
TROY Internet Print Servers

Quick Install Manual



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Operation of this equipment in a residential area is likely to cause interference in which case the user, at his or her own expense, will be required to take whatever measures will be required to correct the interference.

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Introduction

This manual is specifically for quick installation of your print server with TROY recommended procedures. For more detailed configuration instructions (including non-standard configurations), please refer to the TROY Administrator's guides located on the CD-ROM supplied with your print server or on the TROY web site (<http://www.troygroup.com>).

External Print Server Models

The TROY Print Server family includes the following models:

- The **Pony Print Server** is the industry's smallest full-featured external print server. It plugs directly into the parallel port of the printer, and supports a 10baseT Ethernet interface. It is available in the following models:

PPS-8S	IPX/SPX, TCP/IP, AppleTalk, DLC/LLC, NetBEUI/NetBIOS IP, Direct Mode IPX/IP, http
--------	---

PPS-8	IPX/SPX, TCP/IP, AppleTalk, DLC/LLC, NetBEUI/NetBIOS IP, Direct Mode IPX/IP, LAT, IP, http
-------	--

PPS-8N	IPX/SPX, TCP/IP, AppleTalk, DLC/LLC, NetBEUI/NetBIOS IP, Direct Mode IPX/IP, LAT, VINES IP, http
--------	--

- The **Pony 100** is a high-performance compact print server that plugs directly into the parallel port of the printer. It supports both 100baseTX Fast Ethernet and 10baseT Ethernet, with the type of network automatically sensed. A serial port is also included. It is available in the following models:

PPS100-8S	IPX/SPX, TCP/IP, AppleTalk, DLC/LLC, NetBEUI/NetBIOS IP, Direct Mode IPX/IP, http
-----------	---

PPS100-8N	IPX/SPX, TCP/IP, AppleTalk, DLC/LLC, NetBEUI/NetBIOS IP, Direct Mode IPX/IP, LAT, VINES IP, http
-----------	--

PPS100-8J (NetSend)	JetSend, TCP/IP, NetBEUI/NetBIOS IP, DLC/LLC, Direct Mode IP, http
---------------------	--

- The **XConnect II** is an external print server. It features a high-speed parallel port, a serial port, and both a thin Ethernet and UTP Ethernet connector. It is available in the following models:

XConnect II-8S	IPX/SPX, TCP/IP, AppleTalk, DLC/LLC, NetBEUI/NetBIOS IP, Direct Mode IPX/IP, http
----------------	---

XConnectII-8	IPX/SPX, TCP/IP, AppleTalk, DLC/LLC, LAT, NetBEUI/NetBIOS IP, Direct Mode IPX/IP, http
--------------	--

XConnect II-8N	IPX/SPX, TCP/IP, AppleTalk, DLC/LLC, NetBEUI/NetBIOS IP, Direct Mode IPX/IP, LAT, VINES IP, http
----------------	--

XConnect II-8-LN03	XConnect II-8 with LN03 emulation option
--------------------	--

- The **XConnect 100** features 100baseTX capability for operation on 100 megabit/sec Fast Ethernet networks. It can also work on 10baseT networks, so it is ideal for users who plan to upgrade to 100baseTX in the future. The XConnect 100 has two high-speed parallel ports, and two serial ports for networking up to four printers. It is available in four models:

XConnect 100-8S	IPX/SPX, TCP/IP, AppleTalk, DLC/LLC, NetBEUI/NetBIOS IP, Direct Mode IPX/IP, http
-----------------	---

XConnect100-8	IPX/SPX, TCP/IP, AppleTalk, DLC/LLC, LAT, NetBEUI/NetBIOS IP, Direct Mode IPX/IP, http
---------------	--

XConnect 100-8N	IPX/SPX, TCP/IP, AppleTalk, DLC/LLC, NetBEUI/NetBIOS IP, Direct Mode IPX/IP, LAT, VINES IP, http
-----------------	--

XConnect 100-8-LN03	XConnect 100-8 with LN03 emulation option
---------------------	---

Internal Print Server Models

The TROY Print Server family includes the following models:

- The **XJet 3000** 100baseTX/10baseT print server plugs into the Enhanced I/O (EIO) slot on newer HP printers like the LaserJet 4000, 4050, 4500, 5000, 8000, 8100, Color LaserJet 4500/8500, and future printers that use the EIO bus.

XJet 3000-8S	IPX/SPX, TCP/IP, AppleTalk, DLC/LLC, NetBEUI/NetBIOS IP, Direct Mode IPX/IP, http
--------------	---

XJet 3000-8N	IPX/SPX, TCP/IP, AppleTalk, DLC/LLC, NetBEUI/NetBIOS IP, Direct Mode IPX/IP, LAT, VINES IP, http
--------------	--

- The **XJet 2000** 10baseT print server plugs into the Enhanced I/O (EIO) slot on newer HP printers like the LaserJet 4000, 4050, 4500, 5000, 8000, 8100, Color LaserJet 4500/8500, and future printers that use the EIO bus.

XJet 2000-8S	IPX/SPX, TCP/IP, AppleTalk, DLC/LLC, NetBEUI/NetBIOS IP, Direct Mode IPX/IP, http
--------------	---

XJet 2000-8N	IPX/SPX, TCP/IP, AppleTalk, DLC/LLC, NetBEUI/NetBIOS IP, Direct Mode IPX/IP, LAT, VINES IP, http
--------------	--

- The **XJet IV-Plus** plugs into the Modular I/O (MIO) slot on HP LaserJet IIISi, 4, 4M, 4 Plus, 4M Plus, 5, 5M, DeskJet 1200/1600/1600CM, DesignJet, DesignJet 600, DesignJet 750, DesignJet 755CM, Color LaserJet, Color LaserJet 5/5M, and other MIO-compatible printers. It includes both a 10baseT UTP and a 10base2 BNC Ethernet connector.

XJet IV-Plus-8S	IPX/SPX, TCP/IP, AppleTalk, DLC/LLC, NetBEUI/NetBIOS IP, Direct Mode IPX/IP, http
-----------------	---

XJet IV-Plus-8	IPX/SPX, TCP/IP, AppleTalk, DLC/LLC, NetBEUI/NetBIOS IP, Direct Mode IPX/IP, LAT, IP, http
----------------	--

XJet IV-Plus-8N IPX/SPX, TCP/IP, AppleTalk, DLC/LLC, NetBEUI/NetBIOS IP, Direct Mode IPX/IP, LAT, VINES, http

XJet IV-Plus-8-LN03 XJet IV-Plus-8 with LN03 emulation option

- The **XJet 100** provides both 100baseTX Fast Ethernet and 10baseT Ethernet connectivity for HP MIO printers. The type of network is automatically sensed.

XJet 100-8S IPX/SPX, TCP/IP, AppleTalk, DLC/LLC, NetBEUI/NetBIOS IP, Direct Mode IPX/IP, http

XJet100-8N IPX/SPX, TCP/IP, AppleTalk, DLC/LLC, NetBEUI/NetBIOS IP, Direct Mode IPX/IP, LAT, VINES, http

XJet 100-8J (NetSend) JetSend, TCP/IP, NetBEUI/NetBIOS IP, Direct Mode IP, http

- The **XJet IV-2** provides 10base2 BNC and 10base5 AUI Ethernet connectivity for HP MIO printers. It is especially useful for connecting to fiber optics transceivers.

XJet IV-2 IPX/SPX, TCP/IP, AppleTalk, DLC/LLC, LAT, VINES, NetBEUI/NetBIOS IP, Direct Mode IPX/IP, http

XJet IV-2-LN03 IPX/SPX, TCP/IP, AppleTalk, DLC/LLC, NetBEUI/NetBIOS IP, Direct Mode IPX/IP, LAT, VINES, http

These devices comply with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) These devices may not cause harmful interference and (2) these device must accept any interference received, including interference that may cause undesired operation.

