User Guide for
Emulex Printer Servers

Version 5.0

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> NETQue Token Ring
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3535 Harbor Boulevard
Costa Mesa, CA 92626

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Introduction

Chapter 1

Thank you for purchasing an Emulex network product. You have joined the Emulex family of users who have found that our products greatly facilitate computer communication and the management of network resources. We value a strong relationship with our customers and seek to serve your needs in the years to come.

Emulex Corporation (HQ)	(714) 662-5600
PreSales Support	(714) 513-8053
Technical Support	(714) 513-8270

New customers will find that the printer server can be used immediately since the default printer server parameters are applicable to most networks.

Documentation

The documentation provides comprehensive guides detailing installation, configuration and management of Emulex printer servers. This material is either on CD-ROM or in hardcopy. Listed below are the guides and a brief description of what they will help you accomplish.

- *Printer Server User Guide*

    - Install printer server.

    - Configure network operating system.

- *Command Reference Guide*

    - Understand proper syntax and use of printer server commands.

- *Software Upgrade Guide*

    - Upgrade Emulex printer server software.

- *Emulex NET wizard printer server administrator User Guide*

    - Install Emulex *NET* wizard printer server administrator.

− Configure printer servers - For example, add printers, assign trap hosts, assign workgroups, upgrade printer server software, perform memory image dumps, enable protocols, etc.

− Configure for NetWare - For example, choose PSERVER or RPRINTER, choose frame type, perform rediscovery, create, configure and assign print queues, etc.

Check Contents

- Emulex printer server
- Manuals: Manuals are available on the CD-ROM or in hardcopy.

  − *Printer Server User Guide*

  − *Command Reference Guide*

  − *Software Upgrade Guide*

  − *Emulex NET wizard printer server administrator User Guide*

- Warranty Registration Card
- Software utilities: CD-ROM or Diskette
- Power Supply

  − NETJet - No power supply required

  − NETQue and NETQue Token Ring - Power supply module (transformer)

  − NETQue Pro2 - AC power cord and selection guide

If any items are missing, please contact your local Emulex distributor.

Check Media

You have received software either on CD-ROM or diskette. Depending upon the media enclosed, verify the contents:

CD-ROM

- On-Line Manuals

    - *Printer Server User Guide*

    - *Command Reference Guide*

    - *Software Upgrade Guide*

    - *Emulex NET wizard printer server administrator User Guide*

- Printer server software files:

    Flash Update Utilities
    UNIX Utilities (tar format)
    TES Utilities for Netware (DOS format)
    Microsoft OS/2 LAN Man Printer Manager (DOS format)
    IBM OS/2 LAN Server Printer Manager (DOS format)

- Emulex *NET* wizard printer server administrator software files

3.5 Inch Diskette

- Printer server software files:

    Flash Update Utilities
    UNIX Utilities (tar format)
    TES Utilities for Netware (DOS format)
    Microsoft OS/2 LANMan Printer Manager (DOS format)
    IBM OS/2 LANServer Printer Manager (DOS format)

- Emulex *NET* wizard printer server administrator software files

How to Use This Guide

This guide is designed to assist in the installation of your Emulex printer server. The material contained in the guide is directed toward the network administrator or the one responsible for a company's computer network needs.

User Guide Conventions

You will notice text boxes labeled **NOTE** or **CAUTION**.

- Notes provide additional information.

- Caution statements provide warnings to prevent harm to people or equipment.

> *CAUTION::   Observe electrostatic discharge (ESD)*
> *procedures during installation.*

What is a Command?

A prompt, followed by a keyword and one or more variables, options or quotation marks make up a command. The following explanation will demonstrate command formatting.

Prompts

A prompt consists of the word Server followed by one or two greater than symbols (>). One (>) indicates nonprivileged status and two (>>) signify privileged or supervisor status. The two prompts are shown below:

        Server >   (nonprivileged users)
        Server >> (privileged users)

Nonprivledged users have read only privileges. Privileged or supervisor users have all read and write privileges.

Keywords

Keywords are enclosed in brackets and separated by vertical lines. The user must enter a keyword to perform an action.

    ▷   Server >>[set|define|change]

Variables

Variables are used as in mathematics: they represent a quantity, device name, address or other entity. They are shown in bold italic type.

▷ Server>>[set|define|change]server dhcp ***n m***

n   a variable
m   a variable

Options

Options are used to customize a command. When available, the user should always use options. They are italicized and enclosed in brackets.

▷ Server>>[set|define|change]server dhcp ***n m***
   [*temp*][*default*]

temp   an optional entry
default   an optional entry

Quotation Marks

When case-sensitive information is required, it must begin and end with quotation marks. Font names are case-sensitive and must appear in quotes within command lines. The example below illustrates the use of a font name within a command line.

▷ Server>> change port 1 fonts add "Courier-Bold
   Helvetica-Italics"

NOS & Protocol Support

With the recent release of printer server software version 5.0, we have expanded the protocols supported by our existing line of Emulex printer servers. Emulex printer servers can currently be used with these network operating systems and protocols:

	NETQue	*NQPro2*	*NETJet*	*NQToken*
Novell Netware *TES, IPX/SPX*	📄	📄	📄	📄
UNIX *TCP/IP, LPD, Telnet*	📄	📄	📄	📄
Apple *EtherTalk*	📄	📄	📄	
Apple *TokenTalk*				📄
VAX/VMS *DECnet LAT*	📄	📄	📄	
Microsoft OS/2 LAN Manager *TCP/IP, LPD, NetBios*	📄	📄	📄	📄
IBM OS/2 LAN Server *TCP/IP, LPD, NetBios*	📄	📄	📄	📄
Windows NT *TCP/IP, LPD*	📄	📄	📄	📄

Printer Server Installation

Chapter 2

NETJet

Reference Numbers

It is important that you make a note of the printer server's unique ethernet address (known as the Media Access Control or MAC address) and its serial number. The figure below shows the locations of these numbers.
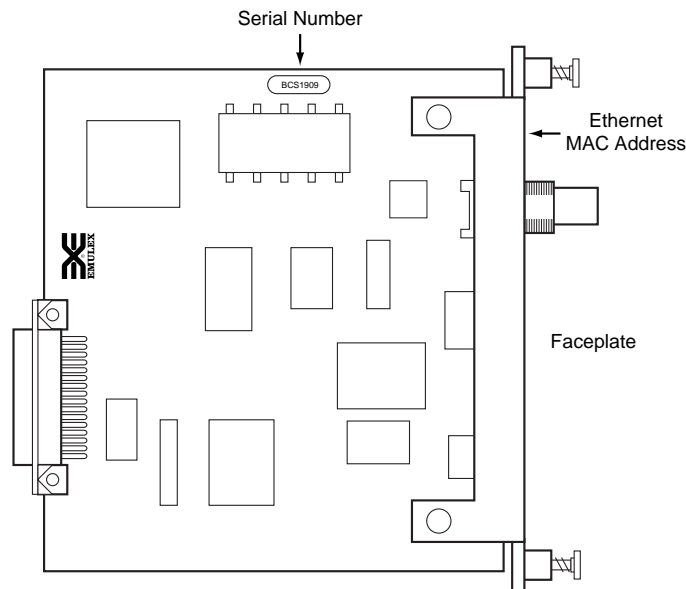
Figure 2-1: Location of Reference Numbers

Although the following information is clearly printed on the unit, we suggest you enter the numbers here for later reference.

MAC Address: 00-00-C9- ____ ____-____ ____-____ ____

Serial Number: ____ ____ ____ ____ ____ ____ ____

Next, enter the default printer server name. This name begins with a three digit prefix unique to the type of printer server. The remaining digits are taken from the last six characters of the MAC address, without the dashes. For example, the prefix for the NETJet is NJA. Combined with a MAC address such as 00-00-C9-01-A0-6A, the default server name for this printer server will be NJA01A06A.

The default printer server name is very important and is always used when installing the printer server for the first time. Once a successful installation has been accomplished, the default printer server name can be changed.

Default Server Name: NJA _____ _____ _____ _____ _____ _____

> *NOTE:*   *We suggest you use the default printer server name*
> *when installing the printer server for the first time.*

To determine the default printer name, enter the Emulex default printer server name combined with the Emulex printer server port number. Port numbering on the NETJet is as follows:

- #1 - Console terminal port

For example, NJA01A06A_1 is the NETJet console terminal port.

Default Printer Name: NJA____ ____ ____ ____ ____ ____ . ____

Installation

The printer server may be installed in Hewlett-Packard MIO compliant printers and plotters. Procedures vary by printer model, but will be similar to these basic installation instructions.

> *CAUTION:* *Printer power must be OFF or permanent damage*
> *could result to both the printer or plotter and the*
> *printer server.*

1) Turn the AC power switch OFF on the printer.

2) Remove the AC power cord from the printer.

3) Remove any cables connected to the printer.

4) Expose the MIO slot.

   Remove any interface board or faceplate from the MIO slot.

5) Remove the Emulex printer server from its anti-static bag.

6) Insert the Emulex printer server into the printer MIO slot.

7) Gently press the board into position.

8) Tighten the two captive screws.

   The captive screws are located on the face of the Emulex printer server. Tightening these screws will secure the printer server to the printer.

LAN Connections & Cabling

The printer server may be connected to the network with one of these cables.

- Unshielded twisted-pair (UTP) with an RJ-45 connector

- Thinwire with BNC connector and BNC T-adapter

> *CAUTION:*   *Do not connect network cables to both the BNC and the UTP ports on the printer server at the same time.*

Unshielded Twisted-Pair Connection

1) Connect one end of the UPT cable to the printer server UTP port.

   See Appendix for UTP pinout details.

2) Connect the other end of the UTP cable to the network.

3) Do not connect anything to the printer server BNC port.
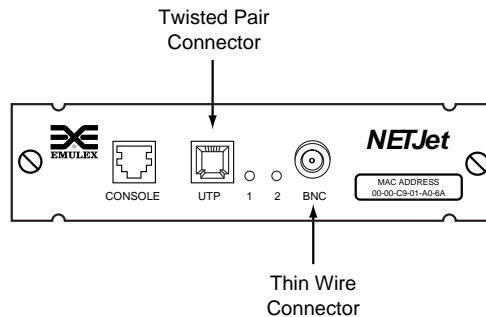
Figure 2-2: Printer Server LAN Connections

Thinwire BNC Connection

> *CAUTION*:   *Do not break the ethernet connection while*
> *LAN is active.*

1)   If connecting to the middle of a cable segment, use a BNC T-adapter.
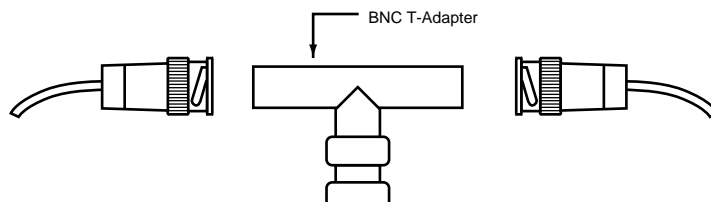
Figure 2-3: BNC T-Adapter Within a Segment

2)   If connecting the printer server to the end of a cable segment, connect the
     LAN cable to one side of the BNC T-adapter and a 50 ohm terminator to
     the other side.
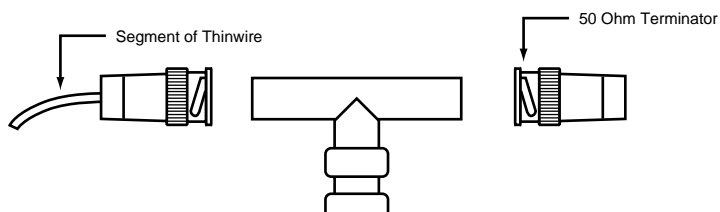
Figure 2-4: BNC T-Adapter With Terminator at End of Segment

3)   Attach the BNC T-adapter and cable to the printer server BNC port.

4)   Do not attach anything to the printer server UTP port.

Peripheral Connection

Console/Serial Port
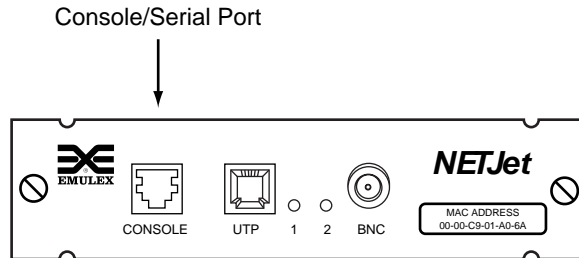
Figure 2-5: Peripheral Connection

Serial Port

Connect to the serial port with a null modem cable. The serial port provides an RJ-12 connector and allows user to:

- Print to a serial printer or plotter.

- Monitor the printer server by connecting an ANSII compatible terminal or a PC running an ANSII terminal emulation program.

  The Emulex default port configuration is set for 9600 bps, 8 data bits, no parity, 1 stop bit, DTE type, with softcopy emulation.

- Input print jobs directly by connecting to a host system serial port (e.g. an HP 3000).

> *NOTE: Serial cable between the printer server and the peripheral device or console terminal should not exceed 50 feet (15.24 meters). Connection can be made through a null modem cable.*

Power Up

1) Verify Emulex printer server is securely seated in printer slot.

2) Verify LAN connection to the printer server is secure.

3) Reattach AC power cord to printer.

4) Turn printer on.

   Wait approximately 1 minute for the printer to perform self-tests. Tests are complete when the printer's LCD displays Ready or the Ready indicator light illuminates.

Display Lights (LEDs)

1) If the network is active, the yellow LAN LED-#2 will flash.

2) If the UTP connector is used, the green UTP LED-#1 will illuminate.

3) If the BNC connector is used, the green UTP LED-#1 will not illuminate.
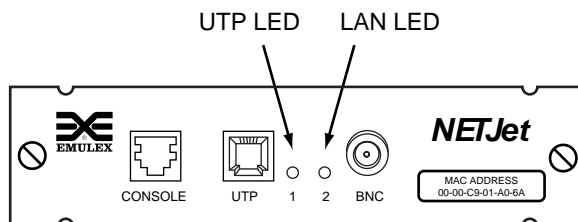
Figure 2-6: Printer Server Display LEDs

Print Test P~~arameters~~age

The test ~~parameter printout~~page is a useful ~~tool that can be used to verify the connection between the printer server and the printer. The test page contains~~ the following ~~data:~~

~~reference when configuring the printer server. The print out contains default and recently changed information~~Print~~er~~ ~~s~~Server ~~n~~Name

MAC Address

~~D~~Default remote ~~p~~Printer ~~n~~Name   Node ~~N~~name

Hardware & ~~f~~Firmware revisions   NOS ~~i~~Information

~~S~~Software revision   Network ~~p~~Protocols

To print the test page, perform the following steps:

1) Verify printer has power and is On-Line.

2) Turn the printer OFF.

3) Disconnect the LAN cable.

4) Turn printer ON.

5) Verify the printer is On-Line.

6) The printout will occur within 90 seconds.

   If no printout occurs, make sure printer shows power ON, Ready and On-Line. Verify printer server installation and try printing test page again.

> *NOTE: If the printer is PCL or text only, the test printout may contain PostScript commands.*

Print Configuration Parameters

To obtain a printout of configuration parameters, enter this software command:

```
▷  Server>> show server config port port_num [ps]
```

port_num   The output is directed to the specified port number.

ps   Puts the output in PostScript format.

Reset to Factory Defaults

Before resetting to factory defaults, we recommend that you print out a configuration page. Using the command described below will reset the printer server to its factory defaults.

- The printer server will reset to factory defaults when power is cycled.

- The IP address and subnet mask are reset to NONE (000.000.000.000).

- Non-volatile memory is reset to factory defaults.

To reset to factory defaults:

1) Obtain privileged status.

2) Enter this command:

   ▷ `Server>> initialize [server] [delay delay_min] [default]`

delay	Indicates reintialization will not take place until after a specified period of time.
delay_min	Specifies the time before the server is stopped and the initialization process begins. The default is 1 minute.
default	Resets the server to factory defaults

3) Cycle printer power.

Factory Default Configuration

Parameter	*Default Setting*
Passwords	system (privilege mode) access (remote login)
Printer server name	NJAxxxxxx (xxxxxx are the last six characters of the MAC Address)
Printer services • Remote printer names • TCP port numbers • lpd Service	 NJAxxxxxx_1 (MIO port) NJAxxxxxx_2 (serial port) 2501 (MIO port) 2502 (serial port) MIO port only; TCP port 515
LAT port names	PORT_1 (MIO port) PORT_2 (serial port)
lpd Queues • ASCII files • PostScript or binary files	 TEXT PASSTHRU
Serial port configuration	9600 bps, 8 data, 1 stop, no parity, DTE type, softcopy emulation
Management Access • Telnet port number • RCF port number • TES service name	 23 2048 NJAxxxxxx (xxxxxx are last six characters of the MAC address)

Printer Server Specifications

Parameter	*Range*
Ethernet Compatibility	IEEE802.3, IEEE802.2, Ethernet Type 2 10base2, Thinwire (BNC) 10baseT, Unshielded Twisted-Pair (UTP) (RJ45)
Physical Dimensions	5 x 5.5 (12.7 x 13.9cm)
Power Requirements	5VDC@ 1.0 Amp supplied by printer
Temperature	Operating: 41° to 109.4° F (5° to 43° C) Storage: -40° to 140° F (-40° to 60° C)
Humidity	10% to 95% noncondensing
Agency Approval	FCC Rules Class A; EN55022, CISPR22/85, Class B; EN50082-1.

Declaration of Conformity

This Declaration identifies the product, manufacturer's name and address, and applicable specifications recognized in the European Union.

DECLARATION OF CONFORMITY

Manufacturer:
Emulex Corporation
3535 Harbor Blvd.
Costa Mesa, CA 92626
USA

declares under sole responsibility that the product:

Product Name: NETJet Printer Server
(Ethernet, multiport printer server)

Model Number: NJ01B-NT+

to which this Declaration relates is in conformity with the following standards or other documents:

Safety: IEC950:1991+A1,A2/EN60950 (1992)+ A1,A2

EMC: EN55022 (1987)/CISPR-22 (1985), Class B
EN50082-1 (1992)

following the provisions of the EMC Directive 89/336/EEC and Low Voltage Directive 73/23/EEC and carries the CE Marking accordingly.

October 20, 1995
Costa Mesa, CA

Paul Folino, President & CEO

European Contact: Emulex Europe Ltd.   Telephone: 44-1734-772-929
Mulberry Business Park   Fax: 44-1734-773-237
Fishponds Road
Wokingham, Berkshire
RG41 2GY, England

What's Next?

After successfully installing your Emulex printer server, you must configure the network operating system (NOS). Refer to the following list.

Configure NOS

Choose one or more operating systems.

- Novell NetWare – page 3-1
- UNIX – page 4-1
- AppleTalk – page 5-1
- VAX/VMS-LAT – page 6-1
- DOS LAN Manager– page 7-1
- OS/2 LAN Server – page 8-1
- Windows NT 3.5 – page 9-1

NETQue Pro2

Reference Numbers

It is important that you make a note of the printer server's unique ethernet address (known as the Media Access Control or MAC address) and its serial number. The figure below shows the locations of these numbers.

MAC Address

POWER

MAC ADDRESS
00-00-C9-01-A0-6A

Serial Number
(bottom panel)
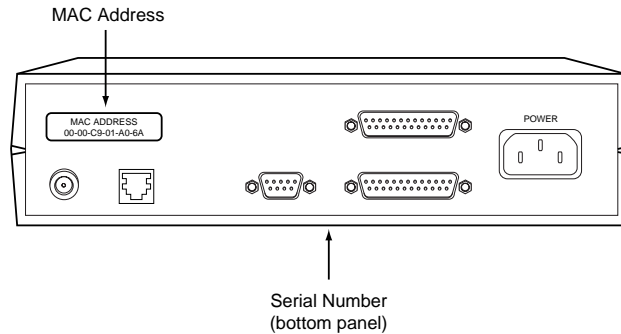
Figure 2-7: Location of Reference Numbers

Although the following information is clearly printed on the unit, we suggest you write the numbers here for later reference.

Ethernet (MAC) address: 00-00-C9- ___ ___-___ ___-___ ___

Serial Number: ____ ____ ____ ____ ____ ____ ____

Next, enter the default printer server name. This name begins with a three digit prefix unique to the type of printer server. The remaining digits are taken from the last six characters of the MAC address, without the dashes. For example, the prefix for the NETQue Pro2 is NP2. Combined with a MAC address such as 00-00-C9-01-A0-6A, the default server name for this printer server will be NP201A06A.

The default printer server name is very important and is always used when installing the printer server for the first time. Once a successful installation has been accomplished, the default printer server name can be changed.

Default Server Name: NP2 _____ _____ _____ _____ _____ _____

> *NOTE:*   *Use the default printer server name when installing the printer server for the first time.*

To determine the default printer name, enter the Emulex default printer server name combined with the Emulex printer server port number. Port numbering on the NETQue Pro2 is as follows:

- #1 - Upper parallel port

- #2 - Lower parallel port

- #3 - Serial port

For example, NP201A06A_3 is the NETQue Pro2 serial port.

Default Printer Name: NP2 ____ ____ ____ ____ ____ ____ ▌____

LAN Connections & Cabling

The printer server may be connected to the network with one of these cables.

- Unshielded twisted-pair (UTP) with an RJ-45 connector

- Thinwire with a BNC connector and BNC T-adapter

> *CAUTION:*   *Do not connect network cables to both the BNC and the UTP ports on the printer server at the same time.*

Unshielded Twisted-Pair Connection

1) Connect one end of the UTP cable to the printer server UTP port.

   See Appendix for UTP pinout details.

2) Connect the other end of the UTP cable to the entwork.

3) Do not connect anything to the printer server BNC port.
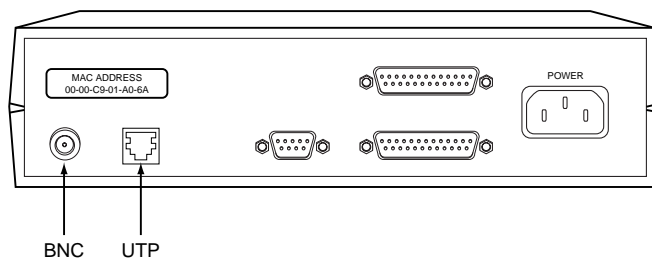
Figure 2-8: Printer Server LAN Connections

Thinwire BNC Connection

> *CAUTION*:   *Do not break the ethernet connection while*
> *LAN is active.*

1) If connecting to the middle of a cable segment, use a BNC T-adapter.

Figure 2-9: BNC T-Adapter Within a Segment

2) If connecting the printer server to the end of a cable segment, connect the LAN cable to one side of the BNC T-adapter and a 50 ohm terminator to the other side.

Figure 2-10: BNC T-Adapter With Terminator at End of Segment

3) Attach the BNC T-adapter and cable to the printer server BNC port.

4) Do not attach anything to the printer server UTP port.

Peripheral Connections

Parallel Ports

The parallel ports provide female DB25 connectors and support the following types of peripherals:

- A printer or plotter supporting a Centronics parallel port

- A printer or plotter supporting the bi-directional parallel interface (IEEE 1284)

NOTE: The parallel cable between the printer server and the printing device should not exceed 12 feet (3.65 meters).

Figure 2-11: Peripheral Connections

Serial Port

Connect to the serial port with a null modem cable. The serial port provides a male DB9 connector and allows user to:

- Print to a serial printer or plotter.

- Monitor the printer server by connecting an ANSII compatible terminal or a PC running an ANSII terminal emulation program.

  The Emulex default port configuration is set for 9600 bps, 8 data bits, no parity, 1 stop bit, DTE type, with softcopy emulation.

- Input print jobs directly by connecting to a host system serial port (e.g. an HP 3000).

> *NOTE:*   *Serial cable between the printer server and the*
>   *peripheral device or console terminal should not*
>   *exceed 50 feet (15.24 meters). Connection can be*
>   *made through a null modem cable.*

Power Up

1) Verify the LAN connection to the printer server is secure.

2) Verify all serial and parallel cable connections are secure.

3) Attach power cable to the printer server AC power receptacle and to an accessible AC power outlet. The printer server will power up.

> *CAUTION*:   *The AC power outlet must be accessible for*
>   *immediate removal of power.*
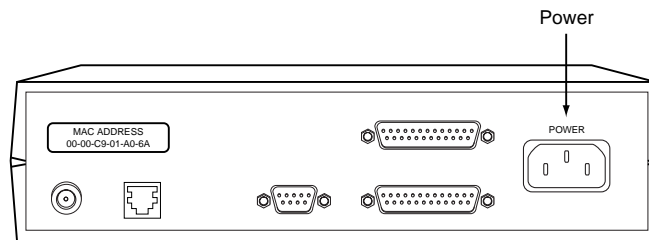
Figure 2-12: Power Outlet

> *NOTE:*   *If the printer server is being used outside the*
>   *United States where voltages may vary, it will*
>   *automatically adapt to the change of input voltages*
>   *when AC power is applied. Please refer to the*
>   *power cord selection card supplied with the printer*
>   *server for appropriate power cord configuration.*

Display Lights (LEDs)

1) When the printer server is powered up, the green POWER LED and the yellow PORT LED will illuminate.

