choose the **OK** button. Windows NT **Setup** displays a message asking for the full path to the Windows NT distribution files. Provide the appropriate location, and choose the **Continue** button. All necessary files are copied to your hard disk.
5. If the **Enable Automatic DHCP Configurations** option is not checked in the Windows NT TCP/IP **Installation Options** dialog box, you must complete all the required procedures for manually configuring TCP/IP as described in Chapter 2, "Configuring TCP/IP" of the *Windows NT System Guide*.

6. When the **Network Settings** dialog box reappears after you finish configuring TCP/IP, choose the **Close** button, then restart your computer for the changes to take effect. You can now create a TCP/IP printer on this Windows NT computer.

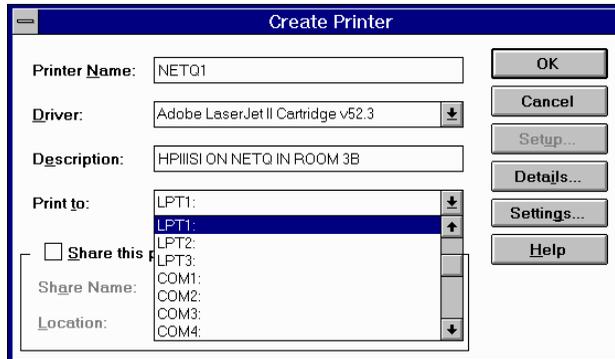
Creating a Printer for TCP/IP Printing

You can use **Print Manager** to create a TCP/IP printer in the same way that you create any printer to be used on a Windows NT network. You need the following information to create a TCP/IP printer:

- The IP identifier of the host where the printer is connected. This can be the DNS name or the IP address. A direct-connect printer has its own IP identifier. For a printer connected to a UNIX computer, this is the computer's IP identifier.
- The printer name as it is identified on the host. This is the name defined on the UNIX computer or the name defined by the manufacturer for the direct-connect printer.

The computer where you create the TCP/IP printer must have TCP/IP installed and configured with the TCP/IP Network Printing Support option, as described in Chapter 2 of the **Windows NT System Guide**. Follow the steps below to create a TCP/IP printer:

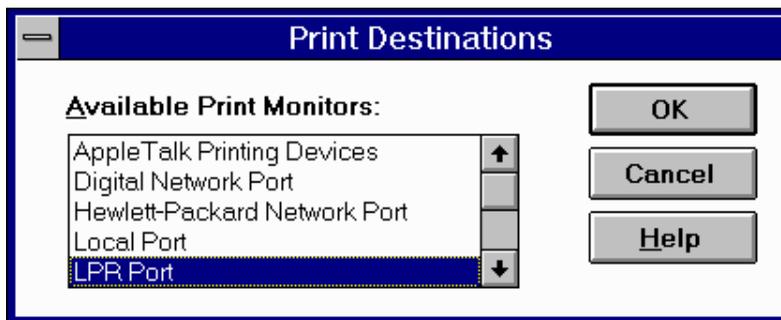
1. From the **Printer** menu in **Print Manager**, choose **Create Printer** to view the Create Printer dialog box:



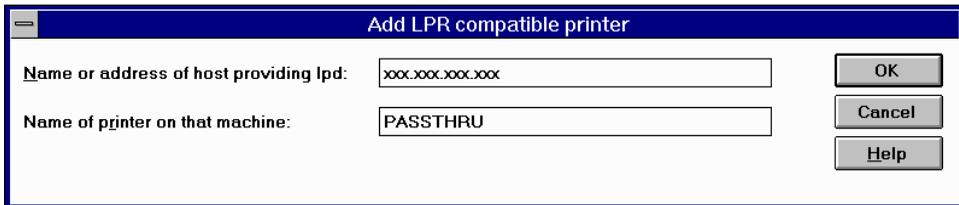
2. In the **Printer Name** box, type a name of up to 32 characters. This name appears in the title bar of the printer window, and Windows NT users see this name when connecting to this printer if it is shared. This name can be the same as the printer name as it is identified on the printer's UNIX host, but it does not have to be.

For a direct-connect printer, see the hardware documentation to find the name by which the network printer identifies the print queue.