The following information applies to the Pony Print Server Plus (PPS-8S, PPS-8, and PPS-8N) only:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance to the instructions, may cause harmful

interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to correct the interference by one or more of the following measures:

- 1. Reorient or relocate the receiver.*
- 2. Increase the separation between the equipment and the receiver.*
- 3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.*
- 4. Consult the dealer or an experienced radio/TV technician for help.*

Installing the Hardware

Before You Start

TROY manufactures both internal and external print servers. Internal print servers plug inside of the printer for maximum compactness and to eliminate the need for an external power supply. Current TROY internal print servers include the XJet IV-Plus, XJet IV-2, XJet 100, XJet 3000, and XJet 2000 for Hewlett-Packard printers.

External print servers connect to the parallel port, or in some cases, to the serial port of a printer. They have the advantage of working on virtually any kind of printer. Current TROY external print servers include the XConnect 100, Pony 100, XConnect II, and Pony Print Server Plus.

Before attempting to install a TROY print server, first make sure that you have completed installing your printer or plotter as described in the appropriate documentation for the device.

Unpacking and Handling

The TROY print server shipping box contains the following items:

1. TROY print server
2. TROY Print Server Software CD-ROM
3. TROY Quick Installation Manual
4. Power supply (external print servers only)
5. 1284C miniature Centronics to standard Centronics cable (XJet 2000 models only)

TROY print servers are designed to withstand normal handling procedures, however reasonable precautions should be exercised during installation, particularly with regard to static discharge.

- Make sure that you are adequately grounded by touching a bare metal part of the printer while installing the print server.
- Avoid moving around the work area in order to eliminate static charge buildup.
- If possible, do not work on a carpeted area.

Setting the Switches (XJet IV-Plus and XConnect II)

Note: Skip this section if you have an XJet IV-2, XJet 2000, XJet 3000, XJet 100, XConnect 100, Pony Print Server Plus, or Pony 100.

The XJet IV-Plus and XConnect II print servers have 4 DIP switches (see figure 2-1). These switches do not have to be changed for most printing applications. The switch functions are as follows:

XJet IV-Plus switches:

- Switch 1 Defines whether serial port will be used as a console (OFF) or for a serial printer (ON).
- Switches 2 & 3 ON for autosensing 10baseT and 10base 2 operation. May be put in OFF position for 10baseT-only operation (reduces power consumption)
- Switch 4 Normally OFF. If put in the ON position, will restore the print server to its factory default settings when the unit is powered on again. If you use this switch, don't forget to return it to the OFF position after you restore the default settings.

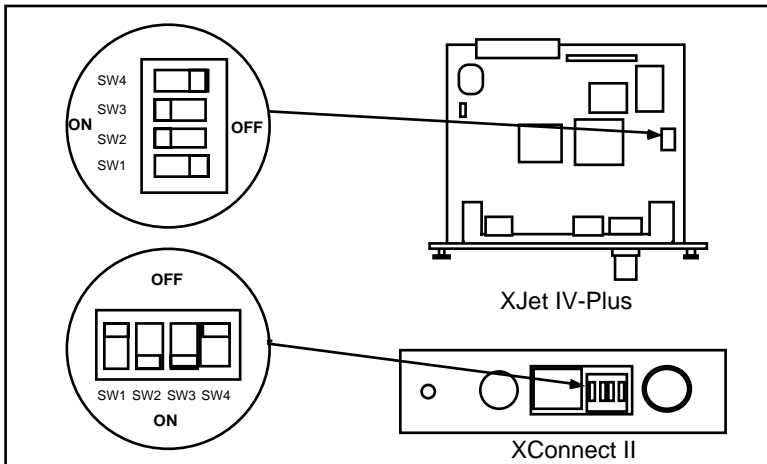


Figure 2-1

XJet IV-Plus and XConnect II switches

XConnect II switches:

Switch 1 Normally **OFF**. If put in the **ON** position, will restore the print server to its factory default settings when the unit is powered on again. If you use this switch, don't forget to return it to the **OFF** position after you restore the default settings.

Switch 1 can also be used to print a self-test page. This is done by moving the switch to the **ON** position and then immediately returning it to the **OFF** position.

Switches 2 & 3 **ON** for autosensing 10baseT and 10base 2 operation. May be put in **OFF** position for 10baseT-only operation (reduces power consumption)

Switch 4 Defines whether serial port will be used as a console (**OFF**) or for a serial printer (**ON**).

XJet 2000 XJet 100, Pony Print Server Plus, Pony 100, and XConnect 100 Pushbutton Switch

Note: *Skip this section if you have an XJet IV-2, XJet IV-Plus, or XConnect II.*

Newer TROY print servers have a single pushbutton test switch. It is used as follows:

- To print a self-test page, press the switch in for at least one-eighth second but less than five seconds.
- To reset the unit back to factory default settings, press the switch and hold it in for at least 5 seconds

XJet IV-2 10base2/10base5 Jumper Block

Note: *This section applies only to the XJet IV-2. Skip this section if you have any other print server.*

The XJet IV-2 uses a jumper block to set the Ethernet type as shown in figure 2-2. If you are using thin Ethernet, make sure the block is set to the position shown in figure 2-2A. If you are using the AUI (10base5) with the HP LaserJet IIISi or 4Si (bottom slot only), with the DesignJet 600/650C, or with a self-powered transceiver (for example, a DEC DELNI multiport

transceiver, which has its own power supply), move the jumper block to the position shown in figure 2-2B.

If you are using AUI with any other printer besides the ones mentioned in the previous paragraph, *you must use the optional XJ12V voltage converter*, which provides the 12 volts necessary to power external transceivers. The XJ12V replaces the jumper block and mounts on the XJet IV-2 as shown in figure 2-2C.

Important Note: *The XJ12V provides a maximum of 500mA of current, so make sure that your transceiver does not exceed this limit.*

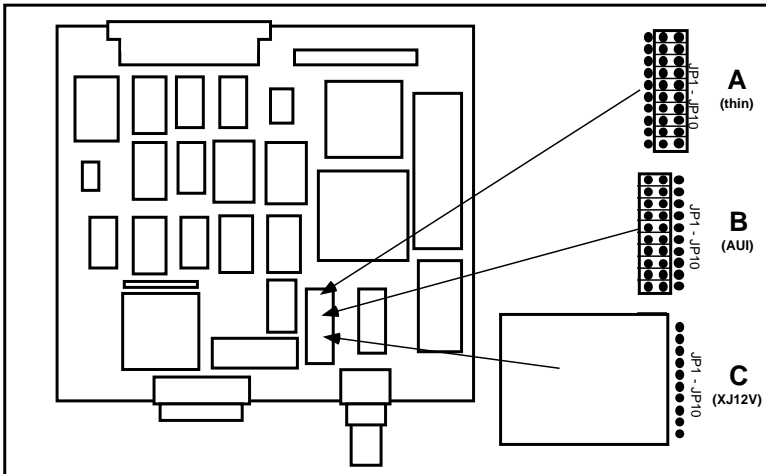


Figure 2-2

Using the XJet IV-2 Jumper Block and XJ12V

Connecting an Internal Print Server to the Printer

XJet 3000 Installation

The XJet 3000 print server is compatible with EIO-based printers such as the HP LaserJet 4000, 5000 and 8000.

The XJet 3000 plugs into the I/O slot located on the rear of your printer or plotter. The installation steps are as follows:

1. Turn off the printer or plotter and unplug the power cord.

2. If another I/O card is already installed in the I/O slot, loosen the two thumbscrews and pull the card straight out. If no card is currently installed, remove the faceplate by unscrewing the two retaining screws.
3. Insert the XJet 3000 into the I/O slot and tighten down the two thumbscrews (see figure 2-3). **Note:** *Some EIO printers have two slots. The XJet 3000 may be installed in either slot.*

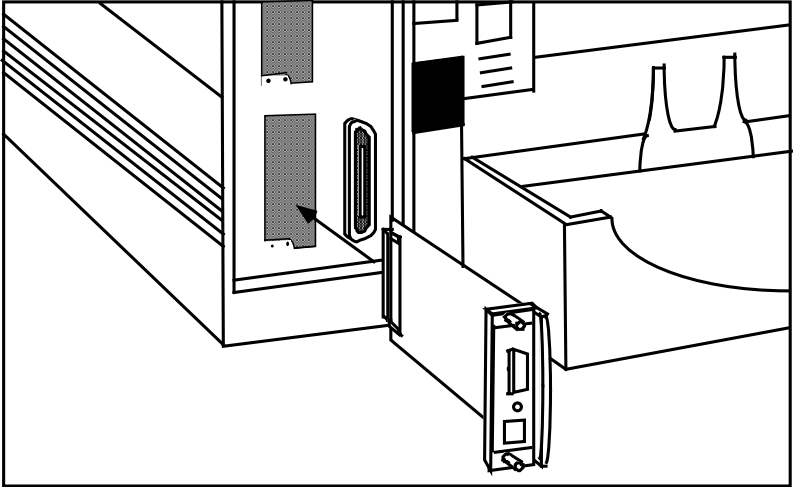


Figure 2-3

Installing an XJet 3000 Print Server into the Printer

XJet 2000 Installation

The XJet2000 print server is compatible with EIO-based printers such as the HP LaserJet 4000, 5000 and 8000.