2) Wait 15 to 20 seconds after power is applied.

   During this time, the printer server is performing its self-test.

3) When the printer server passes its self-tests, the yellow PORT LED will go out. If the printer server does not pass, the yellow PORT LED will flash alternately with the green POWER LED.

4) If the network is active, the yellow LAN LED will flash with network activity.

5) If the UTP connector is used, the green LINK LED will illuminate.

6) If the BNC connector is used, the green LINK LED will not illuminate.

7) If any of the connected peripheral ports is active, the yellow PORT LED will flash showing port activity.
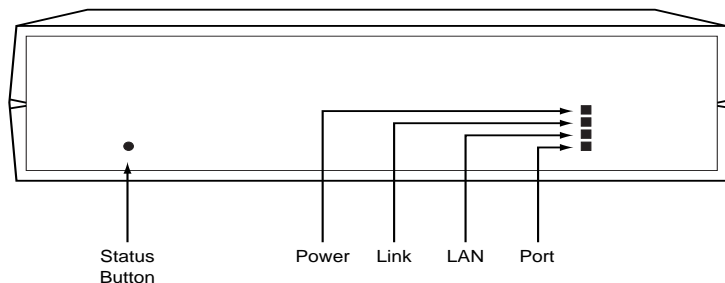
Figure 2-13: Printer Server Display LEDs

Print Test Page

The test page is a helpful tool that can be used to verify the connection between the printer server and the printer. The test page contains the following data:

~~reference when configuring the printer server. The print out contains default and recently changed information~~Print~~er~~ ~~s~~Server ~~n~~Name	
	MAC Address
D~~Default~~ remote ~~p~~Printer ~~n~~Name	Node ~~N~~name
Hardware & ~~f~~Firmware revisions	NOS ~~i~~Information
S~~S~~oftware revision	Network ~~p~~Protocols

This procedure assumes that at least one printer is connected.

1) Verify the Emulex printer server has power.

2) Verify printer has power and is On-Line.

3) Disconnect power to the printer server.

4) Disconnect LAN cable.

5) Reconnect power to printer server.

6) The printout will occur within 90 seconds.

If no printout occurs, verify all connections and make sure printer shows power ON, Ready and On-Line.

> *NOTE: If the printer is PCL or text only, the test printout may contain PostScript commands.*

Print Configuration Parameters

Starting with software release 4.15, two methods can be used for printing configuration parameters. The first method uses the status button, and the second employs a software command.

Using Status Button

This procedure assumes that at least one printer is attached to the printer server.

> *NOTE:*   *If the printer is PCL or text only, the test printout*
> *may contain Postscript commands.*

1)   Verify printer server has power.

2)   Verify printer has power and is ON-LINE.

3)   Momentarily depress the printer server status button.

If two printers are connected to the parallel ports, the printer server will utilize the first available printer. If both printers are active with print jobs, the status button is ignored.

Using Software Command

To obtain a printout of configuration parameters, enter this software command:

> ▷   Server>> show server config port ***port_num*** [*ps*]

port_num   The output is directed to the specified port number.

ps   Puts the output in PostScript format.

Reset to Factory Defaults

Before resetting to factory defaults, we recommend that you print out a configuration page. Two methods can be used to reset the printer server to its factory defaults.

- Using the status button

  − The printer server will reset to factory defaults immediately.

  − IP address and subnet mask are reset to NONE (000.000.000.000).

  − Non-volatile memory is reset to factory defaults.

- Using a software command

  − The printer server will reset to factory defaults when power is cycled.

  − IP address and subnet mask are reset to NONE (000.000.000.000).

  − Non-volatile memory is reset to factory defaults.

Reset Using Status Button

1) Remove AC power cord from the printer server.

2) Depress status button and hold.

3) Reconnect AC power cord to printer server, then release status button.

Reset Using Software Commands

1) Obtain privileged status.

2) Enter this command:

   ▷ `Server>> initialize server delay` ***delay_min*** *default*

delay	Indicates reintialization will not take place until after a specified period of time.
delay_min	Specifies the time before the server is stopped and the initialization process begins. The default is 1 minute.
default	Resets the server to factory defaults

Factory Default Configuration

Parameter	*Default Setting*
Passwords	system (privilege mode) access (remote login)
Printer server name	NP2xxxxxx (xxxxxx are the last six characters of the MAC Address)
Printer services Remote printer names	 NP2xxxxxx_1 (parallel port 1) NP2xxxxxx_2 (parallel port 2) NP2xxxxxx_3 (serial port)
TCP port numbers	2501 (parallel port 1) 2502 (parallel port 2) 2503 (serial port)
lpd service	Parallel ports only; TCP port 515
LAT port names	PORT_1 (parallel port 1) PORT_2 (parallel port 2) PORT_3 (serial port)
lpd Queues ASCII files	 TEXT
PostScript or binary files	PASSTHRU
Serial port configuration	9600 bps, 8 data, 1 stop, no parity, DTE type, softcopy emulation
Management Access Telnet port number RCF port number TES service name	 23 2048 NP2xxxxxx (xxxxxx are the last six characters of MAC address)

Printer Server Specifications

Parameter	*Range*
Ethernet Compatibility	IEEE802.3, IEEE802.2, Ethernet Type 2 10base2, Thinwire (BNC) 10baseT, Unshielded Twisted-Pair (UTP) (RJ45)
Physical Dimensions	5 x 6.5 x 1.0 inches (12.7 x 16.5 x 2.54 cm)
Power Requirements	100 - 260 VAC, 47 - 63 Hz, 0.1 Amp
Temperature	Operating: 41° to 109.4° F (5° to 43° C) Storage: -40° to 140° F (-40° to 60° C)
Humidity	10% to 95% noncondensing
Agency Approval	FCC Class A; UL listed to UL 1950; TUV Certified to EN60950; EN55022, CISPR 22/85 Class A; CUL Listed to CSA22.2, No.950; EN50082-1.

Declaration of Conformity

This equipment complies with CISPR22/EN55022 Class A.

> *WARNING: This is a class A product. In a domestic environment, this product may cause radio interference requiring the user to take adequate measures.*

This Declaration identifies the product, manufacturer's name and address, and applicable specifications recognized in the European Union.

DECLARATION OF CONFORMITY

Manufacturer: Emulex Corporation
                         3535 Harbor Blvd.
                         Costa Mesa, CA 92626
                         USA

declares under sole responsibility that the product:

    Product Name: NETQue Pro2 Printer Server
                                 (Ethernet, multiport printer server)

    Model Number: NP02

to which this Declaration relates is in conformity with the following standards or other documents:

    Safety: IEC950:1991+A1,A2/EN60950 (1992)+ A1,A2
                             TUV Rheinland, Certificate No. S9577208

    EMC: EN55022 (1987)/CISPR-22 (1985), Class A
                         EN50082-1 (1992)

following the provisions of the EMC Directive 89/336/EEC and Low Voltage Directive 73/23/EEC and carries the CE Marking accordingly.

October 20, 1995
Costa Mesa, CA

Paul Folino, President & CEO

European Contact: Emulex Europe Ltd.   Telephone: 44-1734-772-929
                     Mulberry Business Park   Fax: 44-1734-773-237
                     Fishponds Road
                     Wokingham, Berkshire
                     RG41 2GY, England

What's Next?

After successfully installing your Emulex printer server, you must configure the network operating system (NOS). Refer to the following list.

Configure NOS

Choose one or more operating systems.

- Novell NetWare – page 3-1

- UNIX – page 4-1

- AppleTalk – page 5-1

- VAX/VMS-LAT – page 6-1

- DOS LAN Manager– page 7-1

- OS/2 LAN Server – page 8-1

- Windows NT 3.5 – page 9-1

NETQue

Reference Numbers

It is important that you make a note of the printer server's unique ethernet address (known as the Media Access Control or MAC address) and its serial number. The figure below shows the locations of these numbers.
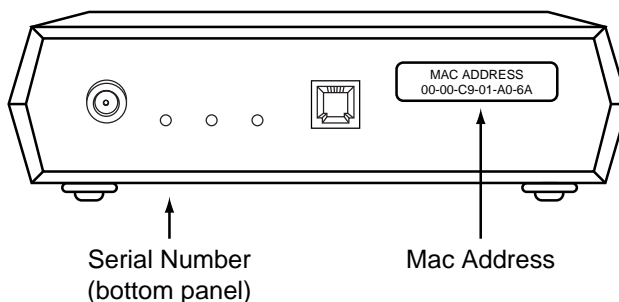
Figure 2-14: Location of Reference Numbers

Although the following information is clearly printed on the unit, we suggest you enter the numbers here for later reference.

Ethernet (MAC) Address: 00-00-C9- ____ ____-____ ____-____ ____

Serial Number: ____ ____ ____ ____ ____ ____ ____

Next, enter the default printer server name. This name begins with a three digit prefix unique to the type of printer server. The remaining digits are taken from the last six characters of the MAC address, without the dashes. For example, the prefix for the NETQue is NQA. Combined with a MAC address such as 00-00-C9-00-02-E6, the default server name for the printer server will be NQA0002E6.

The default printer server name is very important and is always used when installing the printer server for the first time. Once a successful installation has been accomplished, the default printer server name can be changed.

Default Server Name: NQA _____ _____ _____ _____ _____ _____

> *NOTE: We suggest you use the default printer server name when installing the printer server for the first time.*

To determine the default printer name, enter the Emulex default printer server name combined with the Emulex printer server port number. Port numbering on the NETQue is as follows:

- #1 - Parallel port

- #2 - Serial port

For example, NQA0002E6_2 is the NETQue serial port.

Default Printer Name: NQA ____ ____ ____ ____ ____ ____ █____

LAN Connections & Cabling

The printer server may be connected to the network with one of these cables.

- Unshielded twisted-pair (UTP) with an RJ-45 connector

- Thinwire with a BNC connector and BNC T-adapter

> *CAUTION: Do not connect network cables to both the BNC and the UTP ports on the printer server at the same time.*

Unshielded Twisted-Pair UTP Connection

1) Connect one end of the UTP cable to the printer server UTP port.

   See Appendix for UTP pinout details.

2) Connect the other end of the UTP cable to the network.

3) Do not attach anything to the printer server BNC port.

ETHERNET ADDRESS
00-00-C9-01-A0-6A

Thinwire
Connector

Twisted Pair
Connector
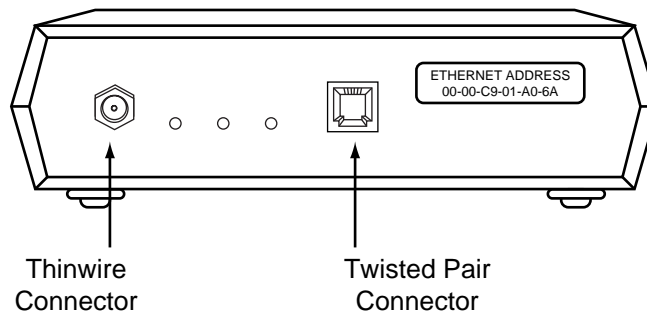
Figure 2-15: Printer Server LAN Connections

Thinwire BNC Connection

> *CAUTION: Do not break the ethernet connection while*
> *LAN is active.*

1) If connecting to the middle of a cable segment, use a BNC T-adapter.
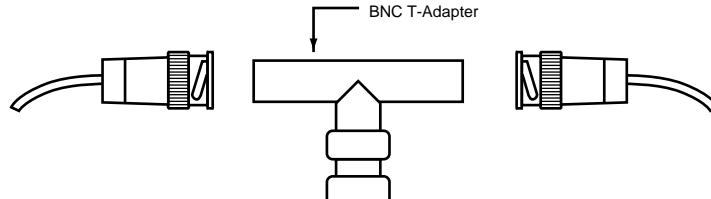

Figure 2-16: BNC T-Adapter Within a Segment

2) If connecting the printer server to the end of a cable segment, connect the
   LAN cable to one side of the BNC T-adapter and a 50 ohm terminator to
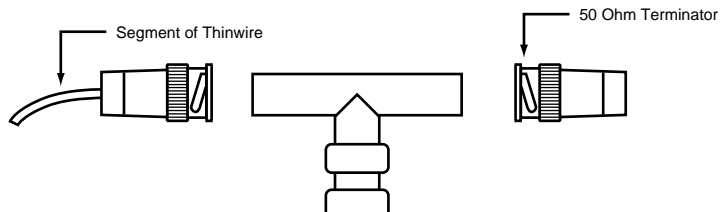   the other side.
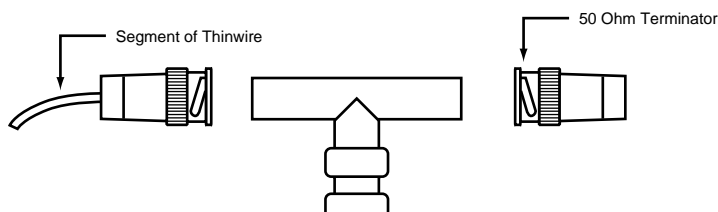
Figure 2-17: BNC T-Adapter With Terminator at End of Segment

3) Attach the BNC T-adapter and cable to the printer server BNC port.

4) Do not attach anything to the printer server UTP port.

Peripheral Connections

Parallel Port

The parallel port provides a female DB25 connector and supports the following types of peripherals:

- A printer or plotter supporting a Centronics parallel port

- A printer or plotter supporting the bi-directional parallel interface (IEEE 1284)

> *NOTE:*   *The parallel cable between the printer server and the printing device should not exceed 12 feet (3.65 meters).*
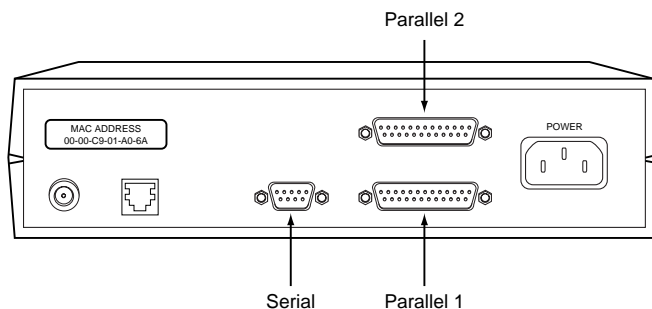

Serial Port   Parallel Port
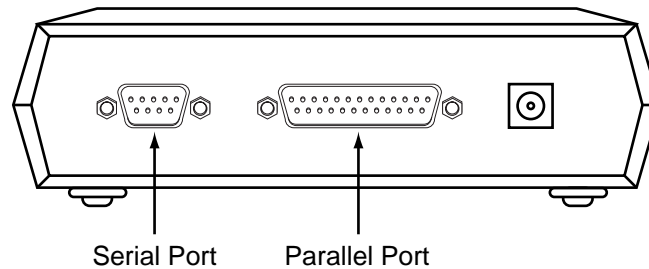
Figure 2-18: Peripheral Connections

Serial Port

Connect to the serial port with a null modem cable. The serial port provides a male DB9 connector and allows user to:

- Print to a serial printer or plotter.

- Monitor the printer server by connecting an ANSII compatible terminal or a PC running an ANSII terminal emulation program.

  The Emulex default port configuration is set for 9600 bps, 8 data bits, no parity, 1 stop bit, DTE type, with softcopy emulation.

- Input print jobs directly by connecting to a host system serial port (e.g. an HP 3000).

> *NOTE: Serial cable between the printer server and the*
> *peripheral device or console terminal should not*
> *exceed 50 feet (15.24 meters). Connection can be*
> *made through a null modem cable.*

Power Up

> *CAUTION: The AC power outlet must be accessible for*
> *immediate removal of power.*

1)   Verify the LAN connection to the printer server is secure.

2)   Verify all serial and parallel cable connections are secure.

3)   Attach the modular power supply cable to the printer server jack labeled +5 VDC.

4)   Plug the power supply module into an AC power outlet.

   The printer server will power up and go through a self-test.
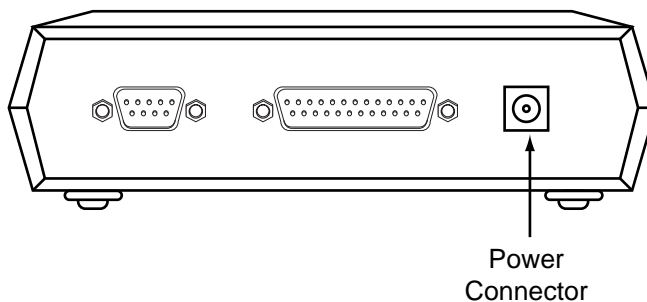
Power
Connector

Figure 2-19: Power Outlet

> *NOTE: Please refer to the Optional Power Supply*
> *Specification section if the printer server is being*
> *used outside the United States where voltages may*
> *vary.*

Display Lights (LEDs)

1) When the printer server is powered up, the green POWER LED will illuminate.

2) Wait 15 to 20 seconds after power is applied.

    During this period, the printer server is performing its self-test.

3) If the network is active, the printer server yellow LAN LED will flash with network activity.

4) If the UTP connector is used, the green LINK LED will illuminate.

5) If the BNC connector is used, the green LINK LED will not illuminate.
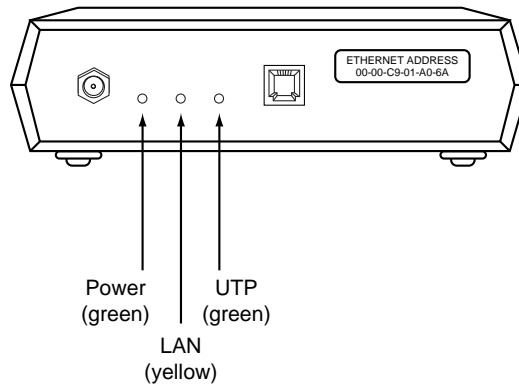
Figure 2-20: Printer Server Display LEDs

Print Test Page

The test page is a helpful tool that can be used to verify the connection between the printer server and the printer. The test page contains the following data:

Printer sServer nName	MAC Address
DDefault remote pPrinter nName	Node Nname
Hardware & fFirmware revisions	NOS iInformation
SSoftware revision	Network pProtocols

To print the test page, perform the following steps:

1) Verify the Emulex printer server has power.

2) Verify printer has power and is On-Line.

3) Disconnect power to the printer server.

4) Disconnect LAN cable.

5) Reconnect power to printer server.

6) The printout will occur within 90 seconds.

   If no printout occurs, verify all connections and make sure printer shows power ON, Ready and On-Line.

> *NOTE:*   *If the printer is PCL or text only, the test printout*
>   *may contain PostScript commands.*

Print Configuration Parameters

To obtain a printout of configuration parameters, enter this command:

▷   Server>> show server config port ***port_number*** [*ps*]

port_number Enter the printer server port number.

ps   Puts the output in PostScript format.

Reset to Factory Defaults

Before resetting to factory defaults, we recommend that you print out a configuration page. Using the command described below will reset the printer server to its factory defaults.

- The printer server will reset to factory defaults when power is cycled.

- The IP address and subnet mask are reset to NONE (000.000.000.000).

- Non-volatile memory is reset to factory defaults.

To reset to factory defaults:

1) Obtain privileged status.

2) Enter this command:

   ▷ Server>> initialize [*server*] [*delay **delay_min***]
      [*default*]

delay	Indicates reintialization will not take place until after a specified period of time.
delay_min	Specifies the time before the server is stopped and the initialization process begins. The default is 1 minute.
default	Resets the server to factory defaults

3) Cycle printer power.

Factory Default Configuration

Parameter	*Default Setting*
Passwords	system (privilege mode) access (remote login)
Printer server name	NQAxxxxxx (xxxxxx are the last six characters of the MAC Address)
Printer services Remote printer names TCP port numbers lpd service	 NQAxxxxxx_1 (parallel port) NQAxxxxxx_2 (serial port) 2501 (parallel port) 2502 (serial port) parallel port only; TCP port 515
LAT port names	PORT_1 (parallel port) PORT_2 (serial port)
lpd Queues ASCII files PostScript or binary files	 TEXT PASSTHRU
Serial port configuration	9600 bps, 8 data, 1 stop, no parity, DTE type, softcopy emulation
Management Access Telnet port number RCF port number TES service name	 23 2048 NQAxxxxxx (xxxxxx are the last six characters of MAC address)

Printer Server Specifications

Parameter	*Range*
Ethernet Compatibility	IEEE 802.3, Ethernet Type 2 10base2, Thinwire (BNC) 10baseT, Unshielded Twisted-Pair (UTP) (RJ45)
Physical Dimensions	5.5 x 6.75 x 1.75 inches (14.0 x 17.1 x 4.4 cm)
Power Requirements	+ 5 VDC (5% variance) @ 1 Amp minimum
Temperature	Operating: 41° to 109.4° F (5° to 43°C) Storage: -40° to 140° F (-40° to 60°C)
Humidity	10% to 95% noncondensing
Agency Approval	FCC Class A; UL Listed to UL 1950; TUV Certified to EN60950; EN55022, CISPR22/85,Class A (Class B For european models); CUL Listed to CSA22.2, No.950; EN50082-1.

Optional Power Supply Specifications

Customers providing their own power supply will need to meet these specifications. This will prevent damage to the printer server and ensure reliable operation.

> *CAUTION: For European installations, compliance with the EMC Directive 89/336/EEC requires the use of Emulex power supply accessories.*

Parameter	Range
Output	+ 5 VDC $\pm$ 5% @ 1 Amp minimum
Connector	2.5 mm pin, 5.5 mm ID, 12.0 mm shaft length
Polarity	Center positive

One of the following equipment or installation conditions is required for UL approval:

Either:

- Connect the equipment to a +5 VDC power source that is electrically isolated from the AC source. The +5 VDC source is to be reliably connected to earth ground.

Or

- Connect the equipment to a +5 VDC SELV source.

Emulex offers the following power supply accessories:

- **Universal:** 90 - 260 VAC, 50/60Hz input. Requires user supplied detachable input power cord to match local power outlet configuration. Conforms to CSA, UL and TUV or VDE requirements.

- **VDE:** 230VAC, 50HZ input. Conforms to VDE or TUV requirements.

- **Australian:** 240 VAC, 50Hz input. Conforms to SAA requirements.

- **United Kingdom:** 240 VAC, 50 Hz input. Plug conforms to EN60950 requirements.

Declaration of Conformity

This Declaration identifies the product, manufacturer's name and address, and applicable specifications recognized in the European Union.

DECLARATION OF CONFORMITY

Manufacturer: Emulex Corporation
                                 3535 Harbor Blvd.
                                 Costa Mesa, CA 92626
                                 USA

declares under sole responsibility that the product:

    Product Name: NETQue Printer Server
                                 (Ethernet, multiport printer server)

    Model Number: NQ0U-NT+, NQ0V-NT+, NQGB-NT+

    including Accessories: ER2011809-00 (Mfg. Part Number AD051ARB-7)
    (power supplies)   ER2011810-00 (Mfg. Part Number LZUSD02001)
                                 ER2011812-00 (Mfg. Part Number AD051ARUK-7)

to which this Declaration relates is in conformity with the following standards or other documents:

    Safety: IEC950:1991+A1,A2/EN60950 (1992)+ A1,A2
                                 TUV Rheinland, Certificate No. S9371375

    EMC: EN55022 (1987)/CISPR-22 (1985), Class B
                                 EN50082-1 (1992)

following the provisions of the EMC Directive 89/336/EEC and Low Voltage Directive 73/23/EEC and carries the CE Marking accordingly.

November 17, 1995
Costa Mesa, CA

                                                    Paul Folino
                                                 Paul Folino, President & CEO

European Contact: Emulex Europe Ltd.   Telephone: 44-1734-772-929
                     Mulberry Business Park   Fax: 44-1734-773-237
                     Fishponds Road
                     Wokingham, Berkshire
                     RG41 2GY, England

What's Next?

After successfully installing your Emulex printer server, you must configure the network operating system (NOS). Refer to the following list.

Configure NOS

Choose one or more operating systems.