3. In the **Driver** list, select the appropriate driver. You may optionally type text to inform network users about the printer in the **Description** box.
4. In the **Print To** box, select **Other** to display the **Print Destinations** dialog box:



5. In the **Available Print Monitors** list, select **LPR Port**, then choose **OK**. The following dialog box will appear:



Note: Read through Steps 6, 7, and the Note following Step 7 before proceeding

6. In the **Name or Address Of Host Providing LPD** box of the **Add LPR Compatible Printer** dialog box, type the DNS name or IP address of the host for the printer you are adding.

This can be the DNS name or IP address of the direct-connect TCP/IP printer or of the UNIX computer to which the printer is connected. The DNS name can be the name specified for the host in the HOSTS file.

Note: LPR stands for Line Printing Utility, and LPD stands for Line Printing Daemon, which is how these elements are known on UNIX.

7. In the **Name Of Printer On That Machine** box, type the name of the printer as it is identified by the host, which is either the direct-connect printer itself or the UNIX computer.

For example, you might have a UNIX computer running the print server component (**lpd**) that the TCP/IP printer you are creating will interact with. If **lpd** recognizes a printer attached to the UNIX

computer by the name Crisp, the name you should type in this box is **Crisp**.

For a direct-connect printer, this is whatever name was used to create the printer while running **lpd**.

Note: Although not mandatory, the printer (queue) names **TEXT** and **PASSTHRU** are **NETQue/NETJet** defaults. To define a unique printer (queue) name on the **Add LPR Compatible Printer** dialog box, log to the **NETQue/NETJet** software and follow the steps below:

- The **lpd** service cannot have a physical port number assigned to it. If it does, then you *must* use printer names **TEXT** or **PASSTHRU**.

Note: The default **lpd** service is **only** configured for port 1, the **NETQue** parallel port, or **NETJet** MIO port. A new service **must** be created to connect to port 2, the serial port.

- The unique printer name must have a TCP port number other than 515 assigned to it. Lower case names are acceptable when enclosed within double quotes ("").
- The following commands must be executed to configure unique printer names:

```
Server>> CHANGE SERVICE LPD PORT ALL DISABLE
```

```
Server>> CHANGE SERVICE printer_name TCP_port_number  
PORT n TELNET DISABLE FILTER enable/disable
```

where:

printer_name is the unique printer name to assign.

- TCP_port_number** is the TCP port name other than 515. Emulex suggests starting at 3000.
- n** is the physical port of the NETQue/NETJet; 1 for the NETQue parallel port or NETJet MIO port, and 2 for the serial port.
- enable/disable** when **enable**, insert <CR> with each <LF>, equivalent to TEXT. When **disable**, sends data with no changes, equivalent to PASSTHRU.

For example, suppose you want to change the name of the printer (queue) on the serial port to be SERIAL to support an ASCII-only dot matrix printer, and the name of the printer on the parallel port to be PARALLEL to support a PostScript capable printer. The commands that must be executed on the NETQue/NETJet are:

Server>> CHANGE SERVICE LPD PORT ALL DISABLE

**Server>> CHANGE SERVICE PARALLEL 3001 PORT 1 TELNET
DISABLE FILTER DISABLE**

**Server>> CHANGE SERVICE SERIAL 3002 PORT 2 TELNET
DISABLE FILTER ENABLE**

To include an ID for each of these newly created printers, enter the following commands:

**Server>> CHANGE SERVICE PARALLEL ID "HP4si on
[NQ/NJ]AO125A3 in Room 1231"**

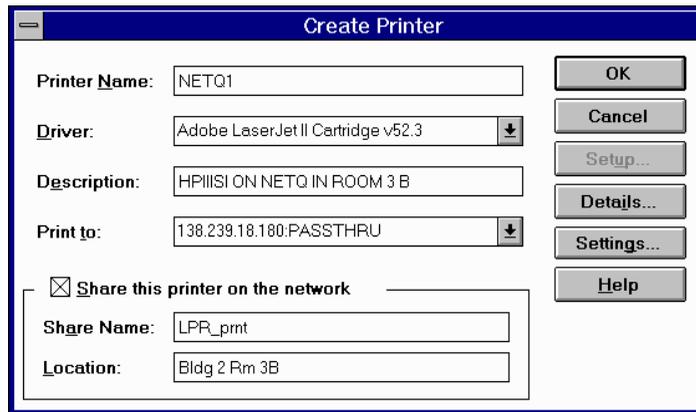
**Server>> CHANGE SERVICE SERIAL ID "Epson on
[NQ/NJ]AO125A3 in Room 1231"**

Where *NQ* indicates a NETQue and *NJ* indicates a NETJet.