The XJet 2000 plugs into the I/O slot located on the rear of your printer or plotter. The installation steps are as follows:

1. Turn off the printer or plotter and unplug the power cord.
2. If another I/O card is already installed in the I/O slot, loosen the two thumbscrews and pull the card straight out. If no card is currently installed, remove the faceplate by unscrewing the two retaining screws.

3. Insert the XJet 2000 into the I/O slot and tighten down the two thumbscrews (see figure 2-4A). **Note:** *Some EIO printers have two slots. The XJet 2000 may be installed in either slot.*

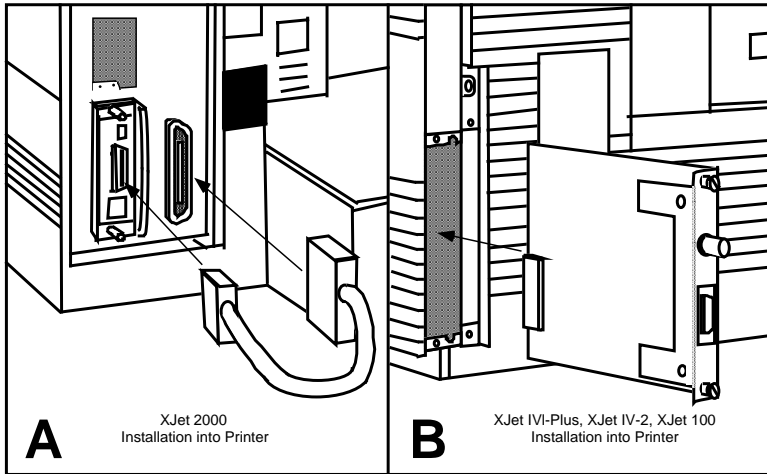


Figure 2-4

Installing an XJet Print Server into the Printer

4. Connect the cable from the XJet 2000 to the printer's parallel port (see figure 2-4A).

Important Note: *If you have a LaserJet 8000 or other printer that uses the IEEE 1284C miniature Centronics connector instead of a standard 36-pin Centronics connector, you must order the optional CABLE-C/C 1284C-to-1284C cable.*

This completes the hardware installation of the XJet 2000. Proceed to *Ethernet Installation* section later in this manual.

XJet IV-Plus, XJet IV-2, and XJet 100 Installation

The XJet IV-Plus, XJet IV-2, and XJet 100 are print servers for MIO-based printers such as the HP LaserJet IIISi, LaserJet 4, 4M, 4 Plus, 4M Plus, 4Si, 4Si MX, 4V, 4MV, 5, 5M, 5Si, 5Si MX, Color LaserJet, DesignJet, DeskJet 1200C/1600C, PaintJet XL300, and similar printers.

The XJet IV-Plus, XJet IV-2, and XJet 100 plug into the I/O slot located on the rear of your printer or plotter. The installation steps are:

1. Turn off the printer or plotter and unplug the power cord.
2. If another I/O card (such as the serial/parallel I/O interface card) is already installed in the I/O slot, loosen the two thumbscrews and pull the card straight out. If no card is currently installed, remove the faceplate by unscrewing the two retaining screws.
3. Insert the XJet IV-Plus, XJet IV-2, or XJet 100 firmly into the slot, and tighten the two screws (see figure 2-4B).
4. *TROY recommends that AUTOCONTINUE be enabled on the LaserJet so that minor errors do not interrupt the operation of the printer. Refer to your printer manual for instructions on enabling this parameter.*

Connecting an External Print Server to a Parallel Printer

XConnect II, Pony 100, and Pony Plus Print Server

- These print servers have a 36-pin male Centronics connector that is compatible with the 36-pin female connectors found on most printers. Therefore, the print server can be plugged directly into the printer with no additional cable is required.
- In the event that the print server cannot be connected directly to the printer's Centronics port, a 36-to-36 pin Centronics (male-to-female) cable can be ordered from TROY (part Number: CABLE-CEN2).
- For printers like the LaserJet 8000 that use the miniature Centronics IEEE 1284C, TROY offers the CABLE-C/B adapter cable.

XConnect 100:

- These print servers have two 25-pin female connectors that are compatible with the IBM PC standard 25-to-36 pin Centronics cable. This cable is available at any computer or office supply store, or it can be ordered from TROY (part number CABLE-CEN).
- For printers like the LaserJet 8000 that use the miniature Centronics IEEE 1284C, TROY offers the CABLE-C/A adapter cable.

Connecting a Print Server to a Serial Printer

XConnect II, Pony 100, XJet IV-Plus, XJet 100

The XConnect II has an RJ45 connector for connecting RS-232-compatible serial printers. The XConnect II RJ45 connector is marked "Serial" and

should not be confused with the 10baseT unshielded twisted pair connector, which is also an RJ45. **Note:** *The XJet 100 serial port can only be used to connect a console terminal; it does not support a serial printer.*

TROY offers the SCABLE-DB25M 25-pin male adapter cable kit for easy connection to most printers. To assemble this kit, connect the wires to the DB25 connector pins as follows:

Pin 2: Black	Pin 3: Yellow	Pin 4: Blue
Pin 5: White	Pin 6: Brown	Pin 7: Green
Pin 20: Orange	(Red is not used)	

Refer to the Administrator's Manual or the TROY web site for more details on serial port wiring.

The serial port is set by default to 9600bps, 8 bit characters, no parity, 1 stop bit. These settings can be changed using WebXAdmin or the print server console as described in the Administrator's Manual.

XConnect 100

The XConnect 100 has two standard PC-compatible 9-pin female D-connectors. You can use the standard PC 9-pin to 25-pin adapter cable that is available at any computer or office store. However, you will usually also need a null modem (available at computer stores), because the XConnect 100 is a DTE device.

XJet 3000

The XJet 3000 uses a 9-pin female connector that is compatible with the one used on many Hewlett-Packard printers, and is therefore compatible with off-the-shelf cabling. It is different from other TROY products in that this connector can be used for serial input applications. That is, the XJet 3000 basically adds a serial port to the printer, which allows the printer to be connected serially instead of through the parallel port. This serial port is set by default for serial input operation at 9600bps, 8 bits, no parity, 1 stop bit, and XON/XOFF flow control. The default parameters can be modified via the front panel on the printer, via WebXAdmin or the print server console, or via the switch block on the printed circuit board. The port can also be set to connect a console terminal by using the console command SET PORT S1 CONSOLE ENABLED or by setting switches 1 through 4 to the ON position (115.2Kbps is the default console speed). Operation of the XJet 3000 serial port is described in greater detail in the Administrator's Guide on the CD-ROM included with the print server.

- The **XJetIV-Plus** and **XConnect II** can connect directly to either a 10baseT unshielded-twisted pair Ethernet or a 10base2 thin Ethernet network (XConnect II Lite models have either a 10baseT or a 10base2 connector, but not both). The print server will automatically sense the type of network.
- The **XJet2000** and **Pony Print Server Plus** can connect to a 10baseT Ethernet network.
- The **XJet 3000**, **XJet100**, **XConnect 100**, and **Pony 100** can connect to either a 100baseTX Fast Ethernet network or a 10baseT Ethernet network. The print server will automatically sense the type of network.
- The **XJet IV-2** connects to either a 10base2 or 10base5 network (make sure that the jumper block is in the appropriate position as described earlier in this chapter).