- Novell NetWare – page 3-1

- UNIX – page 4-1

- AppleTalk – page 5-1

- VAX/VMS-LAT – page 6-1

- DOS LAN Manager– page 7-1

- OS/2 LAN Server – page 8-1

- Windows NT 3.5 – page 9-1

NETQue Token Ring

Reference Numbers

It is important that you make a note of the printer server's unique ethernet address (known as the Media Access Control or MAC address) and its serial number. The figure below shows the locations of these numbers.
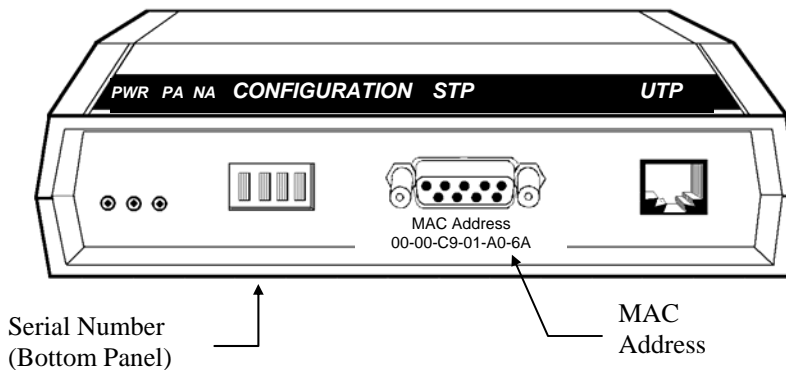
Figure 2-21: Location of Reference Numbers

Although the following information is clearly printed on the unit, we suggest you write the numbers here for later reference.

MAC Address: 00-00-93-_____ _____-_____ _____-_____ _____

Serial Number: ____ ____ ____ ____ ____ ____ ____

Next, enter the default printer server name. This name begins with a three digit prefix unique to the type of printer server. The remaining digits are taken from the last six characters of the MAC address, without the dashes. For example, the prefix for the NETQue Token Ring is NQT.   Combined with a MAC address such as 00-00-93-01-A0-6A, the default server name for this printer server will be NQT01A06A.

The default printer server name is very important and is always used when installing the printer server for the first time. Once a successful installation has been accomplished, the default printer server name can be changed.

Default Server Name: NQT_____ _____ _____ _____ _____ _____

> *NOTE: We suggest you use the default printer server name
>   when installing the printer server for the first time.*

To determine the default printer name, enter the Emulex default printer server name combined with the Emulex printer server port number. Port numbering on the NETQue Token Ring is as follows:

- #1 - Parallel port

- #2 - Serial port

For example, NQT01A06A_2 is the NETQue Token Ring serial port.

Default Printer Name: NQT____ ____ ____ ____ ____ ____ .____

Switch Settings

A four position switch is located on the network side of the printer server. The functions of each are shown below. UP indicates a switch is ON and DOWN shows the switch is OFF.

Position 1   Reset to Factory Defaults

ON   = Reset to Factory Default
OFF = Use for Normal Operation

Position 2   Token Ring Speed

ON = 4 Mbits/sec
OFF = 16 Mbits/sec

Position 3   Parallel Port Type

ON   = Bi-directional
OFF =   Centronics

Position 4   Reserved for Future Use
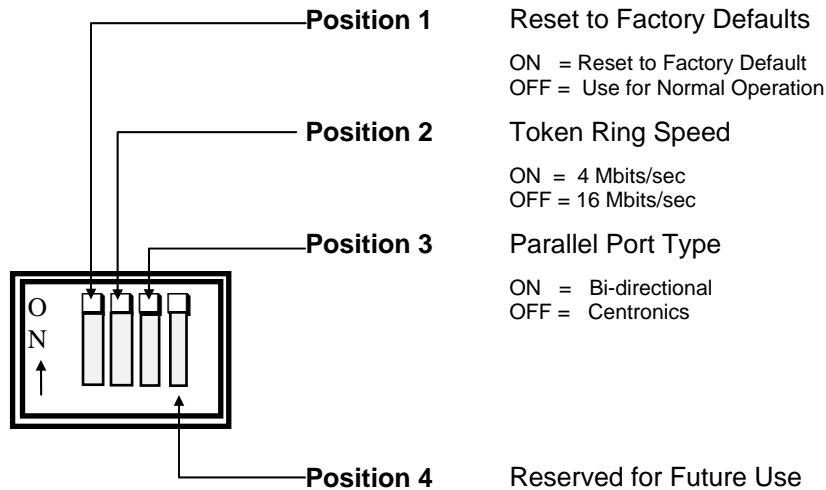
Figure 2-22: Switch Settings

LAN Connections & Cabling

The printer server may be connected to the network with one of these cables.

- Unshielded twisted-pair (UTP) with an RJ-45 connector
- Shielded Twisted-pair (STP) with a DB9 connector

---

*CAUTION: Do not connect network cables to both the UTP
and the STP ports on the printer server at the
same time.*

Unshielded Twisted-Pair UTP Connection

1) Connect one end of the UTP cable to the printer server UTP port.

   See Appendix for UTP pinout details.

2) Connect the other end of the UTP cable to the Token Ring network.

3) Do not connect anything to the printer server STP port.
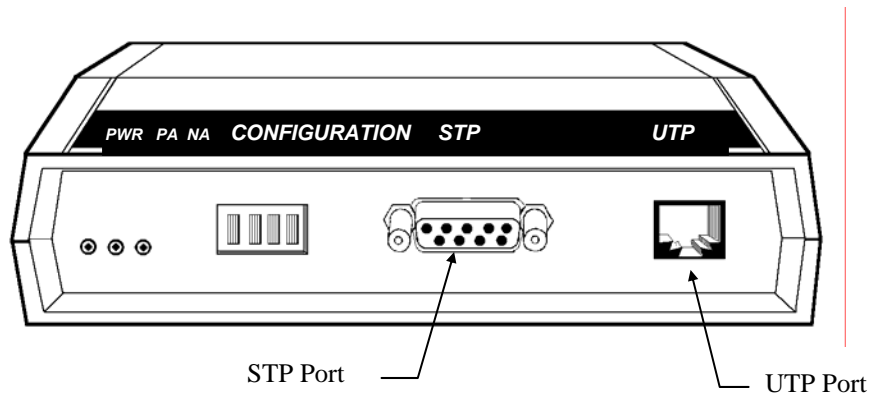
STP Port   UTP Port

Figure 2-23: Printer Server LAN Connections

Shielded Twisted-Pair STP Connection

1) Connect one end of the STP cable to the printer server STP port.

   See appendix for STP pinout details.

2) Connect the other end of the STP cable to the Token Ring network.

3) Do not connect anything to the printer server UTP port.

Peripheral Connections

Parallel Port

The parallel port provides a female DB25 connector and supports the following types of peripherals:

- A printer or plotter supporting a Centronics parallel port

- A printer or plotter supporting the bi-directional parallel interface (IEEE 1284)

> *NOTE:*   *The parallel cable between the printer server and the printing device should not exceed 12 feet (3.65 meters).*
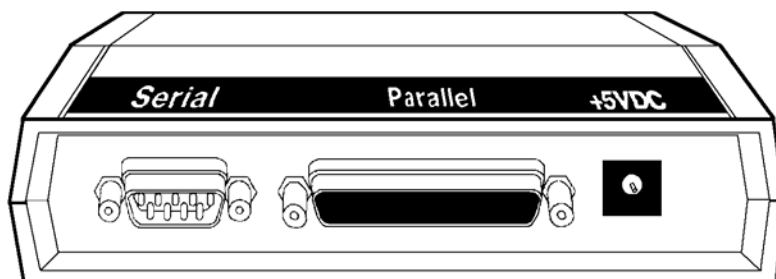
Figure 2-24: Peripheral Connections

Serial Port

Connect to the serial port with a null modem cable. The serial port provides a male DB9 connector and allows user to:

- Print to a serial printer or plotter.

- Monitor the printer server by connecting an ANSII compatible terminal or a PC running an ANSII terminal emulation program.

  The Emulex default port configuration is set for 9600 bps, 8 data bits, no parity, 1 stop bit, DTE type, with softcopy emulation.

- Input print jobs directly by connecting to a host system serial port (e.g. an HP 3000).

> *NOTE:* *Serial cable between the printer server and the peripheral device or console terminal should not exceed 50 feet (15.24 meters). Connection can be made through a null modem cable.*

Power Up

> *CAUTION*: *The AC power outlet must be accessible for immediate removal of power*

1) Verify all switch settings are correct.
2) Verify the Token Ring LAN connection to the printer server is secure.
3) Verify all serial and parallel cable connections are secure.
4) Attach the modular power supply cable to the printer server jack labeled +5 VDC.

5) Plug the power supply transformer into an AC power outlet.

The printer server will power up and go through a self-test.
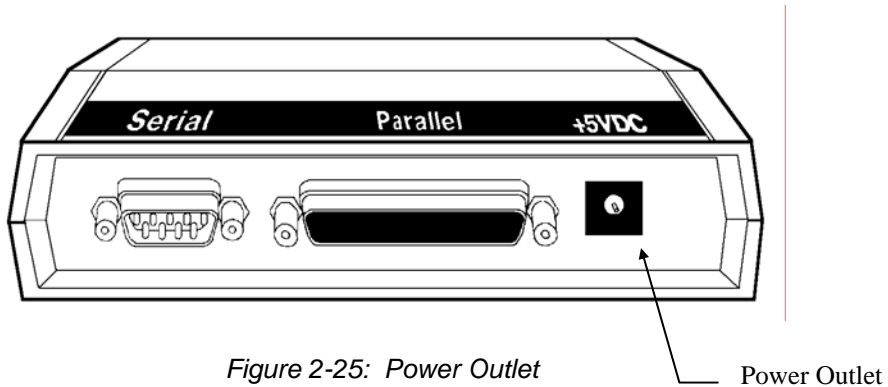
Figure 2-25: Power Outlet   Power Outlet

NOTE: *Please refer to the Optional Power Supply*
          Specification section if the printer server is being
          used outside the United States where voltages may
          vary.

Display Lights (LEDs)

1) When the printer server is powered up, the green POWER LED will illuminate.

2) Wait 15 to 20 seconds after power is applied.

   During this period, the printer server is performing its self test.

3) If the network is active, the green NA LED will flash with network activity.

4) If any of the connected peripheral ports is active, the yellow PA LED will flash showing port activity.

PWR PA NA   **CONFIGURATION**   **STP**   **UTP**

Power LED

Network Activity or NA LED

Printer Activity or PA LED
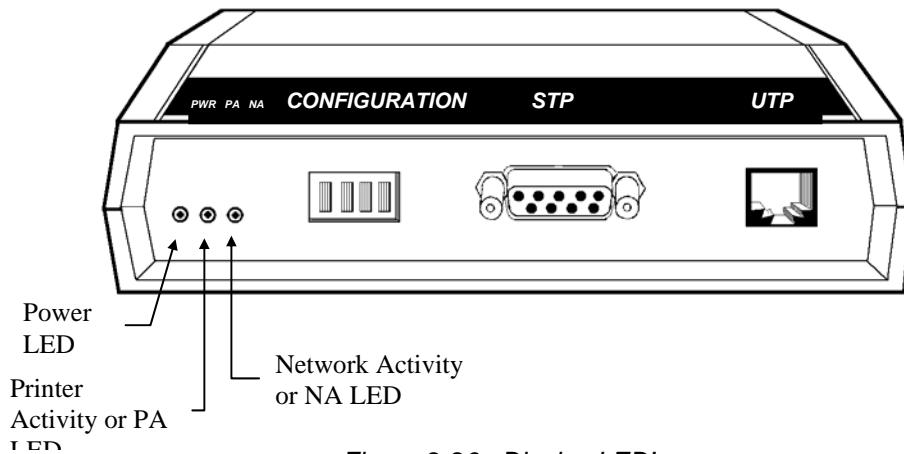
Figure 2-26: Display LED's

Print Test P~~arameters~~age

The test page is a helpful tool that can be used to verify the connection between the printer server and the printer. The test page contains the following data:

~~reference when configuring the printer server. The print out contains default and recently changed information~~Print~~er~~ ~~s~~Server ~~n~~Name

MAC Address

D~~D~~efault remote ~~p~~Printer ~~n~~Name   Node ~~N~~name

Hardware & ~~f~~Firmware revisions   NOS ~~i~~Information

S~~S~~oftware revision   Network ~~p~~Protocols

To print the test page, perform the following steps:

1) Verify the Emulex printer server has power.

2) Verify printer has power and is On-Line.

3) Disconnect power cord to the printer server.

4) Disconnect LAN cable.

5) Reconnect power cord to printer server.

6) The printout will occur within 90 seconds.

If no printout occurs, verify all connections and make sure printer shows power ON, Ready and On-Line.

> *NOTE: If the printer is PCL or text only, the test printout may contain PostScript commands.*

Print Configuration Parameters

To obtain a printout of configuration parameters, enter this software command:

> ▷ Server>> show server config port ***port_number*** [*ps*]
>
> ***port_number*** The output is directed to the specified port number.
>
> *ps*   Puts the output in PostScript format.

Reset to Factory Defaults

Before resetting to factory defaults, we recommend that you print out a configuration page. Two methods can be used to reset the printer server to its factory defaults.

- Using switch settings

  - The printer server will reset to factory defaults immediately.

  - IP address and subnet mask are reset to NONE.

  - Non-volatile memory and RAM are erased.

- Using a software command

  - The printer server will reset to factory defaults when power is cycled.

  - IP address and subnet mask are reset to NONE.

  - Non-volatile memory and RAM are erased.

Reset Using Switch Settings

If necessary, review the information at the beginning of this chapter on the function of each switch. To reset to factory defaults, follow these steps:

1) Remove AC power cord from the printer server.

2) Move switch #1 to the ON position.

3) Reconnect AC power cord to printer server.

4) Move switch #1 to the OFF position.

   The printer server will perform its self-test, load operational software, and reset to factory defaults.

Reset Using Software Command

1) Obtain privileged status.

2) Enter this command:

▷   `Server>> initialize server delay` ***delay_min*** *default*

delay	Indicates reintialization will not take place until after a specified period of time.
delay_min	Specifies the time before the server is stopped and the initialization process begins. The default is 1 minute.
default	Resets the server to factory defaults

Factory Default Configuration

Parameter	*Default Setting*
Passwords	system (privilege mode) access (remote login)
Printer server name	NQTxxxxxx (xxxxxx are the last six characters of the MAC Address)
Printer services	
• Remote printer names	NQTxxxxxx_1 (parallel port) NQTxxxxxx_2 (serial port)
• TCP port numbers	2501 (parallel port) 2502 (serial port)
• lpd Service	Parallel port only; TCP port 515
lpd Queues	*These may not be renamed:*
• ASCII data	TEXT
• PostScript or binary files	PASSTHRU
Serial port configuration	9600 bps, 8 data, 1 stop, no parity, DTE type, sofcopy emulation
Management Access	
• Telnet port number	23
• RCF port number	2048
• TES service name	NQTxxxxxx (xxxxxx are the last six characters of the MAC address)

Printer Server Specifications

Parameter	*Range*
Ethernet Compatibility	IEEE 802.5 IBM Token Ring Unshielded Twisted-Pair (UTP) RJ45 Shielded Twisted-Pair (STP) DB9
Physical Dimensions	5.5 x 6.75 x 1.75
Power Requirements	5VDC $\pm$ 5% @ 1A
Temperature	Operating: 41° to 109.4° F (5° to 43° C) Storage: -40° to 140° F (-40° to 60° C)
Humidity	10% to 90% noncondensing
Agency Approval	FCC Class A; UL Listed to UL 1950; TUV Certified to EN60950; CUL Listed to CSA22.2, No.950; EN55022, CISPR22/85, Class A; EN50082-1.

Optional Power Supply Specifications

Customers providing their own power supply will need to meet these specifications. This will prevent damage to the printer server and ensure reliable operation.

> *CAUTION:*   *For European installations, compliance with the EMC Directive 89/336/EEC requires the use of Emulex power supply accessories.*

Parameter	Range
Output	+ 5VDC $\pm$ 5% @ 1 Amp minimum
Connector	2.5 mm pin, 5.5 mm ID, 12.0 mm shaft length
Polarity	Center positive

One of the following equipment or installation conditions is required for UL approval:

Either:

- Connect the equipment to a +5 VDC power source that is electrically isolated from the AC source. The +5 VDC source is to be reliably connected to earth ground.

Or:

- Connect the equipment to a +5 VDC SELV source.

Emulex offers the following power supply accessories:

- **Universal:** 90 - 260 VAC, 50/60Hz input. Requires user supplied detachable input power cord to match local power outlet configuration. Conforms to CSA, UL and TUV or VDE requirements.

- **VDE:** 230VAC, 50Hz input. Conforms to VDE or TUV requirements.

- **Australian:** 240 VAC, 50Hz input. Conforms to SAA requirements.

- **United Kingdom:** 240 VAC, 50 Hz input. Plug conforms to EN60950 requirements.

Declaration of Conformity

This equipment complies with CISPR22/EN55022 Class A.

> *WARNING: This is a class A product. In a domestic environment, this product may cause radio interference requiring the user to take adequate measures.*

This Declaration identifies the product, manufacturer's name and address, and applicable specifications recognized in the European Union.

DECLARATION OF CONFORMITY

Manufacturer: Emulex Corporation
                        3535 Harbor Blvd.
                        Costa Mesa, CA 92626
                        USA

declares under sole responsibility that the product:

    Product Name: NETQue Token Ring Printer Server
                        (Token Ring, multiport printer server)

    Model Number: NQTR0U-NATM, NQTR0V-NATM
                        NQTRGB-NATM

    including Accessories: ER2011809-00 (Mfg. Part Number AD051ARB-7)
    (power supplies)   ER2011810-00 (Mfg. Part Number LZUSD02001)
                            ER2011812-00 (Mfg. Part Number AD051ARUK-7)

to which this Declaration relates is in conformity with the following standards or other documents:

    Safety: IEC950:1991+A1,A2/EN60950 (1992)+ A1,A2
                        TUV Rheinland, Certificate No. S9371375

    EMC: EN55022 (1987)/CISPR-22 (1985), Class A
                        EN50082-1 (1992)

following the provisions of the EMC Directive 89/336/EEC and Low Voltage Directive 73/23/EEC and carries the CE Marking accordingly.

November 3, 1995
Costa Mesa, CA

Paul Folino
Paul Folino, President & CEO

European Contact: Emulex Europe Ltd.   Telephone: 44-1734-772-929
                    Mulberry Business Park   Fax: 44-1734-773-237
                    Fishponds Road
                    Wokingham, Berkshire
                    RG41 2GY, England

What's Next?

After successfully installing your Emulex printer server, you must configure the network operating system (NOS). Refer to the following list.

Configure NOS

Choose one or more operating systems.

- Novell NetWare – page 3-1

- UNIX – page 4-1

- AppleTalk – page 5-1

- DOS LAN Manager– page 7-1

- OS/2 LAN Server – page 8-1

- Windows NT 3.5 – page 9-1

Contacting Emulex

Chapter 10

Technical Assistance

If you experience problems and cannot resolve them, contact Emulex Technical Support.

Prior to Your Call

Prior to calling Technical Support, gather the following information:

1) Type of printer and interface (e.g., HP LaserJet IVSi, Xerox 470, etc.)

2) Type of host, operating system, and release level (e.g., SparcStation II with SunOS 4.1.1)

3) Network operating system and release level (e.g., NetWare 4.1, etc.)

4) Type of connection to the network (e.g., Ethernet, Token Ring, UTP, etc.)

5) Contents of the following host files:

   − For Novell:

     PRINTDEF
     PRINTCON

   − For TCP:

     /etc/printcap
     /etc/hosts
     /etc/ethers

6) MAC address

7) Contents of any error log files, such as /tmp/emlx[pid].log

> *NOTE: If possible, call Technical Support from a phone next to a terminal with access to the network.*

Placing the Call

> After you gather the requested information, contact Emulex at one of these sites.

Domestic

> Emulex (USA)
> Technical Support
> 3535 Harbor Boulevard
> Costa Mesa, CA 92626
> Telephone: (800) 854-8270
> FAX: (714) 513-8269
>
> BBS (714) 662-1445 (24 hr)
>
> EmuFax (714) 513-8276 or (714) 513-8277
>
> ftp: ftp.emulex.com (24 hr)
>
> Internet: tech_support@emulex.com (24 hr)
>
> Support Services (714) 513-8061

European

> Emulex Limited (Europe)
> Technical Support
> Mulberry Business Park
> Fishponds Road
> Wokingham, Berkshire
> RG11 2QY, England
> Telephone: (011) 44-1734-772-929 (8:30 a.m. - 6:00 p.m.)
> FAX: (011) 44-1734-773-237 (24 hr)
>
> BBS: (011) 44-1734-773-298 (24 hr)
> ftp: ftp.europe.emulex.com
>
> If Emulex Technical Support personnel determine the unit is defective, they will provide information to return the printer server to an authorized Emulex repair center for service. If return is required, a Return Materials Authorization (RMA) number and shipping instructions will be issued.
>
> Emulex Network Systems has facilities throughout the world. Contact corporate headquarters for the closest office or regional center.

24 - Hour Support

Technical Support within the USA is available 24 hours a day. After normal working hours, dial one of the following numbers:

Telephone: (800) 854-7112, ext. 8270 or (714) 662-5600, ext 8270

Automatic Call Distribution: (714) 513-8270 (6:00 a.m. - 5:00 p.m.)

The after-hours answering service asks for your name, company name, telephone number and product type. The answering service pages the on-call technical support specialist, who will return the call as soon as possible.

Product Service

If a customer experiences difficulties with an Emulex product and is unable to resolve the problem with Emulex Technical Support, a Return Materials Authorization (RMA) number will be issued. Shipping instructions to the nearest Repair Center will also be provided. Following receipt of the RMA number, the customer is responsible for returning the product to Emulex, freight prepaid. For additional information please refer to the Warranty Registration Card.

Bulletin Board System

The Emulex Bulletin Board System (BBS) allows the user to download Emulex software and documentation files, upload files, and send or receive messages. Connection to the Emulex BBS may be made through modem or the Internet. Obtain upgrades through the BBS by using a modem and performing these steps:

1) Verify that your communication software supports one of these file transfer protocols:

   Xmodem, K-modem, Z-modem, SEAlink, Telink, or Kermit.

2) Configure the communication software to operate at 2400 -14.4K bps, 8 data bits, no parity, and 1 stop bit.

3) Set the software to dial one of these domestic or European numbers:

- Domestic: (714) 662-1445

   Auto rollover will be activated if the number is busy. If that modem becomes inactive, dial one of these numbers:

   (714) 662-1582
   (714) 662-1630

- European: (44) 1734 773298

The following file areas are available on the BBS:

File   Area Description

#1	Files for Everyone
#2	NETJet - Utilities & Load Image Files
#3	NETJet - Additional Files
#5	NETQue Mate - Utilities & Load Image Files
#6	NETQue Mate - Additional Files
#8	Persyst Products - Drivers
#9	Persyst Products- Diagnostics
#10	Persyst Products- Switch & Jumper Settings
#11	DCP Products - Diagnostics
#12	DCP Products - Switch & Jumper Settings
#13	Technotes: Technical Bulletins
#15	Performance Products - Utilities & Misc Files
#18	Rconnect Files
#19	LANManager Software
#22	Emulex Printer Server Documentation
#23	Emulex Communication Server Documentation
#24	Emulex DCP Products Documentation

> *NOTE: The file EMULEX.LST in area #1 describes the files in each area.*

Internet

The Emulex BBS has Internet access via Anonymous ftp, an Internet service that allows connection to a remote host without being a registered user on the host.

1) Userid: Anonymous

    The IP address for the BBS is:

    −   standard-name ftp.emulex.com

    −   numeric-version 138.239.224.1

2) At the main directory, view the readme file for file locations.

3) Go to the desired directory to get the required files.

The following sub-directories under J:/MAILBOX/FILES are available.

NJ	NETJet - Utilities and Load Image Files
NJ/01	NETJet - Additional files
NQ	NETQue Mate - Utilities and Load Image Files
NQ/01	NETQue Mate - Additional files
PERSYST/DRVR	Persyst Products - Drivers
PERSYST/DIAGS	Persyst Products - Diagnostics
PERSYST/INSTL	Persyst Products - Switch & Jumper Settings
DCP/DIAGS	DCP Products - Diagnostics
DCP/INSTL	DCP Products - Switch & Jumper Settings
TSNOTES	Technotes: Technical Bulletins
XXXX	Performance Products - Utilities & Misc. files
RCONNECTR	Connect Software
LANMAN	LANManager Software
BBS: EVERYONE	Files for Everyone
MANUALS/PSERV	Emulex printer server documentation
MANUALS/CSERV	Emulex communication server documentation
MANUALS/DCP	Emulex DCP products documentation

> *NOTE: The file EMULEX.LST in the EVERYONE directory*
> *describes the files located in each directory.*

EmuFax

EmuFax is an automated document retrieval system that sends Emulex documents or catalogs to your fax machine.

To use EmuFax, dial: (714) 513-8276 or (714) 513-8277

> *NOTE: When first using the EmuFax system, order the*
> *Catalog of Available Documents by pressing the*
> *number 2 when prompted.*

When prompted during the EmuFax recording,

1) Enter the document number of the desired document or catalog.

   The document numbers are found in the *Catalog of Availalable Documents*. See **NOTE** above.

2) Enter the number of your fax machine.

   The document(s) requested will be faxed within minutes.