Return to Windows NT to complete the remaining steps:

8. When the **Create Printer** dialog box reappears, check the **Share This Printer On The Network** option if this definition is being

created on a Windows NT computer that will serve as a print server for others to access this printer.



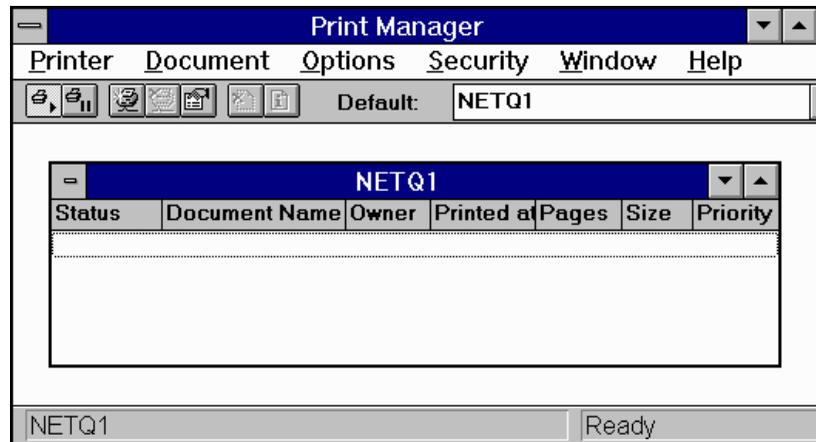
The screenshot shows the 'Create Printer' dialog box. The fields are filled with the following information:

- Printer Name: NETQ1
- Driver: Adobe LaserJet II Cartridge v52.3
- Description: HPIISI ON NETQ IN ROOM 3 B
- Print to: 138.239.18.180:PASSTHRU
- Share this printer on the network
- Share Name: LPR_print
- Location: Bldg 2 Rm 3B

Buttons on the right: OK, Cancel, Setup..., Details..., Settings..., Help.

9. By default, **Printer Manager** creates a shared resource name, up to eight characters, in the **Share Name Box**. You can edit this name, which users see when browsing to find this printer on the network.
10. Optionally, in the **Location** box, you can type information about where this printer is located. Users can see this location information when they connect to the printer.
11. Complete any other configuration information in the **Create Printer** dialog box, as described in Chapter 6 of the *Windows NT System Guide*, and then choose the **OK** button.

In **Print Manager**, the printer name you specified in the **Create Printer** dialog box appears in the title bar of the printer's window, as shown below:



For client computers configured with Microsoft Network Client version 2.0 for MS-DOS, users will see only the shared name, not the printer name. Users who connect to this TCP/IP printer can select it and print to it from applications just as if it was any other printer. Users and administrators can use **Print Manager** to secure and audit the use of the printer and change its properties.

Tip: You can use the **lpr** connectivity utility at the command prompt to print a file to a host running an LPD server. You can also use the **lpq** diagnostic utility to obtain the status of a print queue on a host running the LPD server. For more information, see the entries for **lpr** and **lpq** in Chapter 11, "Utilities Reference," of the *Windows NT System Guide*.

Printing to Windows NT from UNIX Clients

The **Lpdsvc** service is the server side of TCP/IP printing for UNIX clients. If any UNIX clients on the network want to print to a printer connected to a Windows NT computer, this service needs to be running on the Windows NT computer so it can accept requests from UNIX clients.

The **Lpdsvc** service supports any print format, including plain-text. It does not perform any additional processing.

There are two different ways to start or stop the **Lpdsvc** service:

1. At the command prompt, type **net start Lpdsvc** or **net stop Lpdsvc** and press **Enter**.
2. In **Control Panel**, choose the **Services** option. Then select **Lpdsvc** in the service list and choose the **Start** button.

To Use the Windows NT Printer from UNIX

On the UNIX computer, you can use the Windows NT printer by typing a command such as:

```
lpr -S NTHost - P LpdPrinter myfile.txt
```

where:

NTHost is the Windows NT Server running the **Lpdsvc** service. This Windows NT computer should be listed in the HOSTS file on the UNIX computer or on the DNS server.

LpdPrinter is the name of the printer created on **NTHost**.

myfile.txt is the file to be printed.

The **Lpdsvc** service is independent of the **Lprmon** service. The **Lprmon** service runs automatically to allow a Windows NT computer (and all clients who can access this computer) to print to a printer connected to a UNIX system, as described in the previous section.