Connecting the print server to an Unshielded Twisted Pair Network (100baseTX or 10baseT)

To connect an XJetIV-Plus, XJet 3000, XJet 100, XJet 2000, XConnect II, XConnect 100, Pony Print Server Plus, or Pony 100 print server to an unshielded twisted pair (UTP) Ethernet network, you will need an Ethernet hub (with at least one unused port installed on your network) and an appropriate length of RJ45 modular cable is needed. If you are connecting an XJet 3000, XJet 100, XConnect 100, or Pony 100 to a 100baseT Fast Ethernet network, you must use Category 5 RJ45 modular cable.

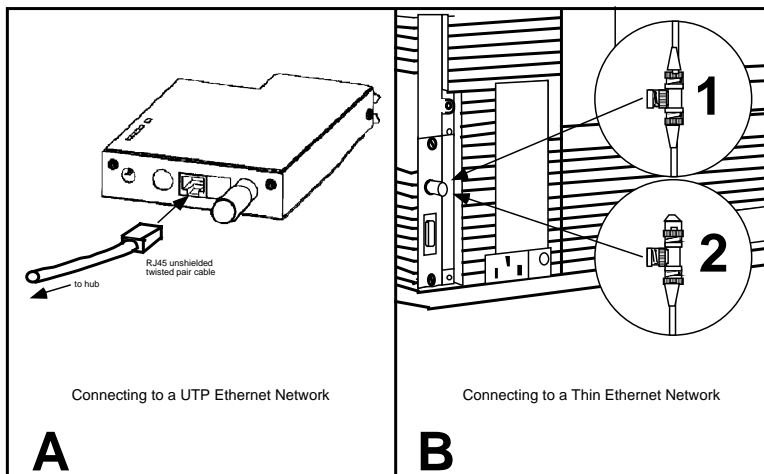


Figure 2-5

Connecting the Network

Connect one end of the RJ45 cable to the print server connector labeled "10baseT" or "100baseTX/10baseT" and the other end to a port on the twisted pair Ethernet hub

This completes the unshielded twisted pair Ethernet installation. Proceed to the *Verifying Successful Installation* section.

Connecting the XJet IV-Plus, XJet IV-2, or XConnect II to a Thin Ethernet Network

1. If you have an XJet IV-Plus or XConnect II, set switches 2 and 3 (10baseT/10base2) to the **ON** position if they are not already in the ON position. If you have an XJet IV-2, make sure the jumper block is in the correct position.
2. If you are installing the print server onto an existing network, connect the print server's BNC connector to the "T" connector (see figure 2-5B).
3. If the "T" connector is not already installed then proceed as follows:

Note: *If you are connecting to a live network perform the following steps as quickly as possible to minimize disruption of the network):*

- Connect one section of the thin Ethernet cable to one end of the "T" connector.
- If you are connecting the print server in the middle of a thin Ethernet segment, attach the second section of thin Ethernet cable to the other end of the "T" as shown in figure 2-5B-1. If you are connecting the print server at the end of a thin Ethernet segment, attach a 50 ohm terminator to the other end of the "T" connector as shown in figure 2-5B-2.
- Connect the "T" connector to the BNC connector on the transceiver.

You have now completed the thin Ethernet installation.

Verifying Successful Installation

You are now ready to apply power to the TROY print server. If you have an internal print server, turn on the printer. If you have an external print server, plug the power supply into the wall, connect it to the print server, and then turn on the printer. The TROY print server will go through the following startup sequence:

1. It will run through a set of power-up diagnostics for a few seconds. If the print server is operating properly, the TEST LED will blink momentarily and then go out. If the TEST LED blinks continuously in a regular pattern, there is a problem. If this is the case, first verify that you have a good Ethernet connection and then try powering the unit off and then on again. If the problem persists, refer to the *Troubleshooting* chapter in the Administrator's Guide on the CD-ROM included with the print server.
2. When the test LED goes out, the other LEDs on the print server will come on as follows:
 - The XJet IV-Plus **R** and **X** LEDs will be on solid with a valid 10baseT connection while the **L** LED will blink with either a valid 10baseT or 10base2 connection. The **T** LED should *not* stay on.
 - The XJet 100 **L** LED will be on solid, and the **F** LED will also be on if you are connected to a 100baseTX network. The **T** LED should *not* stay on.

- The Pony Print Server Plus LED will blink in a random pattern.
- The Pony 100 link or XJet 3000 LED will be on solid.
- The XConnect 100 Link LED will be on Solid and the 100baseTX LED will also be on if you are connected to a 100baseTX connection.
- The XConnect II Transmit and Receive LEDs will be on solid for if there is a valid 10baseT link (they will NOT be on if 10base2 is being used).

Verifying the Connection to the Printer

Before attempting to print, it is *very* important to verify the connection between the print server and the printer. *If this connection is not good you will not be able to print!*

To verify this connection, make sure that both the print server and the printer are powered on and ready. Then print a test page as follows:

- **XJet 3000, XJet 2000, XJet 100, Pony 100, Pony Print Server Plus, XConnect 100:** Push the Test button in briefly (more than one-eighth second but less than five seconds). If the connection is good, a test page will be printed on the printer. If nothing prints out, make sure that the cable or I/O connection is good and that it is securely fastened.
- **XConnect II:** Move switch 1 to the **ON** position and the immediately put it back in the **OFF** position to generate a test page.
- **XJet IV-Plus and XJet IV-2:** Generate a self-test page from the printer's front panel (refer to you printer's documentation for information on how to do this). This test page will print out the MIO statistics in addition to printer relevant information.

Important Note: *TROY external print servers are designed to work with most newer printers. In some cases, particularly with older printers, it may be necessary to adjust the parallel port settings. This can be done using either the WebXAdmin browser manager or the print server console as described in the Adjusting the Parallel Port Settings for Specific Printers section in Chapter 2 of the TROY External Print Servers for Ethernet Administrator's Guide (which is on the CD-ROM that is included with the print server).*

Important Note: *The test page will only work with printers that can directly print PCL, PostScript, or text. It will not work with some low-end*

"Windows" printers like the HP DeskJet 820 (which does the image rasterization in the PC), nor will it work with HP-GL/2 or RTL plotters (unless the PostScript option is installed). For such devices, you must print a job from an appropriate application program in order to test the print server-to-printer connection.

If none of the above suggestions work, refer to the TROY print servers Administrator's Guide on the CD supplied with the print server for more information, or contact TROY Technical Support (949-399-0820; <http://www.troy.com>; e-mail: support@troy.com) for additional assistance.

Management Methods

TROY offers a wide variety of ways to configure and monitor the print server. These methods are:

❖ TROY XAdmin32

- A 32-bit graphical utility
- Compatible with Windows NT 4.xx and Windows 95/98 running TCP/IP or IPX/SPX Protocols
- Included on CD-ROM
- Can be downloaded from our web site (<http://www.troy.com>)
- Default password is *ACCESS*

Note: *Troy recommends using the Novell 32-bit client software on the PC workstation that is used for configuring the print server in order to take full advantage of the capabilities of XAdmin32.*

❖ TROY XAdmin:

3. A 16-bit graphical utility
4. Compatible with Windows 3.1 and Windows 95 running IPX/SPX or Banyan VINES protocols
5. Included on CD-ROM
6. Can be downloaded from our web site (<http://www.troy.com>).

❖ TROY WebXAdmin

4. Allows the user to configure the print server with a standard web browser like Netscape Navigator or Microsoft Internet Explorer.
5. Can be used on any operating system that supports web browser capabilities
6. Both print server and PC must be configured with an IP address in order to use WebXAdmin (see chapter 4 for information on setting the IP address).

❖ TROY Print Server Console

1. A command-line oriented console
1. Contains features not available through XAdmin or WebXAdmin
1. Default password is *ACCESS*
1. Can be accessed via:

7. TELNET
8. DEC NCP
9. DEC NCL
10. ULTRIX ccr
11. TROY XConfig NetWare Utility
12. Serial port
13. WebXAdmin

Note: *In all cases, when you are connected, hit RETURN or ENTER to get the “#” prompt, enter password ACCESS (it will not echo) and type anything in response to the “Enter Username>” prompt. When you get the “Local>” prompt, you are ready to enter commands.*

❖ **HP JetAdmin:**

16. HP Windows-based utility (TROY print servers work transparently with JetAdmin).
17. Can be downloaded from the HP web site (<http://www.hp.com>).