Novell NetWare

Chapter 3

You may configure in the Novell NetWare environment using either pconsole (as explained in this chapter) or the *NET* wizard printer server administrator. Refer to the *Emulex NET wizard printer server administrator User Guide* for installation instructions.

Requirements

Emulex printer servers support both bindery and NetWare Directory Services™ (NDS) modes. Before continuing with the installation, make sure the network adheres to these requirements:

Bindery Mode

- Clients must support the NetWare Fileserver version 2.x or greater.

NDS Mode

- Clients must support the NetWare Fileserver version 4.x or greater.

- Clients managing the NDS tree must be running the NetWare Dos Requester™ (VLM).

- An Emulex printer server running printer server software revision 5.0 or higher.

- An NDS server no more than 2 hops away from the Emulex printer server containing an NDS partition replica with the 4.x Pserver object.

Before Installation

We recommend writing down the following parameters from the Setup Section in Chapter 2. Refer to them during the installation procedure.

Default Server Name: ____ ____ ____ ____ ____ ____ ____ ____ ____

Default Printer Name: ___ ___ ___ ___ ___ ___ ___ ___ ___ ▉___

Choose PSERVER or RPRINTER

The printer server is capable of operating as a PSERVER, RPRINTER or simultaneously as both. Choose the best configuration to meet your needs.

Using the Emulex printer server as a Novell Print Server (PSERVER):

- replaces the need for a dedicated Novell PSERVER
- provides faster throughput than using the printer server as an RPRINTER operating through a Novell PSERVER
- occupies one user slot per attached file server
- supports encrypted or unencrypted passwords

Using the Emulex printer server as a Novell Remote Printer (RPRINTER):

- requires a Novell PSERVER module somewhere on the network
- provides slower throughput than using the printer server as a PSERVER
- occupies one user slot
- uses the PSERVER module to handle passwords

Configure as PSERVER - NetWare 1.2 to 3.12

Prior to using the Emulex printer server as a Novell NetWare PSERVER, the user must first select a print queue, add the printer server and the printer, select the print queue, and restart the printer server.

Create the Print Queue

1) Login to the Novell file server as supervisor:

   ▷ F:\ LOGIN file server\SUPERVISOR

   > *NOTE: A user with supervisor equivalency is not the same as a printer server operator. Create a printer server operator account to perform activities such as bringing down the printer server or obtaining full printer server status.*

2) Enter:

   ▷ Z:\ PCONSOLE

   This opens the AVAILABLE OPTIONS menu.

3) Select PRINT QUEUE INFORMATION.

4) Press INSERT.

5) Enter the new print queue name.

6) Press ENTER.

7) Select the print queue.

Add the Printer Server

From the AVAILABLE OPTIONS menu:

1) Select PRINT SERVER INFORMATION.

2) Press INSERT.

3) Enter the Emulex default server name.

   The Emulex default server name is defined in the Before Installation section of this chapter.

4) Select the newly defined print server.

Add the Printer

1) Select PRINT SERVER CONFIGURATION.

2) Select PRINTER CONFIGURATION.

3) Select one of the not-installed printers from the list.

4) Enter the Emulex default printer name.

   The Emulex default printer name is defined in the Before Installation section of this chapter.

5) Press ESC.

6) Select YES to confirm the save.

Select the Print Queue

From the PRINT SERVER CONFIGURATION menu:

1) Select QUEUES SERVICED BY PRINTER.

2) Select the printer server printer name.

3) Press INSERT.

   This displays the list of available queues.

4) Select the queue to be serviced by the printer.

5) Enter a priority level.

   The default is 1, which is the highest priority.

To service several queues with the printer, repeat Steps 3 and 4 for each additional queue.

Restart the Printer Server

The following procedure allows the printer server to read the new configuration in the file server's bindery. Recycling power on the Emulex printer server will also accomplish the same rediscovery.

From the PRINTER SERVER INFORMATION menu:

1) Select PRINTER SERVER STATUS/CONTROL.

> *NOTE: This option appears only if the printer server is powered up and connected to the network and the configuration was successful.*

2) Select SERVER INFO.

3) Select CURRENT SERVER STATUS.

4) Select RUNNING.

5) Press ENTER.

6) Select DOWN or GOING DOWN AFTER CURRENT JOBS.

7) Press ESC until the message Exit PCONSOLE appears.

8) Select YES to exit PCONSOLE.

Configure as PSERVER - NetWare 4.xx

With the release of NetWare 4.xx, NetWare Discovery Services (NDS) has replaced the bindery as a repository of resource information. Configuration for PSERVER varies for bindery emulation and NDS. Please refer to the appropriate section to configure Pserver.

When Novell NetWare is configured to use the Emulex printer server:

- Up to 128 file servers (default is 16) may service the printer server, with a maximum of 256 queues.

> *NOTE: NDS objects can also be defined and administrated using NetWare Administrator™ in Windows and NetAdmin™ in DOS environments.*

NDS Mode Requirements

- Printer objects must be in the same context as the Pserver object which references the printer objects.

- Define only one Pserver object for each Emulex printer server.

- The Public trustee, 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.

Create the Print Queue

1) Login to the Novell file server as user Admin under NDS.

   ▷ F:\ LOGIN cn=admin.*O*

       O   The organization name

2) At the DOS prompt, enter:

   ▷ Z:\ PCONSOLE

   This opens the AVAILABLE OPTIONS menu.

3) Select CHANGE CONTEXT.

4) Enter the desired context name or press INS to browse for available contexts.

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

5) Select PRINT QUEUES.

6) Press INS to create a new print queue.

7) Enter the PRINTER QUEUE VOLUME name.

   This is the name of the file server's volume where the print queue is located.

8) Press ESC.

Add the Printer Server

From the AVAILABLE OPTIONS menu:

1) Select CHANGE CONTEXT.

2) Enter the context name.

   This name defines the position of the print server in the NDS tree.

3) Select PRINT SERVERS.

4) Press INSERT.

5) Enter the Emulex default server name.

   The Emulex default server name is defined in the Before Installation section in the front of this chapter.

6) Select the newly defined printer server.

Add the Printer

From the AVAILABLE OPTIONS menu:

1) Select PRINTERS.

2) Press INSERT.

3) Enter the Emulex default printer name and port number.

   The Emulex default printer name is defined in the Before Installation section in the front of this chapter.

4) Select the newly defined printer.

5) Press ENTER.

Select the Print Queue

From the PRINTER CONFIGURATION menu:

1) Select PRINTER TYPE.

2) Press ENTER.

   This changes the printer from Parallel to Other/Unknown.

3) Select PRINT QUEUES ASSIGNED.

4) Press ENTER.

5) Press INSERT.

This will display a list of available print queues.

6) Select a print queue from the list.

7) Press ESC to save the changes.

8) Select YES to confirm the save.

Link Printer Server to Printer

From the AVAILABLE OPTIONS menu:

1) Select PRINT SERVERS.

2) Choose the printer server to link.

3) Select PRINTERS.

4) Press INSERT.

5) Select the printer to establish the link with the server.

Restart the Printer Server

The following procedure allows the printer server to read the new configuration in the NDS tree. Recycling power on the Emulex printer server will also accomplish the same rediscovery.

From the PRINTER SERVER INFORMATION menu:

1) Select INFORMATION AND STATUS.

2) Verify current server status is running and highlighted.

3) Press ENTER.

This brings down the printer server.

4) Exit PCONSOLE.

Bindery Emulation Mode

If multiple file servers use the printer server, the printer server must be defined consistently on each file server.

Create the Print Queue

While in bindery mode:

1) Log in to the Novell file server as supervisor.

   ▷ F:\ LOGIN fileserver\SUPERVISOR /b

2) At the DOS prompt, enter:

   ▷ C:\ PCONSOLE

   This opens the AVAILABLE OPTIONS menu.

3) Select PRINT QUEUES.

4) Press INSERT.

5) Enter queue name.

6) Press ENTER.

7) Select a print queue.

Add the Printer Server

From the AVAILABLE OPTIONS menu:

1) Select PRINT SERVERS.

2) Press INSERT.

3) Enter the Emulex default server name.

   The Emulex default server name is defined in the Before Installation section in the front of this chapter.

4) Select the newly defined printer server.

Add the Printer

From the PRINTER SERVER INFORMATION menu:

1) Select PRINTERS.

2) Press INSERT.

3) Enter the Emulex default server name.

   The Emulex default server name is defined in the Before Installation section in the front of this chapter.

4) Select the newly defined printer.

5) Press ENTER.

Select the Print Queue

From the PRINTER CONFIGURATION menu:

1) Select PRINTER TYPE.

2) Press ENTER.

   This will change the printer from Parallel to Other/Unknown.

3) Select PRINT QUEUES ASSIGNED.

4) Press ENTER.

5) Press INSERT to assign a print queue to this printer.

6) Press ESC.

7) Press F10 to save the changes.

Restart the Printer Server

The following procedure allows the printer server to read the new configuration in the file server's bindery. Recycling power on the Emulex printer server will also accomplish the same discovery.

From the PRINTER SERVER INFORMATION menu:

1) Select INFORMATION AND STATUS.

2) Verify current server status is running and highlighted.

   Press ENTER to bring down the printer server.

3) Exit PCONSOLE.

Configure as RPRINTER

Prior to using the Emulex printer server as a Novell NetWare remote printer, the user must first create a print queue, add the printer server and the printer then restart the printer server.

Create the Print Queue

1) Login to the Novell file server as supervisor:

    ▷ `F:\ LOGIN fileserver\SUPERVISOR`

    > *NOTE: A user with supervisor equivalency is not the same as a printer server operator. Create a printer server operator account to perform activities such as bringing down the printer server or obtaining full printer server status.*

2) Enter:

    ▷ `Z:\ PCONSOLE`

    This opens the AVAILABLE OPTIONS menu.

3) Select PRINT QUEUE INFORMATION.

4) Press INSERT.

5) Enter the new print queue name.

6) Press ENTER.

7) Select the print queue.

Add the Remote Printer

From the AVAILABLE OPTIONS menu:

1) Select PRINT SERVER INFORMATION.

2) Press INSERT.

3) Enter the new Novell printer server name.

    > *CAUTION: DO NOT name the Novell Print Server with the same name as the Emulex printer server.*

4) Press ENTER.

5) Select the printer server name.

6) Select PRINT SERVER CONFIGURATION.

7) Select PRINTER CONFIGURATION.

8) Select one of the not installed printers.

9) Enter the Emulex printer server printer name.

10) Press the down arrow key to select TYPE.

11) Press ENTER.

12) Select REMOTE OTHER/UNKNOWN.

13) Press ESC.

14) Select YES to confirm the save.

Select the Print Queue

From the PRINTER CONFIGURATION menu:

1) Select PRINT SERVER CONFIGURATION.

2) Select QUEUES SERVICED BY PRINTER.

3) Select the printer server printer name.

4) Press INSERT.

5) Select the queue to be serviced by the printer.

6) Enter a priority level.

    The highest priority is one. One is also the default.

To service several queues with the printer, repeat Steps 3 and 4 for each additional queue.

Restart the Printer Server

The printer server must be stopped and restarted to enable the new configuration. Use one of the following procedures:

286 Non-Dedicated Servers - VAP

1) At the file server console, enter:

    ▷   F:\ PSERVER STOP

    ▷   F:\ PSERVER START

386 Dedicated Servers - NLM

1) At the file server console, enter:

    ▷   F:\ UNLOAD PSERVER

    ▷   F:\ LOAD PSERVER **pserver_name**

    pserver_name   The printer server's name as defined by NetWare

Dedicated Printer Servers - 286 or 386

1) Login to the file server.

2) Run PCONSOLE.

3) Select PRINTER SERVER INFORMATION.

4) Select the printer server to shut down.

5) Select PRINTER SERVER STATUS AND CONTROL.

6) Select SERVER INFORMATION.

7) Select DOWN

    This performs an immediate shutdown.

8) From the dedicated printer server, enter:

    ▷   PSERVER **fserver_name pserver_name**

    fserver_name   The Novell file server name

    pserver_name   The printer server name as defined by Novell NetWare

Logging into the Printer Server

You can log into the printer server remotely from a Novell workstation using the TES terminal emulation program and the Kermit protocol or locally from a console terminal. These methods are described below.

Remote Login

Novell workstations require the TES terminal emulation program and the Kermit protocol in order to perform a remote login to the printer server

TES can be loaded at any DOS prompt or from the AUTOEXEC.BAT file. TES must be loaded before starting the Kermit program. These files are available on the CD-ROM or on the DOS utilities diskette.

TES	TSR program that provides NetWare terminal transport to enable access to the remote console facility under NetWare.
MS-DOS Kermit	Terminal emulator which is used in conjunction with TES.
INSTALL	DOS Installation script for the printer servers.
READ.ME	Readme file for using TES with Emulex Printer servers. For more information, examine the read.me file.

The following procedure installs the TES and Kermit software on the system and establishes a connection to the printer server:

1) Login to a Novell workstation.

2) Change to a DOS prompt.

3) Place the CD-ROM or diskette in the drive and enter one of these commands:

CD-ROM:

    ▷ `C:> md tes-krmt`

    ▷ `C:> cd tes-krmt`

    ▷ `C:> xcopy d:\utils\ps50\tes\*.* /S`

This command installs the files on the CD-ROM from drive D to drive C. The /S option will recurse the directory structure.

Diskette:

    ▷ `c:> a:\install a: c:`

This command installs the files from drive A to C:\tes-krmt.

NOTE: TES must be loaded after NetWare client software
is installed and before starting Kermit.

---

4) Go to the TES-Krmt subdirectory:

    ▷ `C:> cd\tes-krmt`

NOTE: If TES is already present, do not repeat the
installation.

---

5) Run TES:

    ▷ `C:\TES-KRMT> tes`

TES will terminate but stay resident.

6) Run Kermit:

    ▷ `C:\TES-KRMT>  kermit`

The MS-Kermit> prompt will appear.

7) Select port:

    ▷ `C:\MS-Kermit>  set port tes` ***server_name***

8) Connect to printer server:

    ▷ `C:\MS-Kermit> connect`

9) Press ENTER until the printer server login banner is displayed.

10) At the Enter Username or Help>, enter any two characters.

11) At the Server>, enter su:

    ▷ `Server> su`

This gives you supervisor status.

12) At Password>, enter system:

    ▷ `Password> system`

    where system is the default privileged password which does not echo back.

13) At the Server>> prompt, view or change current parameters.

    Refer to the list of commands in the *Command Reference Guide*.

14) Log out of the printer server:

    ▷ `Server>> logout`

15) Enter:

    ▷ `<Ctrl>] C`

    Hold down the Ctrl key and press the right bracket key. Press C.

16) Exit Kermit:

    ▷ `C:\Kermit> exit`

17) Display information about TES commands:

    ▷ `C:> tes help`

Local Login

1) Connect an ANSII compatible terminal or a PC running an ANSII terminal emulation program to the printer server serial or console port.

    Emulex default port configuration is set for 9600 bps, 8 data bits, no parity, 1 stop bit, DCE type, with softcopy emulation.

2) Press ESC twice.

    This initiates communication between the console terminal and the printer server serial port.

3) Verify banner.

    When the connection is made, the printer server login banner is displayed.

4) At Enter Username or Help>, enter any two characters.

5) At Server>, enter su:

   ▷   `Server> su`

This gives you supervisor status.

6) At Password>, enter system:

   ▷   `Password> system`

System is the default privileged password which does not echo back.

7) Change terminal emulation mode to ANSI.

   ▷   `Server>> change port type ANSI`

8) At the Server>> prompt, view or change current parameters.

Refer to the list of commands in the *Command Reference Guide*.

9) Log out of the printer server:

   ▷   `Server>> logout`

Configure Specific NetWare Parameters

> *IMPORTANT*: *This section contains advanced features.*
> *All parameters should be configured by the*
> *Network Administrator.*

Add NetWare Password to Printer Server

A single password will be used for login to both bindery and NDS systems. When defining a password on the NetWare file server, the password must be entered in the printer server.

1) Login to the printer server with supervisor privilege.

2) Enter:

   ▷   `Server>> define server netware password`

3) When prompted for the password, enter the eight-character NetWare file server password defined in PCONSOLE.

Define the Preferred Novell NetWare File Server

Upon power up, the Emulex printer server normally goes through fileservers in the bindery to find the first available fileserver with configuration information. In a large network this may create unnecessary traffic and take some time. Use the following to specify a direct attachment to the Novell file server node that contains the configuration information.

1) Log in to the printer server with supervisor privilege.

2) Enter:

> ▷   Server>> define node ***node_name*** nfserver
>
> ***node_name***   The preferred NetWare file server node name

3) Enter:

> ▷   Server>> sync

4) Turn power to the printer server off and on.

Define the Method of Discovery (NetWare 4.xx)

The Pserver must defined to do bindery discoveries, NDS discoveries or both.

> ▷   Server>> define server wetware pserver [disable
> |auto |3.x |4.x]

choose one of the following keywords:

disable	disables the NetWare protocol on this printer server
auto	enables both bindery and NDS modes
3.x	enables bindery mode
4.x	enables NDS mode

The default is auto.

Define the NDS tree

Sites with multiple NDS trees can specify which NDS tree the printer server will attach to and scan for setup information with the following command.

> ▷   Server>> define server netware nds "*tree_name*"

> "*tree_name*"   Enter the NDS tree name where the printer server is located, enclosed in quotes. The default is no NDS tree name

To define tree to null enter:

> ▷   Server>> define server netware nds ""

Define the Position of the Pserver - NDS mode

If the PSERVER object is in an NDS server that is more than 2 hops away from the printer server, this command can be used to get the printer server to discover its configuration in the NDS tree.

> ▷   Server>> define server netware context "*context*"

> *context*   the path from the printer server object to the root of the NDS tree - in Novell NDS format

To remove the context, enter a null statement:

> ▷   Server>> Define server netware context ""

What's Next?

After a successful configuration of your network operating system, you can either configure for another NOS or manage your printer server with Emulex *NET* wizard printer server administrator.

Configure NOS

Choose one or more operating systems.

- Novell NetWare - page 3-1
- UNIX - page 4-1
- VAX/VMS-LAT - page 5-1 (Not supported by NETQue Token Ring)
- AppleTalk - page 6-1
- Microsoft OS/2 LAN Manager - page 7-1
- IBM OS/2 LAN Server - page 8-1
- Windows NT 3.5 - page 9-1

Manage With Emulex *NET* wizard printer server administrator

Refer to *Emulex NET wizard printer server administrator User Guide*.

- Install and Setup Software - Chapter 2
- Configure Printer Servers - Chapter 3
- Configure for Novell NetWare Environments - Chapter 4
- Manage Printer Servers and Printers - Chapter 5

UNIX TCP/IP

Chapter 4

Requirements

Before beginning, verify the network conforms to these requirements:

- Clients must support TCP/IP, TELNET, UDP or LPD.

- Optional load hosts require TFTP, RARP or BootP protocols.

- An EMLX subdirectory must be created. All work is done in the EMLX subdirectory.

At this writing, the ENSTALL program supports installation of host utilities for the following operating environments:

- AT&T SYSTEM V Rel. 3.2 and 4.0*

- BULL B.O.S UNIX Rel. 2.00

- Data General DGux Rel. 5.4.1

- DEC Alpha axp150 OSF/1 Rel. 2.0

- Hewlett Packard HP-UX Rel. 8.05 and 9.0

- IBM AIX Rel. 1.0, 3.1, 3.2.5, and 4.1*

- ICL SYSTEM V Rel. 4.0

- INTERACTIVE UNIX System V/386 Rel. 3.2

- Motorola System V Rel. 3.2 (R32V3)

- SCO UNIX Rel. 3.2*

- Sequoia SVR 3.2

- SOLARIS 1.1, 2.2, and 2.3*

- SUN OS Rel. 4.0, 4.1, 4.1.1, and 4.1.3*

- TADPOLE TPIX System V Rel. 3.2

- Tandem Rel. A21 NonStop-UX

- ULTRIX-32 Rel. 3.0, 4.0, and 4.3

- Unisys S V Rel 3.00, and 3.2.0

- USL (Unixware) SystemV Rel 4.2

* Pre-compiled binaries for these system types are included on the distribution media, the distribution files do not need to be compiled during ENSTALL.

> *NOTE: Check the file entitled PROGRAM NAME on the UNIX Utilities diskette for the latest program changes.*

Before Installation

We recommend writing down the following parameters from the Setup Section in Chapter 2. Refer to them during the installation procedure.

Default Server Name: ____ ____ ____ ____ ____ ____ ____ ____ ____

IP Address: ___ ___ ___-___ ___ ___ -___ ___ ___-___ ___ ___

Subnet Mask: ___ ___ ___-___ ___ ___ -___ ___ ___-___ ___ ___

TCP port _____ (parallel port)   TCP port _____ (parallel port)

TCP port _____ (serial port)   TCP port _____ (serial port)

Telnet port number _____   RCF port number _____

Automatic Installation

Emulex recommends running the ENSTALL utility. This user friendly utility automatically configures the UNIX host to support network printing via TCP/IP with Emulex printer servers.

CD ROM

1) Logon as root at the system prompt.

2) Change to a directory where third party software is typically installed.

    For example, /usr

3) Insert the CD-ROM into a drive.

4) Extract the files from the cd-rom to the hard drive.

    ▷   #tar xvf ***mount_point***/utils/ps50/unix/50.tar ./emlx

> ***mount_point*** The directory path mount point for the CD-ROM drive.

The tar command creates a subdirectory called emlx under the current working directory and extracts the UNIX utilities into the emlx directory.

5) Go to the Emlx directory:

> ▷ #cd emlx

6) Enter:

> ▷ #enstall -s

When the enstall utility begins, follow the instructions and supply the requested information. When the ENSTALL program is complete, the Emulex printer server is ready to use.

Diskette

1) Logon as root at the system prompt.

2) Change to a directory where third party software is typically installed.

   For example, /usr

3) Load the UNIX Utility diskette into a 3.5 floppy disk drive.

4) Extract the files from the diskette to the hard drive.

> ▷ #tar xvf ***device_file*** ./emlx

> ***device_file*** The UNIX device file for the floppy drive.

   For example:

> ▷ #tar xvf /dev/fd0 ./emlx

The tar command creates a subdirectory called Emlx under the current working directory and extracts the UNIX utilities into the Emlx directory.

5) Go to the Emlx directory:

> ▷ #cd emlx

6) Enter:

> ▷ #enstall -s

When the ENSTALL utility begins, follow the instructions and supply the requested information. When the ENSTALL program is complete, the Emulex printer server is ready to use.

Manual Installation

> *IMPORTANT:* *This section contains advanced features.*
> *All parameters should be configured by the*
> *Network Administrator. Emulex*
> *recommends running the ENSTALL*
> *program instead of performing a manual*
> *installation.*

To manually install the printer server on a UNIX network:

- Assign the IP address using ARP, BootP, DHCP or RARP.

- Configure the print queue environment.

ARP

> *NOTE:* *ARP, PING and RARP commands do not alter the*
> *subnet mask.*

The ARP command offers a convenient means of assigning the printer server's initial IP address. The IP address is stored in the printer server's permanent and temporary memory. Although the ARP command is standard on all UNIX platforms, its syntax may vary from one system to another.

Change IP Address

The ARP command cannot be used to change a printer server's existing IP address. To change an existing IP address, use telnet.

1) Logon to the printer server as supervisor.

2) Enter:

  ▷ Server>> define server IP *IP_address*

    IP_address The desired IP address in decimal dot notation.

3) Reboot the printer server.

Assign IP Address

1) Login to the UNIX host as root user.

2) Verify IP address availability.

   ▷   #ping ***IP_address***

   IP_address   The desired IP address in decimal dot notation.

   You should not receive a response. If a response is received, select another IP address with the assistance of the network administrator.

3) Assign the IP address.

   ▷   #arp -s ***IP_address MAC_address***

   IP_address   The printer server IP address in decimal dot notation.

   MAC_address   The printer server MAC address in hexadecimal [0-9, a-f] notation.

   For example:
   ▷   #arp -s 138.239.252.183 0:0:c9:0:c1:a9

IMPORTANT:	*Do not use leading zeroes in the IP address or MAC address.*

   On an AIX system, include an additional argument to the ARP command to indicate the Ethernet interface:

   ▷   #arp -s ether ***IP_address MAC_address***

   IP_address   The printer server IP address in decimal dot notation.

   MAC_address   The printer server MAC address in hexadecimal [0-9, a-f] notation.

   On other systems such as AT&T System V, the ARP command is:

   ▷   #arpbypass -f1 set ***IP_address***
       0x***nn***.0x***nn***.0x***nn***.0x***nn***.0x***nn***.0x***nn***

   IP_address   The printer server IP address in decimal dot notation.

   n   Represents hexadecimal digits.

4) Turn the printer server off and on.

5) Enter:

   ▷   `#ping IP_address`

    IP_address   The printer server IP address in decimal dot notation.

NOTE: *The command interrupt key (usually <Ctrl>C) will stop the PING command.*

Assign Symbolic Name

The user has the option of assigning a symbolic name to the Emulex printer server. To assign the name, perform these steps:

1) Login to the host.

2) Add this command to the file /etc/hosts (or /usr/etc/hosts).

   ▷   `#IP_address server_name`

    IP_address   The IP address just assigned.
    serve_name   The symbolic name describing the server.

For example:
    ▷   `#138.239.252.184 accounting_printer`

NOTE: *If the /etc/hosts file is administered by NIS (formerly Yellow Pages), update the appropriate NIS master hosts database instead. Refer to host documentation for more information.*

BootP

Emulex printer servers will accept and configure the following parameters from a TCP/IP BootP server host:

- Gateway IP address(es)

- Host IP address

- Server Domain Name

- Server IP address

- Server Loadfile Path and Name

- Server Node Name

- Server Subnet Mask

Any other BootP parameters supplied by a BootP server host will be ignored by the server code without any error indication.

1) Determine if BootP is running on the host.

   BSD:

   ▷ #ps -ax | grep bootp

   System V:

   ▷ #ps -e | grep bootp

   If BootP is defined for background operation, an active BootP daemon is displayed.

2) If an active BootP daemon is not listed, enter:

   ▷ #grep bootp /*directory*/inetd.conf

   directory   May be /etc/* or /usr/etc/*

   If a BootP is present, it will be listed with its parameters.

3) Login to the printer server as supervisor.

4) Enter Emulex printer server command:

> ▷ `Server>> define server bootp` ***n m*** `[`*temp*`]`

> ***n***   The number of times to request BootP information if the server IP address is not known (default = 2).

> ***m***   The number of times to request BootP information if the server IP address is known (default = 1).

> *temp*   Instructs the server to configure the acquired information in RAM only. If this parameter is omitted, the information is permanently written in EAROM (default is permanent).

DHCP

If the UNIX host is configured as a DHCP server, the IP address is assigned automatically.

> *NOTE:*   *The Emulex printer server must always 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 server through its LAN hardware address.*

1) Login to the Emulex printer server.

2) Enter:

> ▷ `Server>> define server DHCP` ***n m*** `[`*temp*`]`

> ***n***   The number of times to request DHCP information if the server IP address is not known (default = 2).

> ***m***   The number of times to request DHCP information if the server IP address is known (default = 1).

> *temp*   Instructs the server to configure the acquired information in RAM only. If this parameter is omitted, the information is permanently written in EAROM (default is permanent).

> *NOTE:* *If both n and m are zero, DHCP is disabled.*

When the Emulex printer server reboots, the default sequence of IP address acquisition is to attempt BootP first; if BootP fails, attempt DHCP; if DHCP fails, attempt RARP.

> *NOTE:* *Set the corresponding* **n** *and* **m** *parameters for BootP to zero. The host will then attempt DHCP immediately upon rebooting without attempting BootP.*

RARP

1) Determine if RARP is running on the UNIX host.

   BSD:

   ▷ `#ps -ax | grep -v grep | grep rarpd`

   System V:

   ▷ `#ps -ef | grep -v grep | grep rarpd`

2) Add the following entry in the file /etc/ethers or usr/etc/ethers:

   ▷ `#MAC_address server_name`

   MAC_address The printer server's MAC address.
   server_name The symbolic name.

   For example:
   > ▷   `#00:00:c9:01:c1:a9 accounting_printer`

3) Add the following entry in the file /etc/hosts (or usr/etc/hosts):

   ▷ `#IP_address server_name`

   IP_address The printer server IP address.
   server_name Must match the name entered in the /etc/ethers file.

   > *NOTE:* *If the /etc/hosts file is administered by NIS (formerly Yellow Pages), update the appropriate NIS master hosts database instead. Refer to host documentation for more information.*

When the printer server is booted, the host receives the RARP request from the printer server. It then sends the IP address in the /etc/hosts file to the printer server and stores it in the printer server temporary memory.

Configure the Print Queue

The printer server provides remote printing via the Emulex RPRINT utility on all systems, and LPD on some platforms. ENSTALL automatically installs RPRINT and optionally supports LPD.

RPRINT is a UNIX program that may be run from a print spooler or invoked as a stand-alone module. The program takes data from standard input, connects to a server, and transmits the data. Various features and options make RPRINT well-suited to most printing applications. These include:

- Compatibility with BSD and System V hosts. RPRINT uses either the BSD sockets library or the System V Transport Level Interface (TLI).

- Automatically generated log files for ease in troubleshooting.

- Binary or text data selection can be made from the command line or through an entry in the printcap file.

- Printer filters that may be enabled before the data is sent to the printer server.

The method for installing and configuring RPRINT is different for BSD and System V hosts. Choose the appropriate procedure for your system.

Configure for BSD Hosts

To configure a BSD host with RPRINT:

1) Copy the Emulex utility RPRINT.C to a host system.

   This file is found on the UNIX utilities diskette.

2) Go to the subdirectory where RPRINT is loaded.
   For example,

   ```
   ▷  #/usr/emlx
   ```

3) Edit the file ENVIRON.H to reflect the appropriate system type.

Typical system parameters for Sun Sparc Stations are:

▷   #define SOCK   1

▷   #define SYSV   0

▷   #define LING   1

▷   #define ROBUST 1

4) Enter:

▷   #cc rprint.c -o rprint

This compiles and links RPRINT.C.

> *NOTE: The compile command can vary greatly on different
> systems. If the compile command fails, check your
> host documentation for the correct syntax and
> libraries to include for SOCKETs programming.*

5) Create a dummy device file for the remote printer.

▷   #mknod /dev/***printer_name*** c 3 2

▷   #chown daemon /dev/***printer_name***

▷   #chmod 666 /dev/ ***printer_name***

> *NOTE: Some systems may also require a chgrp command.
> Refer to your system manual for more information.
> Major and minor numbers used in the mknod
> command may differ as well. Use the same major
> and minor numbers found in the /dev/null file.*

6) Create a directory for the spooled files:

   ▷   `#mkdir /usr/spool/`***printer_name***

   ▷   `#chown daemon /usr/spool/`***printer_name***

   ▷   `#chmod 755 /usr/spool/ `***printer_name***

7) Edit the /etc/printcap file to include an entry for the printer server printer(s).

> For example, the following entry defines a LaserJet IIIsi with the Postscript option:

   ▷   `#emlx_ps|LaserJet_IIIsi|parallel _port:\`

```
:lp=/dev/emlx_ps:\            (dummy device name)
:sd=/usr/spool/emlx_ps:\      (dir for spooled files)
:of=/usr/emlx/rprint:\        (rprint program)
:emlx_n=138.239.252.183:\     (server IP address)
:mx#0:\                       (unlimited buffer space)
:sh:\                         (suppress burst pg headersheet)
:sf:\                         (suppress form feeds)
:emlx_text=disable:\          (required for non-text files)
:emlx_p=2501:                 (TCP port number)
```

8) Initialize the new spool device by using the name in the printcap file.

> For example:
>
>   ▷   `#lpc start emlx_ps`

9) Print a test file:

   ▷   `#lpr -Pemlx_ps `   ***ps_filename***

   ps_filename The test file will be printed in PostScript format.

Configure a System V Host

1) Copy the Emulex utility RPRINT.C to a host system.

   This file is found on the UNIX utilities diskette.

2) Go to the subdirectory where RPRINT is loaded.

   For example,
   ▷   #/usr/emlx

3) Edit the file ENVIRON.H to reflect the appropriate system type.

   For example, typical system parameters for a generic System V system:

   ▷   #define SOCK 1 (0 = no sockets supported)

   ▷   #define SYSV 1

   ▷   #define LING 1

   ▷   #define ROBUST 1

   ▷   #define PRINTCAP "/usr/emlx/printcap"

4) Compile and link RPRINT.C:

   If sockets are available, enter:

   ▷   #cc rprint.c -o rprint -lsocket

   If sockets are not available, enter:

   ▷   #cc rprint.c -o rprint -lnsl_s

   ---

   *NOTE: Compile commands will vary on different UNIX
   systems. Some will not require libraries on the
   command string. Others will require one or more
   libraries on the compile command.*

   Typical libraries to use are:

   ▷   #1socket

   ▷   #1nsl_s   (System V Rel 3.X)

   ▷   #1nsl   (System V Rel 4.X)

   ▷   #1inet

5) Edit the /usr/emlx/printcap file to include an entry for the printer server printer(s).

For example, the following defines a LaserJet IIIsi printer named emlx_txt on the parallel port (port 1, TCP port 2501):

> ▷ `#emlx_txt | LJIII_1 | LaserJetIIIsi:\`
>
>   `:lp=emlx_txt:\`   dummy device name
>
>   `:emlx_n=IP_address:\`   server IP addr.
>
>   `:emlx_p=2501:`   TCP port number

The following is an example for a Postscript printer named emlx_ps.

> ▷ `#emlx_ps | LJIII_1 | LaserJetIIIsi:\`
>
>   `:lp=emlx_ps:\`   dummy device name
>
>   `:emlx_n=IP_address:\`   server IP addr.
>
>   `:emlx_ps=disable:\`
>
>   `:emlx_p=2501:`   TCP port number

6) Copy the sample Emulex printer interface file, LP_DUMB, to another file that corresponds to the selected printer name.

   For example:

   > ▷ `#cp lp_dumb lp_emlx`

7) Edit the lp_emlx file to specify the correct path to the RPRINT program.

   Assuming the RPRINT program is kept in /usr/emlx, enter the second to the last line of the lp_ emlx file as follows:
   (shell commands)

   > ▷ `#/usr/emlx/rprint `basename $0` $1`

8) Using UNIX Bourne shell script programming, edit the lp_emlx file and modify the banner page that precedes the printed output.

9) Install the printer into the System V spooler system.

   Most System V spoolers are not required to be shut down to install a printer, with the exception of HP-UX.

NOTE: *For HP-UX, before shutting down the spooling system, check to see that there are no print jobs running (enter lpstat -o). If jobs are running, wait until they are completed.*

> ▷ `#/usr/lib/lpshut`   (HP-UX only)

▷   #/usr/lib/lpadmin -pemlx -v/dev/null -
i/user/emlx/lp_emlx

▷   #/usr/lib/lpsched   (HP-UX only)

▷   #/usr/lib/accept emlx

▷   #enable emlx

Some systems require that the second line use the string:

▷   #v/dev/emlx

10) To make the printer the default system printer, enter:

▷   #/usr/lib/lpadmin -demlx

11) Enter:

▷   #lp -demlx *file_name*

  file_name   The test file to be printed. If the host is configured
               correctly, a banner page (if enabled) and the
               contents of this file will be printed If the test fails,
               refer to a UNIX system administration manual for
               information on printer spooler operation.

LPD

In most cases, local print options such as header and trailer banner pages, and input or output filters are ignored. If this limitation is not acceptable, install the printer using the Emulex RPRINT remote printing utility.

Configure LPD on a BSD UNIX Host

The following procedure uses native LPD print protocol on a BSD UNIX host (SunOS or ULTRIX) with the printer server. The procedure for other UNIX systems such as Solaris, AIX or SCO is completely different (See UNIX documentation for details).

> **IMPORTANT**: *This procedure assumes you want to print to a single port using the LPD protocol.*

1) Enter:

    ▷ #ps -ax | grep -v grep | grep lpd

    This will determine if LPD is supported on the system. If the system does not return a process number for LPD, use RPRINT as described above. If LPD is supported, proceed as follows:

2) On the host, edit the /etc/printcap file to contain a similar entry:

    For example, to send text (non-PostScript) files to port 1:

    > **#LJ4_PCL**|HP_LaserJet_4|port_1:\
    >   :lp=:\
    >   :rm=**node_name**:\
    >   :rp=TEXT:\
    >   :mx#0:\
    >   :lf=/usr/spool/lpd/ERRORLOG:\
    >   :sd=/usr/spool/lpd/**LJ4_PCL:**

For sending PostScript or graphics files to port 1:

    ▷   **LJ4_PS**|HP_LaserJet_4|port_1:\

        :lp=:\

        :rm=**node_name**:\

        :rp=PASSTHRU:\

        :mx#0:\

        :lf=/usr/spool/lpd/ERRORLOG:\

        :sd=/usr/spool/lpd/**LJ4_PS**:

node_name	The same entered in the /etc/hosts file in Step 4.
LJ4_PCL	Example printer name.
LJ4_PS	Example printer name.
TEXT	Valid default queue name. Adds a carriage return after each linefeed in the file. Use this queue for standard UNIX text
PASSTHRU	Valid default queue name. Passes the file directly to the printer without modification. Use this queue for all non-text files.

NOTE: Do not use the TEXT queue for Postscript, HPGL
or any non-text files.

3) Create the spooling directory.

    For example:
        ▷   #mkdir /usr/spool/lpd/LJ4_PCL

4) Add the server's **node_name** to the /etc/hosts file.

   For example:
   - ▷ #**IP_address   node_name**

   IP_address   The printer server IP address in decimal dot notation.

   node_name   The same entered in the /etc/printcap file in step 2.

5) To start the printer queue:

   ▷ #lpc start **printer_name**

   printer_name   The remote printer queue name.

6) Enter:

   ▷ #lpr -P**printer_name file_name**

   printer_name   The remote printer queue name.

   file_name   Any text file name.

Configure LPD for Non-UNIX Hosts

Many non-UNIX hosts using TCP/IP support printing through the LPD protocol. Refer to the host's TCP/IP documentation to configure printers using LPD. Information needed to configure the printer server includes:

- The IP address of the printer server

- The remote queue (printer) name

- TEXT and PASSTHRU as the printer server's default queue names

- Either default TCP or acceptable TCP ports depend upon host environment requirements.

LPSTAT

Use LPSTAT to determine the current status of a printer connected to the printer server.

From any host terminal:

1) Enter:

   ▷ `#lpstat -o ` **`printer_name`**

   `printer_name`   The remote printer queue name.

2) Verify display.

   The screen displays the number of jobs in the queue, and a line for each job, listing the job name and origination.

   For example:
   ▷ `#lpstat -o emlx _txt`

   3 jobs for emlx are found in the example:

   nq001 from host king - printing
   nq002 from host queen
   nq003 from host king

   If there are no jobs in the queue, the command returns a blank line.

Configure for Syslog Support

UNIX Syslog Support provides the ability to log certain printer status changes. Messages are logged into a standard UNIX syslog facility at one or more UNIX hosts or other hosts supporting the TCP/IP Syslog facility.

> *NOTE: Knowledge in the administration of the syslog*
> *facility on the UNIX syslog server host is required.:*

Events reported for an MIO printer interface, with the Syslog severity/priority shown in parentheses:

- − Load paper (warning)

- − Memory out (error)

- − Paper jam (error)

- − Paper out (error)

- − Printer cover/door open (error)

- − Printer off-line (error)

- − Ready (info)

- − Toner low (warning)

Events reported for a parallel (Centronics) printer interface:

- − Paper out (error)

- − Power off (error)

- − Printer off-line (error)

- − Ready (info)

No status information is available on serial ports.

The syslog messages will contain the following components:

- − A date/time stamp generated on the syslog host

- − The server's node name and/or IP address

- − The printer's physical port number

- − A brief description of the event

The reporting of printer events will be automatically enabled if there is one or more nodes configured for Syslog support. If no nodes are configured, syslog reporting will be disabled.

1) Login to printer server as supervisor.

2) Enter this command to display a list of syslog server hosts:

```
▷  Server>> show node syslog
```

3) Configure a host as a syslog server:

   ▷   `Server>> define node` ***node_name*** `name IP` ***IP_address***
       `syslog` ***facility***

     node_name   The node name of the syslog host.
     IP_address   The IP address of the host.
     facility   LPR, local0 to local7 (default is LPR)

4) Remove a host as a syslog server:

   ▷   `Server>> delete node name name IP` ***IP_address*** `syslog`

     IP_address   The IP address of the host.

Logging into the Printer Server

You can login to the printer server remotely from a UNIX workstation or locally from a console terminal.

Remote Login

1) Login to a UNIX TCP/IP workstation.

The prompt may appear different than the one shown below.

2) Connect to the printer server:

   ▷   `#telnet` ***ip_address*** `2048`

     ip_address   The printer server IP address in decimal dot
                   notation. For example: 123.234.345.456.
     2048   The printer server RCF port

3) Enter the password:

    ▷   `#access`

where access is the default printer server remote login password.

NOTE: The password does not appear when typed.

---

4) Verify banner.

When the connection is made, the printer server login banner is displayed.

5) At Enter Username or Help>, enter any two characters.

6) At Server>, enter su:

    ▷   `Server> su`

This gives you supervisor status.

7) At Password>, enter system:

    ▷   `Password> system`

where system is the default privileged password which does not echo back.

8) View or change current parameters at the Server>> prompt.

Refer to the list of commands in the *Command Reference Guide*.

9) Logout of the printer server:

    ▷   `Server>> logout`

Local Login

1) Connect an ANSII compatible terminal or a PC running an ANSII terminal emulation program to the printer server serial or console port.

   Emulex default port configuration is set for 9600 bps, 8 data bits, no parity, 1 stop bit, DTE type, with softcopy emulation.

2) Press ESC twice.

   This initiates communication between the console terminal and the printer server serial port.

3) Verify banner.

   When the connection is made, the printer server login banner is displayed.

4) At Enter Username or Help>, enter any two characters.

5) At Server>, enter su:

   ▷ Server> su

   This gives you supervisor status.

6) At Password>, enter system:

   ▷ Password> system

   where system is the default privileged password which does not echo back.

7) Change terminal emulation mode to ANSI.

   ▷ Server>> change port type ANSI

8) At the Server>> prompt, view or change current parameters.

   Refer to the list of commands in the *Command Reference Guide*.

9) Logout of the printer server:

   ▷ Server>> logout

What's Next?

Upon successful configuration of your network operating system, you can either configure for another NOS or manage your printer server with Emulex *NET* wizard printer server administrator.

Configure NOS

Choose one or more operating systems.

- Novell NetWare – page 3-1

- UNIX – page 4-1

- VAX/VMS-LAT – page 5-1 (Not supported by NETQue Token Ring)

- AppleTalk – page 6-1

- Microsoft OS/2 LAN Manager– page 7-1

- IBM OS/2 LAN Server – page 8-1

- Windows NT 3.5 – page 9-1

Manage With Emulex *NET* wizard printer server administrator

Refer to *Emulex NET wizard printer server Administrator User Guide*.

- Install and Setup Software – Chapter 2

- Configure Printer Servers – Chapter 3

- Configure for Novell NetWare Environments - Chapter 4

- Manage Printer Servers and Printers - Chapter 5

VAX/VMS DECnet LAT

Chapter 5

Requirements

Before beginning, verify the network meets this requirement:

Clients must support the LAT protocol under the VAX/VMS (version 4.5 or greater) or ULTRIX 32 operating systems.

> *NOTE: VAX/VMS is not supported on NETQue Token Ring printer servers.*

Before Installation

We recommend writing down the following parameters from the Setup Section in Chapter 2. Refer to them during the installation procedure.

Default Server Name: ____ ____ ____ ____ ____ ____ ____ ____ ____

Default Printer Name: ___ ___ ___ ___ ___ ___ ___ ___ ___ ▮ ___

Circuit ID number _____

Port_n _____ (parallel port)   Port_n_____ (parallel port)

Port_n _____ (serial port)   Port_n _____ (serial port)

RCF port number _____

Printer Queues

The following is an example which can be used to set up each printer queue on the host. Actual commands will vary according to system configuration, type of printer, and application requirements.

> *NOTE: The start of a new command line is always indicated by the prompt at the beginning. Some commands wrap because of length but are intended to be entered as one line.*

1) Set up a printer queue and a VMS application port:

   ▷ `$ run sys$system:latcp`

   ▷ `LATCP> create port  lta901:  /log`

▷   `LATCP> set port lta901:/application/node=`
     server_name `/port=`***port_n***

    server_name The Emulex default server name from the Before
                        Installation section of this chapter.

    port_n   The printer server parallel or serial port number.

Be sure to match the case (upper/lower) of the node and port names.

▷   `LATCP> exit`

2) Verify LAT port maps to the Emulex printer server correctly.

▷   `$ copy/log FILENAME` ***ltaNNN***`:`

If an error occurs, verify configuration in step 1.

3) Set up the terminal parameters:

▷   `$ set terminal` ***lta901***`: /perm/device=unknown`
     `/width=80 /page=66 /lowercase /nobroadcast`

▷   `$ set protection=(s:rwlp,o,g,w:rwlp)/device` ***lta901***`:`

▷   `$ set device` ***lta901***`: /spooled=(`***queue_name***`,`
     `sys$sysdevice:)`

    queue_name The name given to the printer queue.

4) Initialize each printer queue for text documents:

▷   `$ initialize /queue /start /processor=latsym`
     `/retain=error /on=` ***lta901***`: /default=(noburst,`
     `flag=one, notrailer, nofeed) /record_blocking`
     queue_name

    queue_name The name given to the printer queue.

5) Initialize each printer queue for PostScript documents:

▷   `$ initialize /queue /start/processor=latsym`
     `/retain=error /on=`***lta901***`:/default=(noburst,noflag,`
     `nofeed, notrail) /record_blocking` ***queue_name***

    queue_name The name given to the printer queue.

Logging into the Printer Server

You can login to the printer server remotely from a DEC workstation using the VAX NCP utility or locally from a console terminal.

Remote Login

1) Login to the DEC workstation.

2) Run the VAX NCP utility:

   ▷ `$ run sys$system:NCP`

3) To view the available circuit IDs, enter:

   ▷   `show known circuit`

4) Connect to the printer server RCF port:

   ▷ `NCP> connect via  CIRC_ID physical address`
   MAC_address

   CIRC_ID   The Ethernet circuit ID.

   MAC_address The printer server's Ethernet (MAC) address in the form 00-00-c9-xx-xx-xx.

5) When the following message appears, press ENTER to continue:

   ▷ `Console connected (Ctrl-D when finished)`

6) Enter the password:

   ▷ `# access`

   where access is the default printer server remote login password.

   > *NOTE: The password does not appear when typed.*

7) Verify banner.

   When the connection is made, the printer server login banner is displayed.

8) At Enter Username or Help>, enter any alpha-numeric characters.

9) At Server>, enter su:

    ▷   `Server> su`

    This gives you supervisor status.

10) At Password>, enter system:

    ▷   `Password> system`

    where system is the default privileged password which does not echo
    back.

11) At the Server>> prompt, view or change current parameters.

    Refer to the list of commands in the *Command Reference Guide*.

12) Logout of the printer server:

    ▷   `Server>> ^D`

Local Login

1) Connect an ANSII compatible terminal or a PC running an ANSII
    terminal emulation program to the printer server serial or console port.

    Emulex default port configuration is set for 9600 bps, 8 data bits, no
    parity, 1 stop bit, DTE type, with softcopy emulation.

2) Press ESC twice.

    This initiates communication between the console terminal and the
    printer server serial port.

3) Verify banner.

    When the connection is made, the printer server login banner is
    displayed.

4) At Enter Username or Help>, enter any alpha-numeric characters.

5) At Server>, enter su:

    ▷   `Server> su`

    This gives you supervisor status.

6) At Password>, enter system:

    ▷   `Password> system`

where system is the default privileged password which does not echo back.

7) At the Server>> prompt, view or change current parameters.

Refer to the list of commands in the *Command Reference Guide*.

8) Logout of the printer server:

▷   Server>> logout

What's Next?

Upon successful configuration of your network operating system, you can either configure for another NOS or manage your printer server with *NET* wizard printer server administrator.

Configure NOS

Choose one or more operating systems.

- Novell NetWare – page 3-1
- Unix – page 4-1
- VAX/VMS-LAT – page 5-1 (Not supported by NetQue Token Ring)
- AppleTalk – page 6-1
- Microsoft OS/2 LAN Manager– page 7-1
- IBM OS/2 LAN Server – page 8-1
- Windows NT 3.5 – page 9-1

Manage With Emulex *NET* wizard printer server administrator

Refer to *Emulex NET wizard printer server administrator User Guide.*

- Install and Setup Software – Chapter 2
- Configure Printer Servers – Chapter 3
- Configure for Novell NetWare Environments - Chapter 4
- Manage Printer Servers and Printers - Chapter 5

AppleTalk

Chapter 6

Requirements

Before beginning, verify the network conforms to these requirements:

- AppleTalk Phase 2

- System 6 or System 7

- LaserWriter driver 8.0 or newer

Before Installation

We recommend writing down the following parameters from the Setup Section in Chapter 2. Refer to them during the installation procedure.

Default Server Name: ____ ____ ____ ____ ____ ____ ____ ____ ____

Default Printer Name: ___ ___ ___ ___ ___ ___ ___ ___ ___ ▌ ___

IP Address: ___ ___ ___-___ ___ ___ -___ ___ ___-___ ___ ___

Select Printer

> *NOTE: Verify the printer server is connected to the network and printer. Power up the printer and printer server.*

From the APPLE menu:

1) Click CHOOSER.