Notes:

The TROY print server will not appear in the list of configured print servers unless:

4. *IPX is running on the computer*
5. *The print server has been configured with a valid IP address.*
6. *Windows 98 requires either JetAdminV2.54 or V3.30 or later.*

❖ **HP Web JetAdmin:**

4. An HP utility for Windows NT Advanced Server
5. Can be downloaded from the HP web site (<http://www.hp.com>).
6. Once it is installed, a web browser on any computer that has access to the Windows NT server may be used to access the TROY print server.

Refer to the *Administrator's Guide* on the CD-ROM included with the print server or on the TROY web site (<http://www.troy.com>) for detailed steps on how to use the above utilities.

Setting the IP Address

Important Note: *You may skip this chapter if you are NOT using TCP/IP, NetBIOS IP, JetSend, or IPP.*

In order to use a TROY print server with TCP/IP, NetBIOS IP, JetSend, or IPP, you must first configure an IP address into the print server. This is also required if you are using IP-based printing instead of the normal AppleTalk or IPX/SPX on Apple and NetWare networks. TROY print servers provide a variety of methods for setting this address.

Important Note: *Consult your system manager before assigning an IP address to your print server in order to avoid duplicate addresses. If your network does not have an officially assigned block of IP addresses, you may use any unique address between 192.168.254.1 and 192.168.254.254 (this is a reserved range of Class C addresses for private networks that are not connected to the Internet per RFC 1918; note that you must also assign your computer an IP address in this range). You may use a subnet mask of 255.255.255.0 with no gateway address.*

The print server IP address can be assigned in any one of the following ways:

DHCP

Print servers with firmware version above 3.40 will automatically pick up the next available IP address if there is an active DHCP server on the network.

XAdmin32 Utility

The address can be set using the XAdmin32 Windows-based management program (see chapter 3 of the *Administrator's Guide* on the CD-ROM for more details):

4. Start the XAdmin32 program (the default password is ACCESS)
5. Select **Devices**
6. Select **Set Up Unconfigured Devices**
7. Click on the Ethernet Address of the print server (this address is printed on the label that is affixed to the print server).
8. Click on **Configure**
9. Enter the IP address, subnet mask and router/gateway address

10. Click **OK**.

Remote or Local Console

The print server console can be accessed via the DEC NCP, NCL or ccr utilities, XCONFIG, or the serial port. WebXAdmin and TELNET can be used to reset the IP address after it has been set. The default password for the console is *ACCESS*.

At the “Local” prompt, type the commands:

```
SET IP ADDRESS xxx.xxx.xxx.xxx
SET IP SUBNET xxx.xxx.xxx.xxx
SET IP ROUTER xxx.xxx.xxx.xxx
```

Reinitialize the print server for the settings to take effect.

ARP/PING

To use arp and ping to set the IP address, enter the following commands at the UNIX system prompt:

```
arp -s ipaddress ethernetaddress
ping ipaddress
```

where:

“*ipaddress*” is the IP address you wish to assign
“*ethernetaddress*” is the ethernet address of the print server.

Other Methods:

The IP address can also be set via BOOTP, rarp, the printer front panel (XJet IV-Plus and XJet 100 models only), and JetAdmin. These methods are described in the Administrator’s Guide, which can be found on the CD-ROM included with the print server, or on the TROY web site (<http://www.troy.com>)

Verify the connection:

Before proceeding to the print queue setup, verify the connection between the host and the print server using the “ping” command from the UNIX or DOS system prompt. For example:

```
ping 192.189.207.3
```

UNIX TCP/IP Network Configuration

The Troy print server appears to the network as a UNIX host computer with a unique IP address running the line printer daemon (lpd) protocol. As a result, any host computer that supports the Berkeley remote-LPR command can spool jobs to the print server without the need for any special software on the host computer.

Assigning an IP address

Before configuring a UNIX print queue, you must first configure the print server with an IP address as described in Chapter 4.

Berkeley UNIX Host Configuration

Berkeley UNIX host computers include Linux, Digital Equipment Corporation Digital UNIX, OSF/1, and ULTRIX; Compaq Tru64 UNIX; SunOS (not Solaris), SCO UNIX; and many others. Sun Solaris, HP/UX, IBM AIX users should skip to the appropriate sections later in this manual.

Important Note: *Do not use the Linux X-Windows graphical user interface printer configuration utility, because it does not work with TROY print servers. Instead, Linux users should follow the configuration steps listed in this section.*

Important Note: *SCO UNIX users should use the `rlpconf` command to create a printer and automatically configure the `/etc/printcap` file (you will still need to edit the `/etc/hosts` file). Enter the print server's service name (`_xxxxxx_P1`) as the name of the printer (refer to the printer server self-test for the exact name of this service), and enter the name of the print server that you assigned in the `/etc/hosts` file as the remote host name; note that because this name must be unique for each printer, we recommend using the `_xxxxxx_P1` service instead of the normal `BINARY_P1` service.*

4. Edit the `/etc/hosts` file: (or equivalent local host table) and add the name and IP address of the print server (the name can be any arbitrary unique name; note that UNIX names are case sensitive). For example:

5. Edit the printcap file. An example of a typical entry in the printcap file is:

```
LaserJet:\
    :lp=\
    :rm=printer:\
    :rp=BINARY_P1:\
    :sd=/usr/spool/lpd/LaserJet:
```

“*LaserJet*” is the desired name for the print queue.

“*printer*” matches the name in the hosts file.

“*BINARY_P1*” is the print server's service name. (NOTE: Use *TEXT_P1* instead of *BINARY_P1* for text files.)

“*sd*” is the spool directory.

6. Create the spool directory: The lpd spool directory is usually located in the `/usr/spool` directory. To create a new spool directory, use the `mkdir` command; for example:

```
mkdir /usr/spool/lpd/LaserJet
```

7. Print using the standard `lpr` command:

```
lpr -PLaserJet filename
```

8. For AT&T based UNIX systems, such as SCO, use the standard `lp` command:

```
lp -dLaserJet filename
```

Sun Solaris Configuration

To use a TROY print server with Sun Solaris, first use the **Host Manager** in the **Admintool** utility to add the print server IP address and name to the `/etc/hosts` file.

1. Click on **None - Use /etc files on host**
2. Click on **Apply**
3. Click on **Edit** and then **Add Host**

4. Enter the print server name as the **Host Name** (this name is anything you want, but should not have an "_" character in it).
5. Enter the IP address and Ethernet address of the print server (the Ethernet address has the format aa:bb:cc:dd:ee:ff)
6. Click **Add** and then close the Host Manager windows

```
192.189.207.33          printer
```

Then use the **Printer Manager** in the **Admintool** utility under Open Windows as follows:

7. Select **Edit**
8. Select **Add**
9. Select **Add Access to Remote Printer**
10. At the **Printer Name** prompt, type the desired name of the print queue (for example, "LaserJet")
11. At the **Printer Server** prompt, type:

```
name\!servicename
```

(for example, LaserJet\!BINARY_P1), where:

- "name" matches the print server name as entered in the hosts table.
- "servicename" is the print service name. Forbinary graphics files use the service BINARY_P1; for text files use the service TEXT_P1.