2) Select the LASERWRITER or LASERJET icon.

3) Select the appropriate Zone, if available.

4) Select the Emulex default printer name.

   See Before Installation section above.

5) Close CHOOSER.

Logging into the Printer Server

You can login to the printer server remotely from a UNIX workstation or locally from a console terminal.

1) Login to a UNIX TCP/IP workstation.

   The prompt may appear different than the one shown below.

2) Connect to the printer server:

   ▷   # telnet *ip_address* 2048

   ip_address   The printer server IP address in decimal dot
                  notation. For example: 123.234.345.456.
   2048   The printer server RCF port

3) Enter the password:

   ▷   # access

   where access is the default printer server remote login password.

   NOTE: The password does not appear when typed.
   ---

4) Verify banner.

   When the connection is made, the printer server login banner is displayed.

5) At Enter Username or Help>, enter any two characters.

6) At Server>, enter su:

   ▷   Server> su

   This gives you supervisor status.

7) At Password>, enter system:

   ▷   Password> system

   where system is the default privileged password which does not echo back.

8) At the Server>> prompt, view or change current parameters.

   Refer to the list of commands in the *Command Reference Guide*.

9) Logout of the printer server:

  ▷ `Server>> logout`

Local Login

1) Connect an ANSII compatible terminal or a PC running an ANSII terminal emulation program to the printer server serial or console port.

Emulex default port configuration is set for 9600 bps, 8 data bits, no parity, 1 stop bit, DTE type, with softcopy emulation.

2) Press ESC twice.

This initiates communication between the console terminal and the printer server serial port.

3) Verify banner.

When the connection is made, the printer server login banner is displayed.

4) At Enter Username or Help>, enter any two characters.

5) At Server>, enter su:

  ▷ `Server> su`

This gives you supervisor status.

6) At Password>, enter system:

  ▷ `Password> system`

where system is the default privileged password which does not echo back.

7) Change terminal emulation mode to ANSI.

  ▷ `Server>> change port type ANSI`

8) At the Server>> prompt, view or change current parameters.

Refer to the list of commands in the *Command Reference Guide*.

9) Logout of the printer server:

  ▷ `Server>> logout`

Advanced AppleTalk Parameters

> ***IMPORTANT:***   *This section contains advanced features.*
> *All parameters should be configured by*
> *the Network Administrator.*

1) Login to the printer server with supervisor privilege.

2) Enter the following command:

   ▷ Server>> show server appletalk

This command displays a screen containing information on AppleTalk
parameters.

Non Bi-Directional Printers

Emulex printer servers provide support for printers that do not have bi-
directional communication capabilities. Without this capability, the printer
cannot supply the host with a list of supported fonts. The host must
download fonts to the printer each time it sends an AppleTalk print job. The
printer server can supply this information to the host on behalf of the printer,
thus saving an appreciable amount of time on each job.

To build a font list on the Emulex printer server:

1) View the available fonts on your printer.

2) View the font list on the printer server.

3) Add or remove fonts on the printer server font list.

> ***NOTE:***   *These steps are explained in detail in the following*
> *section.*

View Printer Fonts

> *NOTE: Spelling and capitalization of the fonts must be
>   entered exactly as required by the printer.*

View fonts supported by the specific printer.

1) Pull down the FILE menu of the LASER WRITER UTILITY.

2) Select DISPLAY AVAILABLE FONTS.

    This will display the fonts available on your printer.

View Printer Server Fonts

To view the fonts listed on the printer server, enter:

> ▷ Server>> show port ***port_list*** fonts

> ***port_list***   A list of port numbers separated by commas.

Add Printer Server Fonts

To add one or more PostScript font strings to one or more port's font list,
enter:

> ▷ Server>> change port ***port_list*** fonts add
>   "***font_list***"

> ***port_list***   A list of port numbers separated by commas.

> **"*font_list*"** A list of PostScript font strings separated by blanks
>   or tabs and enclosed in double quotes. Dashes
>   rather than spaces must be used to separate
>   components in font names.

Remove Printer Server Fonts

To remove one or more font strings from one or more port's font list, enter:

> ▷ Server>> change port ***port_list*** fonts remove
>   [***"font_list"*** |all]

port_list	A list of port numbers separated by commas.
"***font_list***"	A list of PostScript font strings with optional wild cards delimited by blanks or tabs and enclosed in double quotes. Dashes rather than spaces must be used to separate components in font names
all	Removes all font strings from the font list.

NOTE: *Font strings are case sensitive and must be enclosed in quotes.*

Tagged Binary Communication Protocol

TBCP is an HP protocol filter that allows Apple Adobe binary PostScript files to be printed on HP printers. The TBCP filter may be enabled or disabled on a per port basis with the command:

> ▷ Server>> define port ***port_num*** appletalk hptbcp
>   [enabled |disabled]

port_num	The printer server port number, either 1 or 2.
enable	Enables TBCP on this port
disable	Disables TBCP on this port

What's Next?

Upon successful configuration of your network operating system, you can either configure for another NOS or manage your printer server with *NET* wizard printer server administrator.

Configure NOS

Choose one or more operating systems.

- Novell NetWare – page 3-1

- Unix – page 4-1

- VAX/VMS-LAT – page 5-1 (Not supported by NetQue Token Ring)

- AppleTalk – page 6-1

- Microsoft OS/2 LAN Manager– page 7-1

- IBM OS/2 LAN Server – page 8-1

- Windows NT 3.5 – page 9-1

Manage With Emulex *NET* wizard printer server administrator

Refer to Emulex *NET wizard printer server administrator User Guide.*

- Install and Setup Software – Chapter 2

- Configure Printer Servers – Chapter 3

- Configure for Novell NetWare Environments - Chapter 4

- Manage Printer Servers and Printers - Chapter 5

LAN Manager

Chapter 7

Requirements

Before beginning, verify the network conforms to these requirements:

- Microsoft LAN Manager version 2.1 or higher

- Microsoft OS/2 version 1.3

- TCP/IP or NetBios running on each LAN Manager file server or client. Version 2.2 of LAN Manager includes the required TCP/IP stack, all other LAN Manager versions need the TCP/IP stack added. NetBios is included in LAN Manager.

Emulex Print Manager running on LAN Manager allows up to 16 print queue connections per server (OS/2 limitation) and an unlimited number of LAN Manager servers to redirect their output to an unlimited number of printer servers.

This allows for the sharing of printers between LAN Manager clients operating under other operating systems.

Print Manager Distribution Files

The Emulex Print Manager runs on LAN Manager. Print Manager allows you to configure file servers and clients for TCP/IP and NetBios printing. Emulex printer servers can receive multiple print jobs from file servers and clients, simultaneously printing TCP/IP and NetBios.

> *NOTE: The files on CD-ROM are under the path*
> *\utils\ps50\Lanman.*

The utilities diskette or CD-ROM in this package contains the following files:

INSTALL.EXE - The installation utility that creates the required directories and copies the appropriate files to the system.

NPM.EXE - The OS/2 Presentation Manager program that installs and configures printers. This program also starts, pauses and stops the printing process on servers and provides real-time statistics for each OS/2 server's printer queue.

NPMST.EXE - Automatically starts the print process upon OS/2 server boot.

> *NOTE:* *In order to print using the NetBios protocol, the*
> *user must logon to the server's domain. Add the*
> *"logon/D:domain" command before NPMST.EXE*
> *and after net start in the startup.cmd.*

NPM.INF - The Emulex Print Manager's information file. Do not modify the contents of the NPM.INF file.

RPRINT.EXE - Implements the print processes running in background on the OS/2 server for TCP/IP printing. When you send a print job, a print process is created in the background which redirects the output of a print queue associated with this printer to an Emulex printer server.

RPRINTNB.EXE - Implements the print processes running in background on the OS/2 server for NetBios printing. When you send a print job, a print process is created in the background which redirects the output of a print queue associated with this printer to an Emulex printer server.

NPMINST.EXE - Allows the creation of printers using a command line interface. This program must not be run while NPM.EXE is running. NPMINST allows the user to configure printers remotely without using an OS/2 Program Managers window interface.

> *NOTE:* *Enter NPMINST/? for a list and explanation of*
> *command options.*

TELRCF.EXE - Remote Emulex printer server configuration program using TCP/IP.

Before Installation

We recommend writing down the following parameters from the Setup Section in Chapter 2. Refer to them during the installation procedure.

Default Server Name: ____ ____ ____ ____ ____ ____ ____ ____ ____

Default Printer Name: ___ ___ ___ ___ ___ ___ ___ ___ ___ _____

IP Address: ___ ___ ___-___ ___ ___ -___ ___ ___-___ ___ ___

TCP port _____ (parallel port)   TCP port _____ (parallel port)

TCP port _____ (serial port)   TCP port _____ (serial port)

Telnet port number _____   RCF port number _____

Have the TES & LAN Manager diskette or the CD-ROM ready for installation.

Verify Configuration

Check the system configuration before installing Print Manager for TCP/IP printing.

TCP/IP Stack

Every server and client must have the TCP/IP stack loaded before the server or client can send a print job to the printer server.

1) Login to the LAN Manager server as admin.

2) Go to the LANMAN directory.

3) Run SETUP.

4) Pull down the CONFIGURATION menu.

5) Select NETWORK DRIVERS.

   A TCP/IP entry should be listed. If this entry is not present, refer to LAN Manager documentation for information on installing and enabling the TCP/IP protocol stack. When finished, exit SETUP.

SOCKDRV.OS2

Verify the file SOCKDRV.OS2 is installed using the OS/2 System Editor.

1) Examine CONFIG.SYS in the LAN Manager root directory.

2) Verify that the LAN Manager section includes a line similar to this:

    ▷   DEVICE = **LanRoot**\ARPA\SOCKDRV.OS2

        LanRoot   The LAN Manager root directory.

NumSockets

Verify the NumSockets parameter is correct using the OS/2 System Editor.

1) Examine TCPUTILS.INI in the LAN Manager root directory.

This parameter is located in the SOCKETS section. LAN Manager uses 1 socket for each active printer.

Installation

To install the software utilities:

1) Insert the distribution diskette or CD-ROM into a drive.

2) Open an OS/2 Window.

3) Select the appropriate drive.

4) Type INSTALL and press ENTER.

The Installation screen will be displayed.

> *NOTE: When installing from CD-ROM, change the default path to d:utils/ps50/Lanman. This path assumes d: is the CD-ROM drive.*

5) Choose LAN MANAGER.

When the installation is complete the following message will appear:
Installation Completed Successfully.

6) Click EXIT.

Add New Printers

Before adding printers, install the required printer drivers through the OS/2 Print Manager.

1) Double-click on GROUP - EMULEX PRINT MANAGER printer icon.

    This opens the GROUP - EMULEX PRINT MANAGER window.
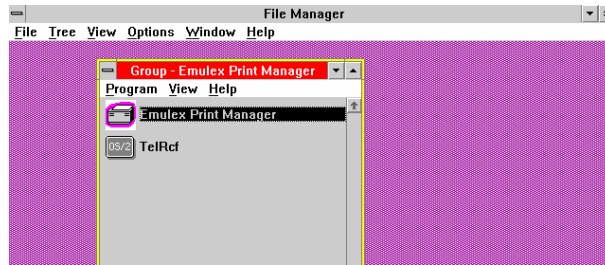
Figure 7-1: GROUP - EMULEX PRINT MANAGER

2) Select the EMULEX PRINT MANAGER printer icon.

    This opens the EMULEX NETWORK PRINTERS window.
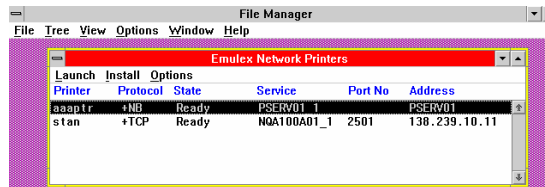
Figure 7-2: The Emulex Network Printers Window

3) Select INSTALL.

4) Select ADD PRINTER.
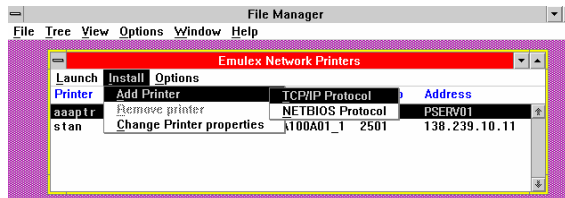
Figure 7-3: The Add Printer Menu

5)   Choose either TCP/IP or NETBIOS.

Continue installation by referring to either the following TCP/IP or the NetBios section.

TCP/IP Protocol

From the ADD NEW TCP/IP RPRINT PRINTER window:
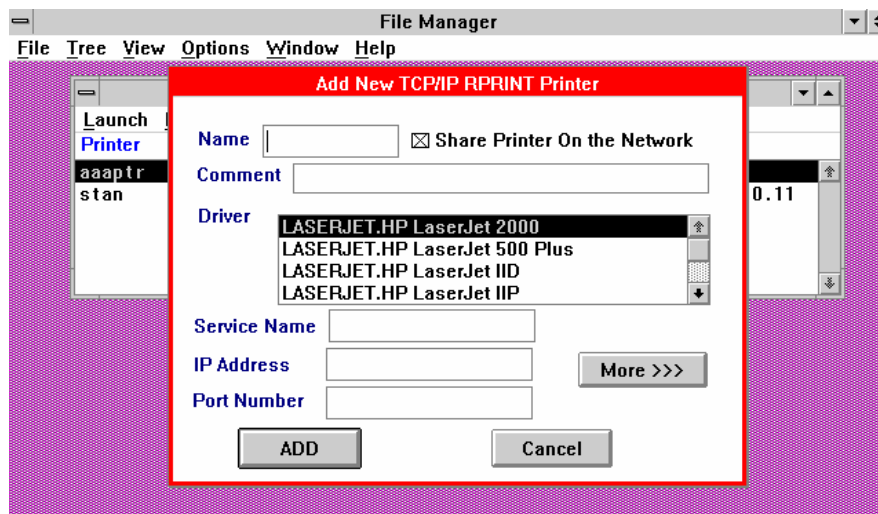
Figure 7-4: ADD NEW TCP/IP RPRINT PRINTER WINDOW

1)   Enter Name.

Enter at least 8 characters to name an OS/2 printer and the default OS/2 print queue.

2)   Select SHARE PRINTER ON NETWORK.

Selecting this option permits automatic sharing of the printer on the network.

> *NOTE: This option is enabled by default and only works if logged on as admin.*

3) Enter COMMENT.

This optional information is used to further define a print queue. It is shown in the remark field when the print queue is viewed as a remote share on the network.

4) Select a driver.

Select the printer driver to be used for this printer. Use IMBNULL if the files do not require formatting (for example, text files).

NOTE: To add additional drivers to the Emulex print manager driver list, install a new printer under the OS/2 Print Manager and select the desired driver for the new printer.

---

5) Enter Service Name.

This is the Emulex Default Printer Name. Refer to the Before Installation section of this chapter.

6) Enter IP Address.

This is the printer server IP Address. For example:

138.239.245.248

7) Enter Port Number.

This is the TCP port number associated with the printer port on the Emulex printer server.

8) Click MORE>>>

This allows the user to view the ADVANCED OPTIONS window.

Figure 7-5: TCP/IP Advanced Options Window

Advanced Options

Modify or select other options.

Trace Mode	Enabling this option is not recommended. However, if enabled, debugging information is sent to RPRINT.EXE stdout.
Use Log File	This option may be used to create a log file of the RPRINT activities for each print job.
Log File Name	Enter a name for the log file.
Verbose Log	Enabling this option is not recommended. However, if enabled, it expands the amount of debugging information in both the log file and RPRINT's stdout.
Timeout On Server Response	The number of seconds the print processor waits for a server before sending a new request.
Times To Send Job Request	The number of requests the print processor sends before considering the printer unavailable.
Retries For Server Response	The number of retries when waiting for an Emulex printer server response.

1) Select desired options.

2) Click OK.

   This returns the user to the ADD NEW PRINTER window.

3) Click ADD.

The printer is now ready for use. Continue with the Printer Test section.

NetBios Protocol

From the ADD NEW NETBIOS PRINTER window:
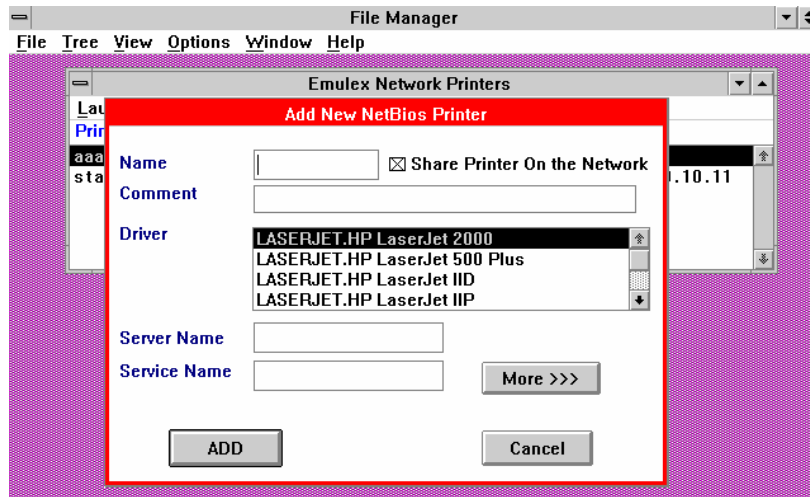
Figure 7-6: Add New NetBios Printer Window

1) Enter Name.

   Enter a minimum of 8 characters to name an OS/2 printer and the default OS/2 print queue.

2) Select SHARE PRINTER ON NETWORK.

   Selecting this option permits automatic sharing of the printer on the network.

   > *NOTE: This option is enabled by default and only works if logged on as admin.*

3) Enter Comment.

   This optional field is used to further define a print queue. It is used in the remark field when the print queue is viewed as a remote share on the network.

4) Choose a driver.

   Select the printer driver to be used for this printer. Use IMBNULL if the files do not require formatting (for example, text files).

> *NOTE:*   *To add additional drivers to the Emulex print*
> *manager driver list, install a new printer under the*
> *OS/2 Print Manager and select the desired driver*
> *for the new printer.*

5) Enter Server Name.

This is the Emulex Default Server Name. Refer to the Before Installation section of this chapter.

6) Enter Service Name.

This is the Emulex Default Printer Name. Refer to the Before Installation section of this chapter.

7) Click MORE>>>.

This returns the user to view the ADVANCED OPTIONS window.

Advanced Options

Modify or select other.

Trace Mode	Enabling this option is not recommended. However, if enabled, debugging information is sent to RPRINTNB.EXE stdout.
Use Log File	This option may be used to create a log file of the RPRINTNB activities for each print job.
Log File Name	Enter a name for the log file.
Verbose Log	Enabling this option is not recommended. However, if enabled, it expands the amount of debugging information in both the log file and RPRINTNB's stdout.
Timeout On Server Response	The number of seconds the print processor waits for a server before sending a new request.
Times To Send Job Request	The number of requests the print processor sends before considering the printer unavailable.
Retries For Server Response	The number of retries when waiting for an Emulex printer server response.

From the NetBios ADVANCED OPTIONS window:

1) Select desired options.

2) Click OK.

   This returns the user to the ADD NEW PRINTER window.

3) Click ADD.

The printer is now ready for use. Continue with the Printer Test section.

> *NOTE:*   *The service to connect to on the Emulex printer*
> *server must have the NetBios Protocol enabled*
> *before printing.*

Printer Test

Test the printer as follows:

1) Close all windows.

2) Verify the printer and Emulex server are powered up and the printer is on-line.

3) Select a text file (for example, README.TXT) from any folder.

4) Drag the file to the PRINTER icon.

5) Select PLAIN-TEXT when prompted.

   The file should print.

> *NOTE:*   *LAN Manager does not validate the Service Name,*
> *IP Address, or Port Number parameter values. If*
> *the printer changes to the off-line state when*
> *attempting to print, check that the above*
> *parameters have been entered correctly.*

Change or Delete Printers

From the DESKTOP MANAGER GROUP:

1) Open the EMULEX PRINT MANAGER.

2) Select the EMULEX PRINT MANAGER icon.

   This opens the EMULEX NETWORK PRINTERS window.
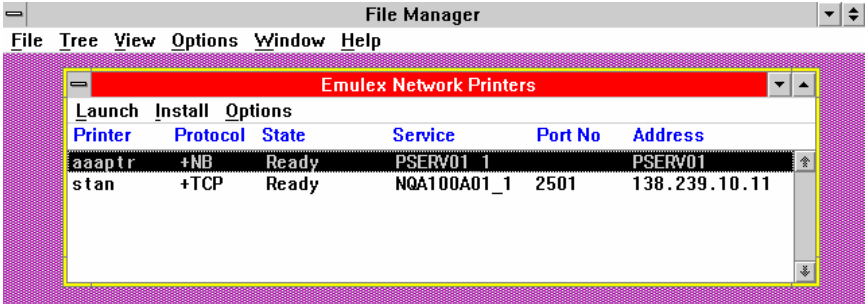
Figure 7-7: The Emulex Network Printers Window

Delete Printer

1) Select the existing printer to delete.

2) Pull down the LAUNCH menu.

3) Select STOP PRINTER.

4) Pull down the INSTALL menu.

5) Select REMOVE PRINTER.

Change TCP/IP Printer's Properties

From the EMULEX NETWORK PRINTERS window:

1) Select the existing printer to modify.

2) Pull down the INSTALL menu.

3) Select CHANGE PRINTER PROPERTIES.

This opens the CHANGE TCP/IP PRINTER'S PROPERTIES screen.
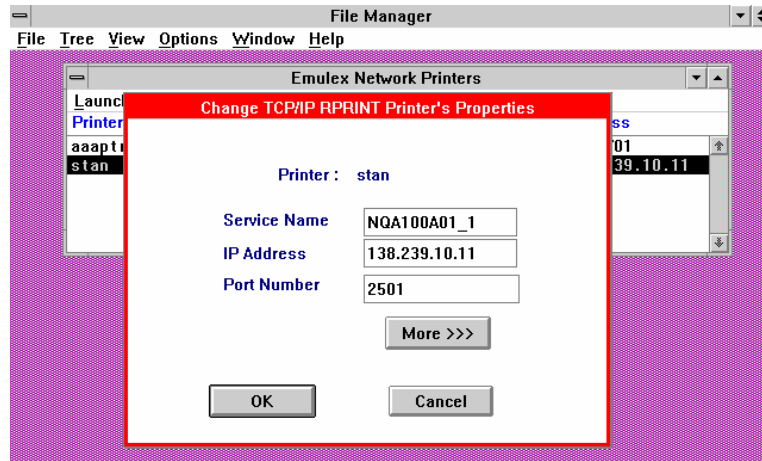
Figure 7-8: Change TCP/IP RPRINT Printer's Properties Window

4) Change the SERVICE NAME or IP ADDRESS.

5) Click MORE>>> to view the ADVANCED OPTIONS screen.

   Make changes as necessary.

6) Click OK to save changes.

Change NetBios Printer's Properties

From the EMULEX NETWORK PRINTERS window:

1) Select the existing printer to modify.

2) Pull down the INSTALL menu.

3) Select CHANGE PRINTER PROPERTIES.

The CHANGE NETBIOS PRINTER'S PROPERTIES window is displayed.
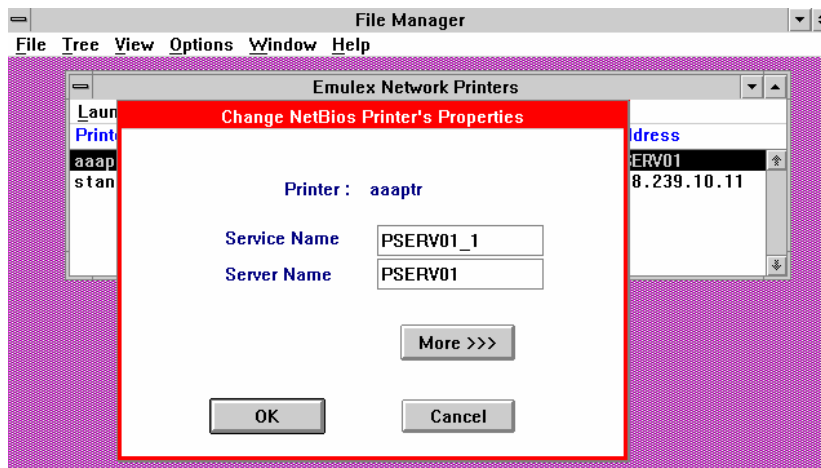
Figure 7-9: Change NetBios Printer's Properties Window

4) Change the SERVICE NAME or SERVER NAME.

5) Click MORE>>> to view the ADVANCED OPTIONS screen.

   Make changes as necessary.

6) Click OK to save changes.