12. Make sure that the **Print Server OS** is set to **BSD** (this is the default setting).
13. Select **Add**
14. To print, use the standard lp command; for example:

```
lp -dLaserJet filename
```

Notes:

- *We recommend using the /etc/hosts file for the printer name rather than NIS or other name services.*
- *Due to a bug in the Sun lpd implementation on Solaris 2.4 and earlier releases, may cause problems printing very long print jobs. The workaround is to use the raw TCP port with the HP JetAdmin software as described in the Administrator's Manual on the CD-ROM that is included with the print server.*

- *Solaris print queues can also be configured from the UNIX shell using the `lpadmin` command. Refer to the Administrator's Manual for details.*

HP/UX Configuration

To configure a print server using HP/UX 10.x, use the *sam* program and execute the following steps:

4. When you get a list of options, select **Printers and Plotters**.
5. Select **LP Spooler**.
6. Select **Printers and Plotters**.
7. Select **Actions** and then **Add Remote Printer/Plotter**.
8. Enter any name as the **Printer Name** (this will be the name of the print queue)
9. Enter the IP address of the print server as the **Remote System Name**
10. Enter the desired print server service name (`BINARY_P1` for binary files or `TEXT_P1` for text files) as the **Remote Printer Name**.
11. Check the box next to **Remote Printer is on BSD System**.
12. You may accept the default values for the remaining items.
13. Click **OK** to configure the printer.
14. You should now be able to print using the `lp -d` command with the printer name.

Notes:

- *The configuration for HP Distributed Print Services and for earlier versions of HP/UX is slightly different. Refer to the Administrator's Manual on the CD-ROM for details.*
- *The print server can also be configured as a JetDirect card using HP/UX. To do this, you will need the HP UNIX Host Printing Software (part of HP's JetAdmin for UNIX).*

IBM AIX Configuration

To configure a print server on IBM AIX 4.x, use the SMIT program as follows:

1. Enter *smit* and select **Devices**
2. Select **Printer/plotter**
3. Select **Manage remote printer subsystem**
4. Select **Client services**
5. Select **Remote printer queues**

6. Select **Add a remote queue**
7. Enter the following remote queue settings:
 - **Name of queue to add** (user selectable)
 - **Activate the queue** (Yes)
 - **Destination host** (TROY print server IP address; or if you have configured the `/etc/hosts` file, use the name of the print server that you specified in that file)
 - **Name of queue on remote printer** (BINARY_P1 for binary files or TEXT_P1 for text files)
 - **Name of device to add** (user selectable; for example `lp0`)
8. You should now be able to print using the `lp -d` command with the printer name.

Notes:

6. *The configuration for earlier versions of AIX is slightly different. Refer to the Administrator's Manual on the CD-ROM for details.*
7. *The print server can also be configured as a JetDirect card using AIX. To do this, refer to your AIX documentation.*

Configuration on Other Systems

TROY print servers can be used with any computer system that supports either the `lpr/lpd` protocol or the HP JetDirect card. In the case of `lpr/lpd`, the print server looks to the software like a UNIX host computer with a remote printer attached, where the name of this remote printer is the TROY service name (usually BINARY_P1 for binary files or TEXT_P1 for text files). In the case of JetDirect printing, the software prints to TCP port 9100 for the MIO/EIO or the first parallel port, port 9101 for the first serial port, or 9102 for the second parallel port.

Configuring Multiple Ports

For the sake of brevity, the configuration procedures in this chapter are for a single-port print server. However, some TROY print servers like the XConnect 100 can connect to more than one printer. To configure such print servers, simply specify the correct service name when configuring the print queue. The default service names are as follows:

MIO, EIO, or parallel port 1: BINARY_P1 (binary files) or TEXT_P1

(text files)

Serial port 1: BINARY_S1 (binary files) or TEXT_S1 (text files)

Parallel port 2: BINARY_P2 (binary files) or TEXT_P2 (text files)

Serial port 2: BINARY_S2 (binary files) or TEXT_S2 (text files)

NetWare Network Configuration

Configuring the Print Server and Print Queue with XAdmin32 (Queue Server Mode)

NOTE: *TROY recommends you use the Novell 32-bit client on your Windows 95/98/NT/2000 workstation instead of the Microsoft NetWare client, because it allows direct configuration of print queues without the need for a Novell utility like NWAdmin or PCONSOLE.*

NOTE: *If you have a Windows 3.xx system, you must use XAdmin as described in the Administrator's Guide on the CD-ROM.*

NOTE: *NDS Queue Server mode is only supported by "S" and "N" Series models (for example, PPS-8S and XConnect II-8N; refer to Chapter 2 for specific mode information).*

TROY print servers automatically make themselves known on a NetWare network. The default NetWare Print Server name is `_xxxxxx_P1`, where "xxxxxx" is the last six digits of the Ethernet address (the Ethernet address is on a label that is affixed to the TROY print server). Note that the NetWare Print Server name is used for either NDS or bindery mode configuration.

If you are configuring the first port with XAdmin32, the NDS Printer Name for this port is automatically assigned as "`_xxxxxx_P1 Printer`". If you are using an alternate configuration method like NWAdmin, you may assign any arbitrary unique name for the printer.

If you are configuring any other port, the NDS Printer Name is `_xxxxxx_pp`, where "pp" is the the port name (for example, S2).

The Print Server and Printer names are used extensively during the configuration process, so be sure to remember them. Note that these names are actually the names of the print server's NetWare services (refer to Appendix B for more information on services). If desired, you may change the default names to something more meaningful by using XAdmin32, WebXAdmin, or the print server console. The default names are:

Default NetWare Print Server Name for all models except most LN03 models	_xxxxx_P1
Default NetWare Print Server name for all LN03 print servers except XConnect 100 (XConnect 100 LN03 models use _xxxxxx_P1)	_xxxxx_LN
NDS Printer name for first Serial Port (S1), if present	_xxxxx_S1
NDS Printer name for second Serial Port (S2), if present	_xxxxx_S1
NDS Printer name for second Parallel Port (P2), if present	_xxxxx_P2

The queue server configuration process is as follows:

1. Make sure that you are logged in as ADMIN or equivalent (NetWare 4.xx and above) or SUPERVISOR (NetWare 2.xx and 3.xx). Install the XAdmin32 software from the *TROY Print Server Software* CD-ROM by clicking on the **Start** button and selecting **Run**. Click on **Browse and** select the CD-ROM drive. Open the Utilities folder, open the XAdmin32 folder, and click on SETUP.EXE, Click **OK** twice and follow the instructions on the screen.
2. Click on **Start**, select **Programs**, select the **XAdmin32** folder, and then select **XAdmin32**.
3. Click on the IPX/SPX icon under Filters to set the operating mode to IPX/SPX (TCP/IP mode will not allow you to configure NetWare print queues directly). The TROY external print server should appear in the list of available printers (the name will one of the ones listed in the *Default Print Server Names* section at the beginning of this chapter). If it does not, try going to the menu bar and selecting **Devices** and then **Search Active Devices**.

Important Note: *V373 and earlier firmware do not support more than one service and one port (the firmware version is listed on the self-test page). If you have an XConnect II or XConnect 100 and need to use the serial port for printing, you must upgrade to a newer revision of the firmware.*

4. Double click on the printer that you wish to configure, enter the configuration password (ACCESS is the default), and press **OK**.
5. A series of index card tabs will be displayed. Click on the **NetWare P1** tab to configure the MIO/EIO/first parallel port, the **NetWare S1** tab to configure the first serial port, the **NetWare P2** tab to configure the XConnect 100 second parallel port, or the **NetWare S2** tab to configure the XConnect 100 second serial port.

1. If it is not already selected, select **Queue Server** as the operating mode.
1. Click on the inverted triangle button and select the NDS tree (if you are using the Microsoft NetWare client, you must type in the name of the tree).
1. Click the **Change...** button to select the NDS context where the queue will reside (if you are using the Microsoft client, you must type in the name of the context).
1. If you are configuring the first port (the P1 MIO/EIO/parallel port), the box labeled "Print Server" contains the name of the NetWare Print Server. If you are configuring any other port, this box contains the name of the NDS Printer. If desired, you may change these names.

If you are configuring more than one port, repeat the steps 1 through 5 for each port. **Important:** *Do not use the **Change NDS Queues Button** at this time.*

If you are using the Microsoft Client for NetWare, **STOP HERE.** Go to the *Adding NetWare Print Queues Using NWAdmin* section to complete the configuration.

You may now create a print queue for the first port (the MIO/EIO/parallel port). *If you are configuring other ports, skip to step 13.*

3. Click on the **Change NDS Queues...** button to configure an NDS print queue or click the **Change Bindery Queues...** to configure a bindery mode queue.
4. Two windows will appear, **Available Print Queues** and **Serviced Print Queues.** First go to the **Available Print Queues** window:
5. If you are configuring an NDS queue, click on the context where the print queue will reside.
6. If you are configuring a bindery queue, click on the volume where the queue will reside (a volume name will have a file server icon next to it).
7. Click on **New Queue.** Enter any unique name for the Queue name.
 2. If you are configuring a bindery queue, click **OK** and proceed to step 8.
 7. If you are configuring an NDS queue, click **Browse,** select the file server volume where you want the queue to reside (a volume name will have a file server icon next to it), and click **OK.**

3. The queue name will now appear in the **Available Print Queues** under the selected volume (for bindery mode) or in the selected context (for NDS mode).
 - Click on the desired queue.
 - Click on **Add>>**

The name will now appear in the **Serviced Print Queues** window.

4. Click **Close** and then **OK**. You can now use the print queue from your NetWare workstation. Refer to the appropriate *Configuring the Workstation* section at the end of this chapter.
5. If you want to configure additional queues and ports, you must use the Novell NWAdmin utility (this program is usually found in the Public directory on the NetWare file server). The procedure is as follows:
 - Start the NWAdmin utility and make sure that you are in the right context (if not, go to **Tools** on the menu bar, select **NDS Browser**, and then browse for the desired context).
 - Select the container where you want the print queue to reside.
 - Go to **Tools** on the menu bar and select **Print Services Quick Setup**.
 - Browse for the NetWare Print Server by clicking on the button next to the **Print Server Name** window.
 - Enter the name of the NDS Printer for the desired port in the **Name** box (for example, _04ECBA_P2)
 - The Type box should be left at the default Parallel setting.
 - Select the desired banner type.
 - Enter any desired name for the print queue.
 - If necessary, browse for the volume.
 - Click **Create** to create the print queue. You are now ready to use the queue from a NetWare workstation. Refer to the appropriate *Configuring the Workstation* section at the end of this chapter.

Note: Refer to the Administrator's Guide on the CD supplied with the print server for:

- *Instructions on all other Novell configurations, including NetWare 3.x, Novell Distributed Print Services (NDPS), and Remote Printer Mode.*
- *Instructions on configuration using setup utilities such like HP JetAdmin, PCONSOLE or NWAdmin,*

Appletalk Network Configuration

All TROY print servers support the Appletalk protocol running over Ethernet (also known as Ethertalk). This capability allows Macintosh computers to print jobs to a printer simultaneously with jobs from DEC, UNIX, NetWare, and other computers.

The print server will appear as a shareable printer node on an Appletalk Phase 2 network. The print server broadcasts information to Macintoshes on the network and automatically appears in the Chooser on each Macintosh. Application programs can print without any modification or special software on the Macintosh.

Macintosh Configuration:

- Identify the printer type to which the print server is connected, and install the printer drivers. The default LaserWriter 8 drivers will work for standard Postscript printers.
NOTE: The TROY print servers are compatible with the LaserWriter 8 drivers as well as drivers supplied by many printer manufacturers.
- Verify that “Ethernet” is enabled from the Network Control Panel of the Macintosh.

Print Server Configuration:

- No mandatory configuration is required on the print server. Once the print server has been installed and powered on, it will broadcast its service name, (the default is `_xxxxxx_P1_AT`, where “xxxxxx” are the last six digits of the Ethernet address)
- The Apple LaserWriter Utility or Apple Printer Utility (or any equivalent utility from the printer manufacturer) can be used to change the Appletalk broadcast name of the print server.

- The Appletalk broadcast name and default zone name can be configured via the print server console, which can be accessed via the serial port, NCP, TELNET, XConfig or WebXAdmin.

Note: *A free unsupported version of TELNET is available on the FTP site (<ftp.ncsa.edu/Mac/Telnet>) of the National Center for Supercomputer Applications (NCSA). This telnet requires Mac TCP, which is standard with all new versions of Mac OS.*

Setting up Printing:

1. At a Macintosh workstation, from the Apple menu, open the Chooser.
2. If the Chooser window displays an AppleTalk zone list, select the necessary zone.
3. Click on the LaserWriter icon.
4. Select the print server name (it will appear as `_xxxxxx_P1_AT`).
5. Close the Chooser. You can now print to the printer using any standard Macintosh application program.

Important Notes:

- *If you are printing binary AppleTalk jobs (for example, from Adobe Photoshop, QuarkXpress, or other graphics programs) through an external print server, your printer must support the HP Tagged Binary Communications Protocol. Newer TROY print servers have this protocol enabled by default (refer to Chapter 6 of the Administrator's Manual for details).*
- *AppleTalk requires bidirectional communications. If you are using an older printer, you may need to enable AppleTalk spoofing via XAdmin, WebXAdmin, or the print server console (refer to Chapter 6 in the Administrator's Manual for more details).*

Microsoft Network Configuration (NetBEUI or NetBIOS IP with Windows 95/98/NT/2000)

TROY print servers that support the NetBEUI and NetBIOS IP protocols are recommended for setup on a Microsoft network. These print servers also support the SMB protocol, therefore they automatically appear in the Windows Network Neighborhood and can be managed using standard operating system utilities.

Note: *The workstation will automatically use NetBIOS IP if TCP/IP is enabled on it. It will use NetBEUI only if TCP/IP is not available.*

Setting the IP Address (not required if using NetBEUI)

If you plan to use NetBIOS IP protocol, you must first configure an IP address into your print server. The procedures for doing this are described in Chapter 4. If you are using the NetBEUI protocol, you do not need to have an IP address.

Print Server Configuration

1. Determine the domain that the print server resides on.
2. Run XAdmin32 (see chapter 3) and select the print server to be configured.
3. Select the **NetBIOS** tab, and enter the domain name.

NOTE: By default, Microsoft networks use the domain name WORKGROUP, so if no specific domain name has been defined for this network the name WORKGROUP can be used.

Windows 95/98 and Windows NT/2000 Port Monitor Installation

TROY provides a port monitor that installs directly on a Windows 95/98 or NT/2000 computer. The port monitor acts like a local printer port, and therefore operates transparently with all Windows software.

Note: *Although it is possible to install the print server as a network printer on Windows 95/98 or Windows NT/2000, this procedure is not recommended. The reason is that these operating systems do not adequately support queuing print jobs from multiple host computers to a diskless print server (the queues may stop).*

Start the installation by running the SETUP program on the CD supplied with your print server. Follow the instructions on the screen to complete the installation.

1. Click **Next** at the welcome screen.
2. Select **Next** at the Choose Destination Location screen (or Browse to choose a different folder).
3. Select **Next** at the Select Program Folder screen (or select an existing folder from the list).
4. Click **Yes** when asked if you would like to configure a NetBIOS Port.
5. You will be asked to enter a port name, which must begin with "NB" (for example NBLASER). Enter the desired name or accept the default NB1. Click **OK**.
6. Select **Browse** when asked for the Remote Print Server.
 - Choose the desired workgroup and click **Next**.
 - Choose the TROY print server from the list of available devices. The default name of the print server is _xxxxxx, where "xxxxxx" is the last six digits of the Ethernet address (for example, _035893).
 - Choose the desired printer (service) from the list. The default service is BINARY_P1.
 - Click **Finish** and then **OK**.
7. Click **Finish** to restart the computer.

Printer Setup for Windows 95/98

1. Go to the **Start** button and select:

Settings

Printers.

Add Printer (then **Next**)

Local printer (then **Next** again)

2. Select the appropriate printer driver and click **Next**.
3. Select NB1 as the port (unless the port name was changed to something else) and click **Next**.
4. Pick any name for the printer and click **Next**. If desired, print a test page. Click **Finish** to complete the printer installation.

Printer Setup for Windows NT 4.x and Windows 2000

1. Go to the **Start** button, select:

Settings

Printers

Add Printer

My Computer (*not Network Printer Server*)

2. Choose NB1 as the port (unless the port name was something else) and select **Next**.
3. Select the appropriate printer driver and click **Next**.
4. Select any name for the printer and click **Next**.
5. Select **Shared or Not** (selecting shared will allow clients to add the printer without the need for a printer driver). If desired, print a test page. Click **Finish** to complete the printer installation.