Options Menu

The following options may be accessed from the OPTIONS menu in the EMULEX PRINT MANAGER.

1) Pull down the OPTIONS menu.

2) Select the desired option.

   Available options:

   − Refresh Now

   − Refresh Interval in 1/10 of seconds

   − Display Statistics or Display Configuration

3) Press OK when finished.

TELRCF

The TELRCF utility may be used to login to the printer server from the LAN Manager server and to issue server commands.

For information on using TELRCF open an OS/2 window and change to the Emulex directory (cd\emulex). Next, enter the command TELRCF to display the command line syntax and a description of the options.

Configure TELRCF

Although the TELRCF utility is automatically installed with other LAN Manager files, it must be configured prior to use.

To configure TELRCF for a single connection or multiple connections, follow these steps:

1) Open the EMULEX PRINT MANAGER.

2) Highlight (single click) the TELRCF icon.

3) Pull down the PROGRAM menu.

4) Select COPY.

    This opens the COPY PROGRAM window.

5) Enter a name in CHANGE TITLE .
       For example,
       Telrcf 138.239.18.2

6) Click on COPY.

    This creates a new icon with the title just entered.

7) Select the new icon.

8) Pull down the PROGRAM menu.

9) Select PROPERTIES.

    This opens the PROPERTIES window.

10) Enter desired TELRCF options in the Parameters box.

> Available options:
>
> | | |
> |---|---|
> | `-h` | server_name or ip_address |
> | `-p` | rcf_tcp_port_number (default is 2048) |
> | `-f` | script_file_name |
> | `-t` | output_file_name |
> | `-e` | escape_character (default is <Ctrl>C) |

11) Select either OS/2 FULL SCREEN or OS/2 WINDOW.

12) Click the CHANGE button to close the window.

   TELRCF is configured and ready for use.

Use TELRCF

TELRCF may be used to login to the printer server to issue configuration commands. In addition, TELRCF provides a convenient method for downloading an entire configuration script to the printer server.

To use TELRCF:

1) Open the EMULEX PRINT MANAGER window.

2) Select the new icon (previously configured in the section above).

   This opens the TELRCF window and connects to the specified server with the IP address or server name.

3) Make desired changes.

4) Press <CTRL>BREAK to terminate the session.

   This action disconnects the session and closes the window.

Enter Scripts

TELRCF provides a convenient method for downloading an entire configuration script to the printer server. A sample script file (SCRIPT.TXT) is provided on the distribution diskette or CD-ROM as a guide to creating scripts.

Using a text editor:

1) Create the script.

   The first line of the script must contain the login password, followed by a set type softcopy command. To execute privileged commands, add the set privilege command, followed by the privileged password command to the script. The last line of the script must contain the logout command.

   The following is an example of a server command script. This command configures a new service name (for example, 1j4a), for remote printing on a printer server serial port. It uses TCP port 3001 and configures the port's baud rate to 19200.

   ▷ access

   ▷ set type softcopy

   ▷ set privilege

   ▷ system

   ▷ change service 1j4a 3001 telnet disabled port 2

   ▷ change port 1 access remote speed 19200

   ▷ logout

2) Save the script with the name SERVCNFG.SCR.

3) Create an icon called TELRCF *IP_address*
   In the parameters field, enter:

   ▷ -h *IP_address* -f *emulex*\servcnfg.scr

   IP_address   The IP address
   emulex   The directory containing the file

4) To send the file, double-click the icon labeled TELRCF*ip_address.*

   The file is sent and TELRCF terminates when completed.

What's Next?

Upon successful configuration of your network operating system, you can either configure for another NOS or manage your printer server with Emulex *NET* wizard printer server administrator.

Configure NOS

Choose one or more operating systems.

- Novell NetWare – page 3-1
- Unix – page 4-1
- VAX/VMS-LAT – page 5-1 (Not supported by NETQue Token Ring)
- AppleTalk – page 6-1
- Microsoft OS/2 LAN Manager– page 7-1
- IBM OS/2 LAN Server – page 8-1
- Windows NT 3.5 – page 9-1

Manage With Emulex *NET* wizard printer server administrator

Refer to *Emulex NET wizard printer server administrator User Guide.*

- Install and Setup Software – Chapter 2
- Configure Printer Servers – Chapter 3
- Configure for Novell NetWare Environments - Chapter 4
- Manage Printer Servers and Printers - Chapter 5

LAN Server

Chapter 8

Requirements

Before beginning, verify the network conforms to these requirements:

- IBM LAN Server version 3.0 or higher

- IBM OS/2 version 2.0 or higher

- TCP/IP or NetBios running on each LAN Manager file server or client. NetBios is included in LAN Server.

Emulex Print Manager running on LAN Server allows up to 16 print queue connections per server (OS/2 limitation) and an unlimited number of LAN Server servers to redirect their output to an unlimited number of printer servers.

This allows for the sharing of printers between LAN Server clients operating under other operating systems.

Print Manager Distribution Files

The Emulex Print Manager runs on LAN Server. Print Manager allows you to configure file servers and clients for TCP/IP and NetBios printing. Emulex printer servers can receive multiple print jobs from file servers and clients, simultaneously printing TCP/IP and NetBios.

> *NOTE: The files on CD ROM are in the*
> *\utils\ps50\Lanservr path.*

The utilities diskette or CD-ROM in this package contains the following files.

INSTALL.EXE - The installation utility that creates the required directories and copies the appropriate files to the system.

NPM.EXE - The OS/2 Presentation Manager program that installs and configures printers. This program also starts, pauses and stops the printing process on servers and provides real-time statistics for each OS/2 server's printer queue.

NPMST.EXE - Automatically starts the print process upon OS/2 server boot.

> *NOTE:*   *In order to print using the NetBios protocol, the user must logon to the server's domain. Add the "logon/D:domain" command before NPMST.EXE and after net start in the STARTUP.CMD.*

NPM.INF - The Emulex Print Manager's information file. Do not modify the contents of the NPM.INF file.

RPRINT.EXE - Implements the print processes running in background on the OS/2 server for TCP/IP printing. When you send a print job, a print process is created in the background which redirects the output of a print queue associated with this printer to an Emulex printer server.

RPRINTNB.EXE - Implements the print processes running in background on the OS/2 server for NetBios printing. When you send a print job, a print process is created in the background which redirects the output of a print queue associated with this printer to an Emulex printer server.

NPMINST.EXE - Allows the creation of printers using a command line interface. This program must not be run while NPM.EXE is running. NPMINST allows the user to configure printers remotely without using an OS/2 Program Manager window interface.

> *NOTE:*   *Enter NPMINST/? for a list and explanation of command options.*

TELRCF.EXE - Remote Emulex printer server configuration program using TCP/IP.

Before Installation

We recommend writing down the following parameters from the Setup Section in Chapter 2. Refer to them during the installation procedure.

Default Server Name: ____ ____ ____ ____ ____ ____ ____ ____ ____

Default Printer Name: ___ ___ ___ ___ ___ ___ ___ ___ ___ _ ___

IP Address: ___ ___ ___-___ ___ ___ -___ ___ ___-___ ___ ___

TCP port _____ (parallel port)   TCP port _____ (parallel port)

TCP port _____ (serial port)   TCP port _____ (serial port)

Telnet port number _____   RCF port number _____

Have the TES & LAN Server diskette or the CD-ROM ready for installation.

LAN Server Prior to 4.0

Check the system configuration before installing Print Manager for TCP/IP printing. Every server and client must have the TCP/IP stack loaded before the server or client can send a print job to the printer server.

Verify OS/2 LAN Server is installed with the TCP/IP protocol stack.

1) Verify that a directory containing TCP/IP libraries and applications exists on the system.

2) If this entry is not present, refer to the LAN Server documentation for information on installing and enabling the TCP/IP protocol stack.

Verify the network interface card (NIC) is configured for TCP/IP.

3) Run the LAN Adapter and Protocol Support Utility.

4) Select CONFIGURE.

5) In CURRENT CONFIGURATION box, an entry for IBM TCP/IP protocol should be listed under each appropriate adapter or interface card (NIC).

6) If this entry is not present, refer to LAN Server documentation for information on how to configure and enable the TCP/IP protocol stack.

> *NOTE: NetBios does not need preinstallation chekout.*

LAN Server 4.0

> To configure printers to be shared on the network, login to the LAN Server as admin and verify setup.
>
> Verify the network interface card (NIC) is configured for TCP/IP.
>
> 1) Run the Multi-Protocol Transport Services Utility (MPTS).
>
> 2) Select CONFIGURE LAN ADAPTERS AND PROTOCOLS.
>
> 3) In the CURRENT CONFIGURATION box, there should be an entry for IBM TCP/IP protocol under each appropriate adapter or interface card (NIC).
>
> 4) If not, refer to the LAN Server documentation for information on configuring and enabling the TCP/IP protocol stack.

Installation

> To install the software utilities:
>
> 1) Insert the distribution diskette or CD-ROM into a drive.
>
> 2) Open an OS/2 Window.
>
> 3) Select the appropriate drive.
>
> 4) Type INSTALL and press ENTER.
>
> The INSTALLATION screen will be displayed.

> > *NOTE: When installing from CD-ROM change the default path to d:utils/ps50/lanservr. This path assumes d: is the CD-ROM drive.*

> 5) Choose LAN SERVER.
>
> When the installation is complete the following message will appear: Installation Completed Successfully.
>
> 6) Click EXIT.
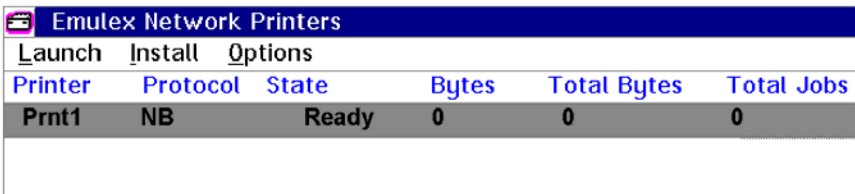
Add New Printers

Before adding printers, the appropriate printer drivers must be installed through the OS/2 Print Manager.

1) Double-click on GROUP - EMULEX PRINT MANAGER printer icon.

    This opens the GROUP - EMULEX PRINT MANAGER window.

2) Select the EMULEX PRINT MANAGER printer icon.

    This opens the EMULEX NETWORK PRINTERS window.

Emulex Network Printers					
Launch Install Options					
Printer	**Protocol State**		**Bytes**	**Total Bytes**	**Total Jobs**
Prnt1	**NB**	**Ready**	**0**	**0**	**0**

Figure 8-1: Emulex Network Printers Window

3) Select INSTALL.

4) Select ADD PRINTER.

Install Options		
Add Printer	→	TCP/IP Protocol
Remove printer		NETBIOS Protocol
Change Printer properties		0 0

Figure 8-2: The Add Printer Menu

5) Choose either TCP/IP or NETBIOS.

Refer to the following TCP/IP or NetBios sections to continue installation.

TCP/IP Protocol

From the ADD NEW TCP/IP RPRINT PRINTER window:

Figure 8-3: TCP/IP Add New Printer Window

1) Enter Name.

   Enter at least 8 characters to name an OS/2 printer and the default OS/2 print queue.

2) Select SHARE PRINTER ON NETWORK.

   Selecting this option permits automatic sharing of the printer on the network.

   > ***NOTE:***   *This option is enabled by default and only works if logged on as admin.*

3) Enter Comment.

   This optional information is used to further define a print queue. It is shown in the remark field when the print queue is viewed as a remote share on the network.

4) Select Driver.

   Select the printer driver to be used for this printer. Use IMBNULL if the files do not require formatting (for example, unformatted text files).

> *NOTE:* *To add additional drivers to the Emulex print*
> *manager driver list, install a new printer under the*
> *OS/2 Print Manager and select the desired driver*
> *for the new printer.*

5) Enter Service Name.

    This is the Emulex Default Printer Name. Refer to the Before
    Installation section of this chapter.

6) Enter IP Address.

    This is the printer server IP Address. For example:

        138.239.245.248

7) Enter Port Number.

    This is the TCP port number associated with the printer port on the
    Emulex printer server.

8) Click MORE>>>.

    This allows the user to view the ADVANCED OPTIONS window.

Figure 8-4: TCP/IP Advanced Options Window

Advanced Options

Modify or select other options.

Trace Mode	Enabling this option is not recommended. However, if enabled, debugging information is sent to RPRINT.EXE stdout.
Use Log File	This option may be used to create a log file of the RPRINT activities for each print job.
Log File Name	Enter a name for the log file.
Verbose Log	Enabling this option is not recommended. However, if enabled, it expands the amount of debugging information in both the log file and RPRINT's stdout.
Timeout On Server Response	The number of seconds the print processor waits for a server before sending a new request.
Times To Send Job Request	The number of requests the print processor sends before considering the printer unavailable.
Retries For Server Response	The number of retries when waiting for an Emulex printer server response.

From the ADVANCED OPTIONS window:

1) Select desired options.

2) Click OK.

   This returns to the ADD NEW PRINTER window.

3) Click ADD.

The printer is now ready for use. Continue with the Test Printer section.

NetBios Protocol
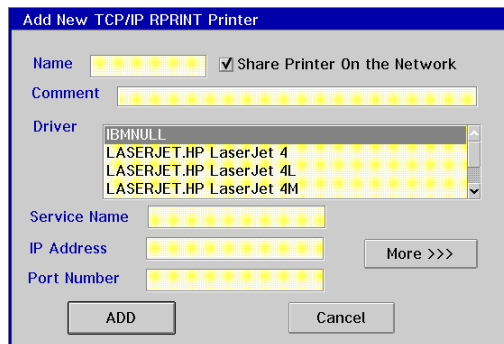
From the ADD NEW NETBIOS PRINTER window:
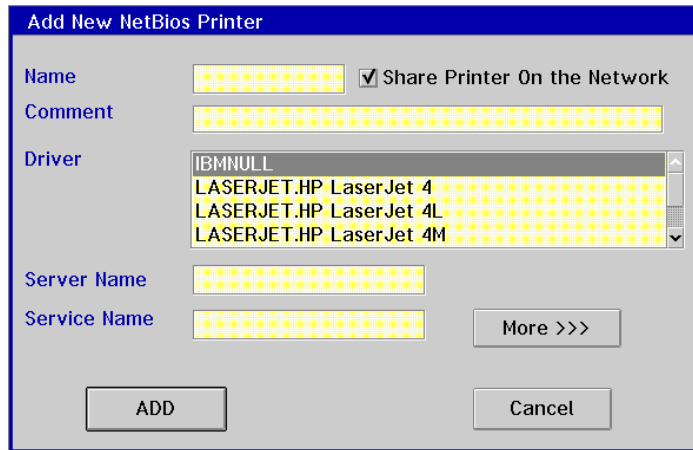
Figure 8-5: NetBios Add New Printer Window

1) Enter Name.

Enter a minimum of 8 characters to name an OS/2 printer and the default OS/2 print queue.

2) Select SHARE PRINTER ON NETWORK.

Selecting this option permits automatic sharing of the printer on the network.

NOTE: This option is enabled by default and only works if logged on as admin.

---

3) Enter Comment.

This optional field is used to further define a print queue. It is used in the remark field when the print queue is viewed as a remote share on the network.

4) Choose Driver.

Select the printer driver to be used for this printer. Use IMBNULL if the files do not require formatting (for example, unformatted text files).

NOTE: *To add additional drivers to the Emulex print manager driver list, install a new printer under the OS/2 Print Manager and select the desired driver for the new printer.*

---

5) Enter Server Name.

This is the Emulex Default Server Name. Refer to the Before Installation section of this chapter.

6) Enter Service Name.

This is the Emulex Default Printer Name. Refer to the Before Installation section of this chapter.

7) Click MORE>>>.

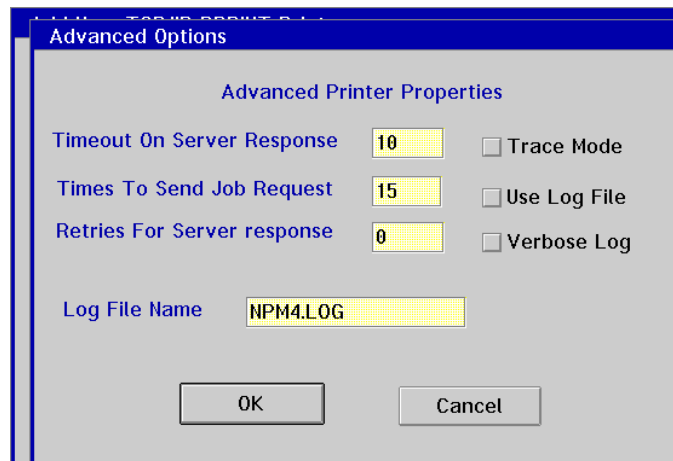This opens the ADVANCED OPTIONS window.
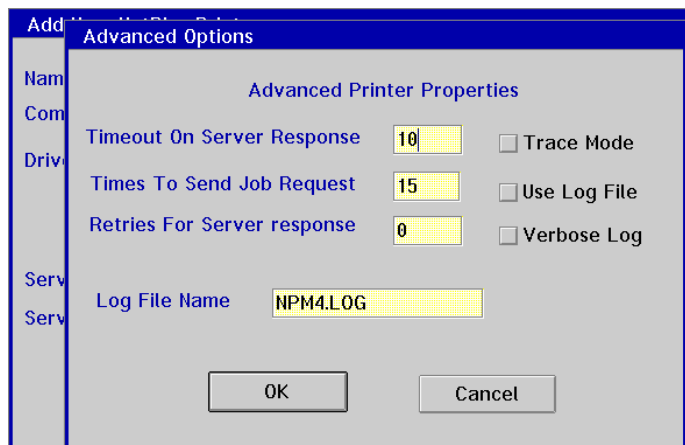
Figure 8-6: NetBios Advanced Options Window

Advanced Options

Modify or select other options.

Trace Mode   Enabling this option is not recommended. However, if enabled, debugging information is sent to RPRINTNB.EXE stdout.

Use Log File   This option may be used to create a log file of the RPRINTNB activities for each print job.

Log File Name   Enter a name for the log file.

Verbose Log   Enabling this option is not recommended. However, if enabled, it expands the amount of debugging information in both the log file and RPRINTNB's stdout.

Timeout On Server Response   The number of seconds the print processor waits for a server before sending a new request.

Times To Send Job Request   The number of requests the print processor sends before considering the printer unavailable.

Retries For Server Response   The number of retries when waiting for an Emulex printer server response.

From the NETBIOS ADVANCED OPTIONS window:

1) Select desired options.

2) Click OK.

   This returns the user to the ADD NEW PRINTER window.

3) Click ADD.

The printer is now ready for use. Continue with the Test Printer section.

> *NOTE:* *The service to connect to on the Emulex printer server must have the NetBios Protocol enabled before printing.*

Test Printer

Test the printer as follows:

1) Close all windows.

2) Verify the printer and Emulex printer server are powered up and the printer is on-line.

3) Select a text file (for example, README.TXT) from any folder.

4) Drag the file to the PRINTER icon.

5) Select PLAIN-TEXT when prompted.

   The file should print.

> *NOTE:*   *LAN Server does not validate the Service Name, IP Address, or Port Number parameter values. If the printer changes to the off-line state when attempting to print, check that the above parameters have been entered correctly.*

Change or Delete Printers

From the DESKTOP MANAGER GROUP:

1) Open the EMULEX PRINT MANAGER.

2) Select the EMULEX PRINT MANAGER icon.

   This opens the EMULEX NETWORK PRINTERS window.

Printer	Protocol	State	Bytes	Total Bytes	Total Jobs
Prnt1	NB	Ready	0	0	0

Figure 8-7:. The Emulex Network Printers Window

3) Select the existing printer to modify.

4) Pull down the INSTALL menu.

5) Select CHANGE PRINTER PROPERTIES.

Change TCP/IP Printer's Properties

From the Change TCP/IP PRINTER'S PROPERTIES window:

1) Change the SERVICE NAME or IP ADDRESS.

2) Click MORE>>> to view the ADVANCED OPTIONS screen.

   Make changes as necessary.

3) Click OK to save changes.

Change NetBios Printer's Properties

If you have chosen a NetBios Protocol printer to be changed, the following screen will be displayed:
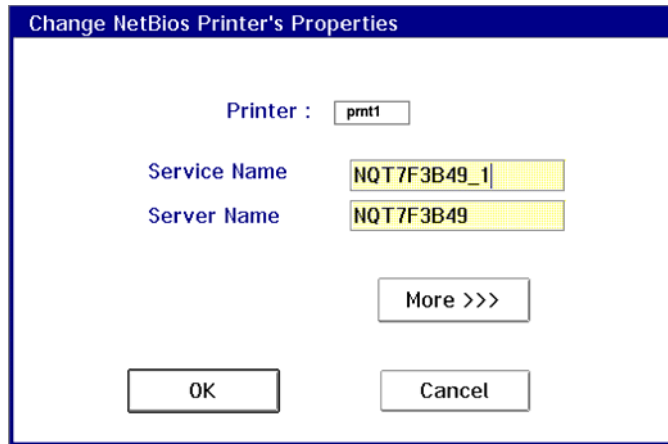
Figure 8-8: Change NetBios Printer's Properties Window

1) Change the SERVICE NAME or SERVER NAME as needed.

2) Click on MORE>>> to view the ADVANCED OPTIONS screen.

   Make changes as necessary.

3) Click on OK to save changes.

Delete Printer

1) Select the existing printer to delete.

2) Pull down the LAUNCH menu.

3) Select STOP PRINTER.

4) Pull down the INSTALL menu.

5) Select REMOVE PRINTER.

Options Menu

The following Options may be accessed from the OPTIONS menu in the EMULEX PRINT MANAGER.

1) Pull down OPTIONS from the menu.
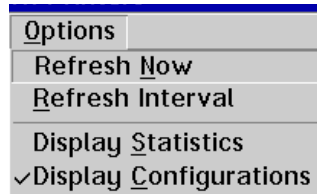
Figure 8-9: Options Menu

2) Select the desired option(s).

    Available options:

    − Refresh Now

    − Refresh Interval in 1/10 of seconds

    − Display Statistics

    − Display Configuration

3) Press OK when finished.

TELRCF

The TELRCF utility may be used to login to the printer server from the LAN Server server and to issue server commands.

For information on using TELRCF open an OS/2 window and change to the Emulex directory (cd\emulex). Next, enter the command TELRCF to display the command line syntax and a description of the options.

Configure TELRCF

Although the TELRCF utility is automatically installed with other LAN Server files, it must be configured prior to use.

To configure TELRCF for a single connection or multiple connections, follow these steps:

1) Open the EMULEX PRINT MANAGER.

2) Highlight (single click) the TELRCF icon.

3) Pull down the PROGRAM menu.

4) Select COPY.

   This opens the COPY PROGRAM window.

5) Enter a name in CHANGE TITLE .
   For example,
   Telrcf 138.239.18.2

6) Click on COPY.

   This creates a new icon with the title just entered.

7) Select the new icon.

8) Pull down the PROGRAM menu.

9) Select PROPERTIES.

   This opens the PROPERTIES window.

10) Enter desired TELRCF options in the Parameters box.
    Available options:

`-h`	server_name or ip_address
`-p`	rcf_tcp_port_number (default is 2048)
`-f`	script_file_name
`-t`	output_file_name
`-e`	escape_character (default is <Ctrl>C)

11) Select either OS/2 FULL SCREEN or OS/2 WINDOW.

12) Click the CHANGE button to close the window.

    TELRCF is configured and ready for use.

Use TELRCF

TELRCF may be used to login to the printer server to issue configuration commands. In addition, TELRCF provides a convenient method for downloading an entire configuration script to the printer server.

To use TELRCF:

1) Open the EMULEX PRINT MANAGER window.

2) Select the new icon (previously configured in the section above).

   This opens the TELRCF window and connects to the specified server with the IP address or server name.

3) Make desired changes.

4) Press <CTRL>BREAK to terminate the session.

   This action disconnects the session and closes the window.

Enter Scripts

TELRCF provides a convenient method for downloading an entire configuration script to the printer server. A sample script file (SCRIPT.TXT) is provided on the distribution diskette or CD-ROM as a guide to creating scripts.

Using a text editor:

1) Create the script.

   The first line of the script must contain the login password, followed by a set type softcopy command. To execute privileged commands, add the set privilege command, followed by the privileged password command to the script. The last line of the script must contain the logout command.

The following is an example of a server command script. This command configures a new service name (for example, 1j4a), for remote printing on a printer server serial port. It uses TCP port 3001 and configures the port's baud rate to 19200.

```
▷   access
▷   set type softcopy
▷   set privilege
▷   system
▷   change service 1j4a 3001 telnet disabled port 2
▷   change port 1 access remote speed 19200
▷   logout
```

2) Save the script with the name SERVCNFG.SCR.

3) Create an icon called TELRCF *IP_address*
   In the parameters field, enter:

```
▷   -h IP_address -f \emulex\servcnfg.scr
```

   IP_address   The IP address
   emulex   The directory containing the file

4) To send the file, double-click the icon labeled TELRCF*ip_address.*

The file is sent and TELRCF terminates when completed.

What's Next?

Upon successful configuration of your network operating system, you can either configure for another NOS or manage your printer server with Emulex *NET* wizard printer server administrator.

Configure NOS

Choose one or more operating systems.

- Novell NetWare – page 3-1

- Unix   – page 4-1

- VAX/VMS-LAT – page 5-1 (Not supported by NETQue Token Ring)

- AppleTalk – page 6-1

- Microsoft OS/2 LAN Manager– page 7-1

- IBM OS/2 LAN Server – page 8-1

- Windows NT 3.5 – page 9-1

Manage With Emulex *NET* wizard printer server administrator

Refer to *Emulex NET wizard printer server administrator User Guide.*

- Install and Setup Software – Chapter 2

- Configure Printer Servers – Chapter 3

- Configure for Novell NetWare Environments - Chapter 4

- Manage Printer Servers and Printers - Chapter 5

Windows NT

Chapter 9

Requirements

Before beginning, make sure the network conforms to these requirements:

- Version 3.5 of Windows NT is the minimum version required to install the Emulex printer server as described in this manual. Customers with earlier versions of Windows NT do not have LPR/LPD.

- See Tech Note TN_50.TXT on the Emulex BBS for information on how to run the printer server with Windows NT 3.1.

Before Installation

We recommend writing down the following parameters from the Setup Section in Chapter 2. Refer to them during the installation procedure.

Default Server Name: ____ ____ ____ ____ ____ ____ ____ ____ ____

Default Printer Name: ___ ___ ___ ___ ___ ___ ___ ___ ___ ___

IP Address: ___ ___ ___-___ ___ ___ -___ ___ ___-___ ___ ___

Subnet Mask: ___ ___ ___-___ ___ ___ -___ ___ ___-___ ___ ___

TCP port _____ (parallel port)   TCP port _____ (parallel port)

TCP port _____ (serial port)   TCP port _____ (serial port)

Telnet port number _____   RCF port number _____

Assigning an IP Address

You must assign an IP address prior to installing with Windows NT.

DHCP

If the UNIX host is configured as a DHCP server, the IP address is assigned automatically.

> *NOTE:* *The Emulex printer server must always 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 server through its LAN hardware address.*

1) Login to the Emulex printer server.

2) Enter:

    ▷   `Server>> define server DHCP `***n m*** `[`*temp*`]`

n	The number of times to request DHCP information if the server IP address is not known (default = 2).
m	The number of times to request DHCP information if the server IP address is known (default = 1).
temp	Instructs the server to configure the acquired information in RAM only. If this parameter is omitted, the information is permanently written in EAROM (default is permanent).

> *NOTE:* *If both n and m are zero, DHCP is disabled.*

Without DHCP

1) Login to the Emulex printer server.

Refer to the Remote Login or Local Login section later in this chapter.

2) Enter:

▷ Server>> define node ip ***ip_address***

ip_address The IP address of the designated node in decimal dot notation. For example, 123.234.345.490

Installation

Any Windows NT computer can be used to created a TCP/IP printer if TCP/IP is installed with printing support. Follow the steps below to configure a Windows NT computer for TCP/IP printing.

In the CONTROL PANEL:

1) Select NETWORK option.

This opens the NETWORK SETTINGS dialog box.

2) Click ADD SOFTWARE button.

This displays the ADD NETWORK SOFTWARE dialog box.

3) Select TCP/IP Protocol and Related Components.

4) Click CONTINUE.

This opens the WINDOWS NT TCP/IP INSTALLATION OPTIONS dialog box.

5) Check TCP/IP NETWORK PRINTING SUPPORT.

If TCP/IP is not already installed on this computer, check the other desired options as described in the *Windows NT System Guide*.

6) Click OK.

7) Enter the full path to the Windows NT distribution files.

8) Click CONTINUE.

All necessary files are copied to the hard disk.

> *NOTE:* *If the Enable Automatic DHCP Configuration*
> *option is not checked in the Installation Options*
> *dialog box, all required procedures for manually*
> *configuring TCP/IP must be completed as*
> *described in the* Windows NT System Guide.

The NETWORK SETTINGS dialog box will open.

9) Select CLOSE.

10) Restart the computer.

A TCP/IP printer can now be created on this Windows NT computer.

Create a TCP/IP Printer

Use Print Manager to create a TCP/IP printer. The following information is required:

- 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. A printer connected to a UNIX computer uses the computer's IP identifier.

- The printer name as identified on the host.

  This is the name defined on the UNIX computer or defined by the direct-connect printer manufacturer.

The computer where the TCP/IP printer is created must have TCP/IP installed and configured with the TCP/IP Network Printing Support option.

From the PRINTER menu in PRINT MANAGER:

1) Select CREATE PRINTER.

This opens the CREATE PRINTER dialog box:
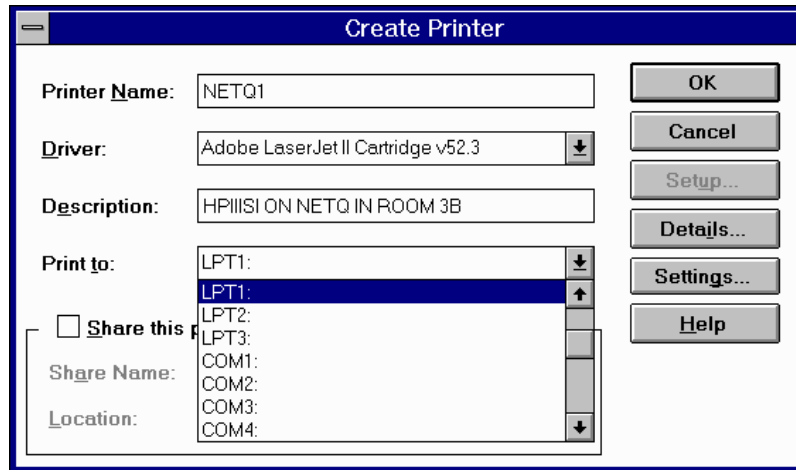
Figure 9-1: Create Printer Menu

2) Enter a name in the Printer Name box.

This name can have up to 32 characters and can be the same as the printer name identified on the printer's UNIX host. For a direct-connect printer, see the hardware documentation to find the name by which the network printer identifies the print queue.

3) Select the appropriate driver in the Driver pulldown list.

Optional text may be entered in the Description box to inform network users about the printer.

4) Select OTHER in the PRINT TO box.

This displays the Print Destinations dialog box:
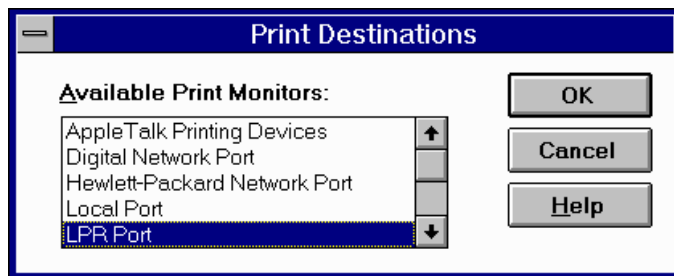
Figure 9-2: Available Print Monitors List

5) Select LPR PORT.

6) Click OK.

The following dialog box will appear:
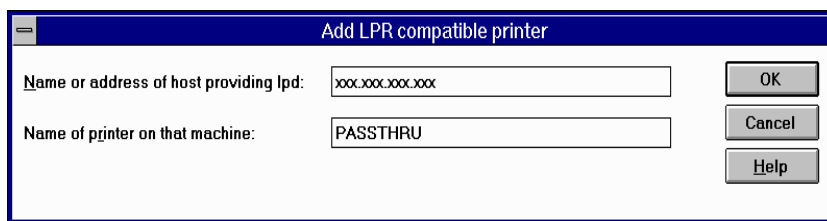
Figure 9-3: Add LPR Compatible Printer

> **IMPORTANT:** *Read through Steps 7 and 8 before proceeding.*

7) Enter the DNS name or IP address of the host for the printer in the NAME OR ADDRESS OF HOST PROVIDING LPD box.

Use either the DNS name, the 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.*

8)   Enter the name of the printer.

This name is identified by the host in the NAME OF PRINTER ON THAT MACHINE box.

This is either the direct-connect printer itself or the UNIX computer. For a direct-connect printer, this is whatever name was used to create the printer while running LPD.

For example, the TCP/IP printer being created will interact with a UNIX computer running the print server component (LPD). If LPD recognizes a printer attached to the UNIX computer by the name Crisp, enter the name Crisp in this box.

Unique Printer Queue Names

Although not mandatory, the printer queue names TEXT and PASSTHRU are printer server defaults. The user may define a unique printer queue name if the following conditions apply:

- The LPD service cannot have a physical port number assigned. If it does, then printer names TEXT or PASSTHRU must be used.

- 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 (" ").

In the ADD LPR COMPATIBLE PRINTER dialog box:

1)   Login to printer server as supervisor.

2) Enter:

    ▷   `Server>> change service lpd port all disable`

    ▷   `Server>> change service `***`printer_name TCP_port_n`***
        `PORT `***`n`***` telnet disable filter [enable |disable]`

    `printer_name` The unique printer name to assign

    `TCP_port_n` The TCP port name other than 515. Emulex suggests starting at 3000

    `n`   The physical parallel port of the printer server

    enable|disable Enable is equivalent to TEXT and inserts a carriage return <CR> with each line feed <LF>. Disable is equivalent to PASSTHRU and sends data with no changes.

For example:

The following commands change the name of the printer on the parallel port to Parallel which supports a PostScript printer:

    ▷   `Server>> change service lpd port all disable`

    ▷   `Server>> change service parallel 3001 port 1`

To include an ID for the newly created printer, enter the following command:

    ▷   `Server>> change service parallel id "`***`HP4si on default printer server name in Room 1231`***`"`

3) Return to Windows NT to complete the remaining steps:

4) Click the SHARE THIS PRINTER ON THE NETWORK option in the CREATE PRINTER dialog box:

Select this option to provide other users with access to this printer.

Figure 9-4: Create Printer

5) Enter a Share Name.

   This name can contain a maximum of eight characters. A default shared resource name is seen in the SHARE NAME box, but it can be changed.

6) Enter printer location.

   This is an optional entry in the Location box. Users will see this location information when they connect to the printer.

7) Click OK.

In PRINT MANAGER, the printer name specified in the CREATE PRINTER dialog box appears in the title bar of the printer's window, as shown:
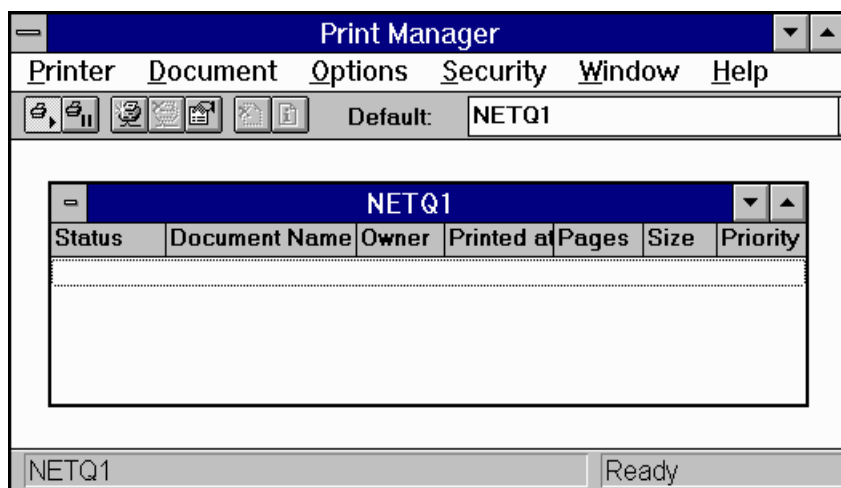
Figure 9-5: Print Manager

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

Use the LPR connectivity utility at the command prompt to print a file to a host running an LPD server. The LPQ diagnostic utility can also be used 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 the *Windows NT System Guide*.

Printing to Windows NT from UNIX

The LPDSVC service is the server side of TCP/IP printing for UNIX clients. If any UNIX client on the network wants 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. At the command prompt:

1) Type net start LPDSVC or net stop LPDSVC.

2) Press ENTER.

In the CONTROL PANEL:

3) Choose the SERVICES option.

4) Select LPDSVC in the service list.

5) Click START.

On the UNIX computer, use the Windows NT printer by typing:

> ▷   # lpr -S *NTHost* - P *LpdPrinter myfile.txt*

> *NTHost*   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* The name of the printer created on NTHost.
>
> *myfile.txt* The file to be printed.

The LPDSVC service is independent of the LPRMON service. The LPRMON service allows 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.

Logging into the Printer Server

You can login to the printer server remotely from a UNIX workstation or locally from a console terminal.

Remote Login

1) Login to a UNIX TCP/IP workstation.

   The prompt may appear different than the one shown below.

2) Connect to the printer server:

> ▷   # telnet *ip_address*   2048

> *ip_address* The printer server IP address in decimal dot
>   notation. For example: 123.234.345.456.

    2048   The printer server RCF port

3) Enter the password:

   ▷ # access

   where access is the default printer server remote login password.

   NOTE: The password does not appear when typed.

4) Verify banner.

   When the connection is made, the printer server login banner is
   displayed.

5) At Enter Username or Help>, enter any two characters.

6) At Server>, enter su:

   ▷ Server> su

   This gives you supervisor status.

7) At Password>, enter system:

   ▷ Password> system

   where system is the default privileged password which does not echo
   back.

8) At the Server>> prompt, view or change current parameters.

   Refer to the list of commands in the *Command Reference Guide*.

9) Logout of the printer server:

   ▷ Server>> logout

Local Login

1) Connect an ANSII compatible terminal or a PC running an ANSII
   terminal emulation program to the printer server serial or console port.

   Emulex default port configuration is set for 9600 bps, 8 data bits, no
   parity, 1 stop bit, DTE type, with softcopy emulation.

2) Press ESC twice.

   This initiates communication between the console terminal and the printer server serial port.

3) Verify banner.

   When the connection is made, the printer server login banner is displayed.

4) At Enter Username or Help>, enter any two characters.

5) At Server>, enter su:

   ▷   `Server> su`

   This gives you supervisor status.

6) At Password>, enter system:

   ▷   `Password> system`

   where system is the default privileged password which does not echo back.

7) Change terminal emulation mode to ANSI.

   ▷   `Server>> change port type ANSI`

8) At the Server>> prompt, view or change current parameters.

   Refer to the list of commands in the *Command Reference Guide*.

9) Logout of the printer server:

   ▷   `Server>> logout`

What's Next?

Upon successful configuration of your network operating system, you can either configure for another NOS or manage your printer server with Emulex *NET* wizard printer server administrator.

Configure NOS

Choose one or more operating systems.

- Novell NetWare – page 3-1

- Unix – page 4-1

- VAX/VMS-LAT – page 5-1 (Not supported by NETQue Token Ring)

- AppleTalk – page 6-1

- Microsoft OS/2 LAN Manager– page 7-1

- IBM OS/2 LAN Server – page 8-1

- Windows NT 3.5 – page 9-1

Manage With Emulex *NET* wizard printer server administrator

Refer to *Emulex NET wizard printer server administrator User Guide.*

- Install and Setup Software – Chapter 2

- Configure Printer Servers – Chapter 3

- Configure for Novell NetWare Environments - Chapter 4

- Manage Printer Servers and Printers - Chapter 5

Appendix

Appendix

Connector Pinouts

Emulex printer server models have different configurations of input and output ports. Verify your Emulex printer server model is listed under the connector type to assure the pinout is correct for your model.

Ethernet UTP Connector Pinout - RJ-45

- − NETQue
- − NETQue Pro2
- − NETJet

1	Transmit High
2	Transmit Low
3	Receive High
4	No Connections
5	No Connection
6	Receive Low
7	No Connection
8	No Connection

Token Ring UTP Pinout - RJ-45

- − NETQue Token Ring

1	No Connection
2	No Connection
3	Transmit/3
4	Receive/4
5	Receive/5
6	Transmit/6
7	No Connection
8	No Connection

Token Ring STP Pinout - Female-DB9

– NETQue Token Ring

1	Receive /R1
2	No Connection
3	No Connection
4	No Connection
5	Transmit/B5
6	Receive/G6
7	No Connection
8	No Connection
9	Transmit/09

Serial Connector Pinout - Male DB9 (DTE)

– NETQue

– NETQue Pro2

– NETQue Token Ring

1	**DCD**	Data Carrier Default
2	**RXD**	Receive Data
3	**TXD**	Transmit Data
4	**DTR**	Data Terminal Ready
5	**GND**	Ground
6	**DSR**	Data Set Ready
7	**RTS**	Request To Send
8	**CTS**	Clear To Send
9	**RI**	Ring Indicator

Console Connector Pinout - RJ12 (DTE)

- NETJet

1 DTR	Data Terminal Ready
2 TXD	Transmit Data
3 GND	Ground
4 RXC	Receive Data Common
5 RXD	Receive Data
6 DSR	Data Set Ready

Parallel Connector Pinout

- − NETQue
- − NETQue Pro2
- − NETQue Token Ring

> *NOTE:* *This pinout must be maintained for bi-directional printing to operate correctly.*

1	Data Strobe	**14**	Auto Feed
2	Data Bit 1	**15**	Error
3	Data Bit 2	**16**	Initialize
4	Data Bit 3	**17**	Select Inhibit
5	Data Bit 4	**18**	Logic Ground
6	Data Bit 5	**19**	Ground (Data Strobe Return Data Bit 1 Return)
7	Data Bit 6	**20**	Ground (Data Bit 2 & 3 Return)
8	Data Bit 7	**21**	Ground (Data Bit 4 & 5 Return)
9	Data Bit 8	**22**	Ground (Data Bit 6 & 7 Return)
10	Acknowledge	**23**	Ground (Data Bit 8 & Acknowledge Return)
11	Busy	**24**	Ground (Busy Return & Paper End Return)
12	Paper End	**25**	Logic Ground
13	Select		

Acronyms

ARP	Address resolution protocol.
BootP	A protocol used by a node to obtain its configuration from a host.
BSD	Berkeley Software Distribution; a type of Unix system.
IEEE	Institute of Electrical and Electronics Engineers; a professional society that publishes documents and standards for data communications, including the standards for local area networks.
IP	Internet Protocol; a protocol that provides data delivery of messages.
IPX	Interwork Packet Exchange; a Novell network protocol set generally associated with NetWare.
LPD	Line Printer Daemon; a common print protocol.
LAT	Local Area Transport
MAC Address	Media Access Control address; also called Ethernet Address.
MIB	Management Information Base; the set of management information available to SNMP (Simple Network Management Protocol).
NCP	NetWare Core Protocol; a type of protocol that provides control for interaction between clients and file servers. Also can refer to Network Control Program, a DECnet utility used to monitor and control nodes on a network.
NFS	Network File System; a distributed file system that allows a set of computers to access one another's files cooperatively in a transparent manner.
NOS	Network Operating System.
PCL	Printer Command Language; standard printer technology.
PS	Postscript; a printer technology in which fonts are outline coded, fully scalable and permanently stored in ROM.

Pserver	Novell Netware software utility that manages the operation of printers on the network.
RARP	Reverse Address Resolution Protocol; a protocol used to obtain the IP address of the server from a known network address.
RCF	Remote Console Facility; a protocol used in remote connections between a port and a service on a remote Ethernet device.
RPrint	A UNIX program that takes data from standard input, connects to a server, and transmits the data.
RPrinter	Novell Netware remote printing protocol.
SLIP	Serial Line IP; used to run an Internet protocol over serial lines interconnecting two systems.
SNMP	Simple Network Management Protocol; a protocol that allows management information about an object to be inspected or altered by SNMP management stations.
TBCP	Tagged Binary Communications Protocol; a protocol used on Hewlett-Packard printers.
TCP/IP	Transmission Control Protocol/Internet Protocol; a protocol suite developed by the Advanced Research Projects Agency (ARPA). TCP is the primary transport protocol and IP is the network-layer protocol. TCP/IP is the standard protocol that allows the different systems of the Internet to communicate with each other.
TES	A terminate-and-stay-resident terminal emulation program.
UTP	Unshielded Twisted Pair; a transmission medium providing connectivity on a network.

Glossary

#	Symbol used for default login password prompt on an RCF port.
10base2	Coaxial cable used to provide connectivity on a network; often referred to as Thinnet or Cheapernet.
10baseT	Industry standard Ethernet connector; employs unshielded twisted pairs of wire. Often abbreviated as UTP.
Address	An identifier assigned to networks, stations, and other devices so that each device can be separately designated to receive and reply to message.
Administrator	The person who sets up a server, creates user login accounts and passwords, creates groups, sets security, and maintains the server.
AppleTalk	The Apple Computer suite of protocols that enables the hardware and software on an AppleTalk network to interact and to route data.
Baud Rate	Transmission speed measured in bits per second (b/s or bps).
Bi-Directional	A parallel port on newer printers that allows communication to occur in two directions; also referred to as Bitronic or abbreviated Bi-Di. Conforms to IEEE 1284.
BNC	A type of connector used on coaxial cables.
BNC Terminator	A type of BNC connector used at the end of a BNC-T or other connector to eliminate signal loss and echo.
BootP	A protocol used by a node to obtain its configuration from a host.
BSD	Berkeley Software Distribution; a type of UNIX system.
Centronics	A 25 or 36-pin Amphenol connector that serves as a standard interface for parallel data communication between the computer and printer.
Client	A terminal or workstation connected to a server or a program run under a server.

Coaxial	A type of cable that uses two conductors; can accommodate high bandwidth and is relatively resistant to interference.
Ethernet Address	See MAC address.
Gateway	A computer that is able to relay message and other communication from one network to another; synonymous with router.
Host	A computer system on a network.
Internet Address	A 32-bit address assigned to hosts using TCP/IP.
IP Address	Network address for a node that identifies its logical location. A set of four three-digit numbers that specifies the exact routing to an Internet host. Often written in decimal dot notation: ddd.ddd.ddd.ddd.
IPX	Interwork Packet Exchange. A Novell network protocol set generally associated with NetWare.
LAT	Local Area Transport. Digital Equipment Corporation (DEC) local area transport protocol supported on Emulex servers.
LPD	Line Printer Daemon; a common print protocol.
MAC Address	Media Access Control address; also called Ethernet Address.
MIB	Management Information Base. The set of management information available to SNMP (Simple Network Management Protocol).
NetBios	Network Basic Input/Output System. An application program interface typically used on LANs comprised of IBM compatible computers.
NetWare	The Novell network operating system that provides the ability to share services across dissimilar platforms. It uses the NetWare Core Protocol (NCP), Internetwork Packet Exchange (IPX), and Sequenced Packet Exchange (SPX) protocols transparently.
Ping	Packet Internet Grouper; a program used to test the ability to reach destinations by sending them an Internet Control Message Protocol (ICMP) echo request and waiting for a reply.

Postscript	Printer technology in which fonts are outline coded, fully scalable and permanently stored in ROM. These fonts may be downloaded.
Printer Server	Emulex hardware utility that manages the operation of printers on the network.
Printer Services	Interfaces between users requiring print service and printers.
Pserver	Novell Netware software utility that manages the operation of printers on the network.
Queue Names	Names of print queues serviced by a printer.
Queue	Entries in the queue of server awaiting service when multiple simultaneous requests occur.
RARP	Reverse Address Resolution Protocol; protocol used to obtain the IP address of the server from a known network address.
RCF	Remote Console Facility; protocol used in remote connections between a port and a service on a remote Ethernet device.
RPrint	A UNIX program that takes data from standard input, connects to a server, and transmits the data. It may be run from a print spooler or invoked as a stand-alone module.
RPrinter	Novell Netware remote printing protocol.
Server Name	Name of a particular host providing a service.
SLIP	Serial Line IP. An Internet protocol used to run IP over serial lines interconnecting two systems.
SNMP	Simple Network Management Protocol; a protocol that allows management information about an object to be inspected or altered by SNMP management stations.
Subnet Mask	A number used to mathematically "mask" or hide the IP addresses on the network by eliminating those parts of the address that are alike for all the machines on the network.
Syslog	A TCP/IP node designated to receive events or errors.
TBCP	Tagged Binary Communications Protocol; a protocol used on Hewlett-Packard printers.
TCP Port Numbers	Port number within the control of the Transaction Control Process.

TCP/IP	Transmission Control Protocol/Internet Protocol; a UNIX based protocol suite developed by the Advanced Research Projects Agency (ARPA). TCP is the primary transport protocol and IP is the network-layer protocol. TCP/IP is the standard protocol that allows the different systems of the Internet to communicate with each other.
TES	A terminate-and-stay-resident terminal emulation program.
UTP	Unshielded Twisted Pair. A transmission medium providing connectivity on a network.