Adding a Second NetBIOS Port

You should *not* re-run the install program to add a new NetBIOS printer port. Instead, you should follow the procedures below:

Windows 95/98

Press the **Start** button, select **S**ettings, and open the **P**rinters window.

- a. In the printers list, select the printer you want to add the port to, and click on **F**ile, then **P**roperties.
- b. Go to the **D**etails tab, and click on **A**dd Port.
- c. Select **O**ther, highlight **N**etBIOS port, and click **N**ext.
- d. Follow steps 5 & 6 above, then click **A**pply.

Windows NT/2000

- a. In the printers list, select the printer you want to add the port to, and click on **F**ile, then **P**roperties.
- b. Go to the **P**orts tab, and click on **A**dd Port.
- c. Select **N**etBIOS port, and click **N**ext.
- d. Follow steps 5 & 6 above, then click **A**pply.

Additional Configuration Methods

TROY print servers are also compatible with HP's JetAdmin utility for direct printing and management using the IPX/SPX or TCP/IP protocols, and for Windows NT/2000, the IPP, LPR and DLC port options which are built in to the operating system. For these configurations, refer to the Administrator's Guide on the CD supplied with your print server.

DEC LAT Network Configuration

The TROY print server acts as a node on an Ethernet network that offers printing services to other devices. The print server comes preconfigured to run on a LAT network and does not require any additional setup.

Each print server has a default node name of `_xxxxxx` (where “xxxxxx” are the last six digits of the Ethernet address of the unit). The port name is P1 for the EIO, MIO, or first parallel port; S1 for the first serial port, P2 for the second parallel port, and S2 for the second serial port.

VMS LAT Host Configuration:

1. Use the VMS editor to create a text file with the necessary configuration commands to create a LAT application port and then a VMS print queue. For example:

```

$MCR LATCP
CREATE PORT LTAxx:/APPLICATION
SET PORT LTAxx:/NODE=nodename/PORT=port
SHOW PORT LTAxx:
EXIT
$SET TERM LTAxx:/PASSTHRU/PASSALL/-
TAB/NOBROADCAST/PERM
$SET DEVICE/SPOOL LTAxx:
$INIT/QUEUE/START/ON=LTAxx:/-
PROC=LATSYM queuename

```

Note:

LTAxx is the available LAT port to be used

nodename is the node name of the print server

port is the port, e.g. P1, S1, P2, S2 & LN

queuename is any unique name for the print queue.

2. Execute the command file. At the VMS “\$” prompt type:

```
@filename
```

where filename is the name of the text file created in step 1.

Note: The `@filename` command can be included in the system startup file so that the procedure is executed automatically when the system is booted.

3. Use the VMS PRINT command with the name of the queue and the file you wish to print as shown below:

```
PRINT/QUEUE=queueName filename
```

Note:

queueName is the name of the print queue created in step 1.
filename is the name of the file to be printed.

IMPORTANT:

- Only the TROY **-8** and **-8N** print servers are compatible with the LAT protocol. Refer to chapter 1 for specific protocol support information.
- For graphics or PostScript jobs, the form **MUST** be defined for **NOTRUNCATE** and **NOWRAP** to prevent printer errors.

```
DEFINE/FORM DEFAULT/NOTRUNCATE/NOWRAP
```

Banyan VINES Network Configuration

TROY print servers that support the Banyan VINES IP protocol allow printers to be shared on a Banyan VINES network. Users on client PC's send their jobs to any VINES file server running the Banyan PCPrint software, which in turn spools jobs to the print server. Printing is transparent to user applications, and the print server can be managed using standard VINES utilities such as MANAGE, MUSER, MSERVICE and Operator Console.

File Server User Configuration

- From any VINES workstation log in as supervisor and run the MANAGE program.
- Select **Users**, and press **ENTER**.
- At the **Manage Users** screen, select **Add a User**.
- Type in a StreetTalk name for the print server, (entering a password is optional). Press **F10** when finished.
- From the **Add User Profile** screen select a blank user profile.
- Enter **NO** in response to the message "Do you want to force the user to change passwords on the next login?". Press **ENTER**
- Press **ESCAPE** twice to return to the main menu.

File Server Queue Configuration

- Run the MANAGE utility, and from the main menu select **1-Services**.
- From the **Manage Services** menu, select **Add a server-based service** and press **ENTER**.
- From the Add a Service screen type the desired StreetTalk name for the print queue and press **ENTER**, followed by a description and press **ENTER**.
- Select the desired File server and press **ENTER**.
- Select the disk where the print service will reside
- Press **F10** in response to the message "The service is running by not yet available to users."

- Type in the maximum number of jobs and maximum size of job for the queue at the **Configure Queue** screen. Or press **F10** for unlimited number and size.
- If desired choose a default paper format at the **Configure Paper Formats** screen, otherwise press **F10** to select the default settings.
- If desired enter the authorized user names at the **Access Lists** screen, or press **F10** for the defaults.
- At the **Add a Destination** screen, select **PCPrint** and press **ENTER**.
- At the **Destination Attributes** screen, enter the StreetTalk name of the print server. Press **F10**.
- At the **Output Strings** screen, press **F10** to accept the output string values.
- At the **Enable Strings** screen, press **F10** to select the defaults.
- Select “NO” in response to the message “Would you like to add another destination at this time?”
- At the **Print Queue Status** screen, change both values to “Yes” to enable the print queue to accept and print jobs. Press **F10**.
- Press **ESCAPE** multiple times to exit the **Manage** utility.

Print Server Configuration

1. Install the XAdmin software from the CD-ROM provided with the print server.

Note: *Use XAdmin, not XAdmin32, when configuring a VINES-only network. You can use XAdmin32 on a VINES network only if the PC is running TCP/IP and both the PC and print server have valid IP addresses.*

5. Double-click on the XAdmin icon to start the program under Windows.
6. The print server will show up as “_xxxxxx_P1” where “xxxxxx” is the last six digits of the Ethernet address.
7. Click on the **Configure** button.
8. Click on the **Banyan** tab.
9. If necessary change the hop count (default hop count is 2).
10. Enter the StreetTalk name of the print server, this *must* exactly match the StreetTalk name of the user that was created using the **Manage Users** utility.
11. Click on the **Services** tab.
12. Select the desired service to be configured, (default is BINARY_P1).
13. Enter the StreetTalk name of the queue created using the **Manage Services** utility.
14. Click on **OK**, and then **OK** again to save the configuration.
15. Click **OK** and **OK** again to exit XAdmin.

PrintraNet Internet Printing Configuration

TROY's PrintraNet product is a software driver for Windows 95/98/NT/2000 that allows a PC user at one location to send a print job to a printer connected to a TROY print server at a remote location across the Internet in a simple and transparent manner.

For example, a user on a PC in New York could print a document directly from his Microsoft Excel application program to a printer in Chicago. The PC may be attached to a Local Area Network, or it may be connected via a dial-up PPP link to an Internet Service Provider. Because of the low cost of accessing the Internet, the PrintraNet software can save the user a significant amount of money in toll charges, particularly when international communications is involved.

A new PrintraNet feature allows a user at a remote site to send a text E-mail message directly to a printer connected to a TROY print server at a remote site. The E-mail will be automatically printed on the printer without the need to run an E-mail program at the remote site.

There are two parts to the PrintraNet configuration, the configuration of the local Windows 95/98/NT/2000 PC and the configuration of the remote TROY print server.

Installing the Software on a Windows PC at the Local Site

You may configure the local Windows 95/98/NT/2000 PC to communicate over a LAN using the MAPI or WINSOCK protocol, or to communicate over a dial-up PPP connection to an Internet Service Provider.

To install the PrintraNet software on a Windows 95/98/NT/2000 PC, execute the following steps:

1. Make sure that the PC is running an E-mail program (for example, Microsoft Exchange) that is capable of sending E-mail messages using

either MAPI or WINSOCK. MAPI (Messaging Applications Program Interface) is used by most popular Windows 95/98/NT/2000 E-mail packages, while WINSOCK is used by TCP/IP-based mail packages and dial-up Internet Service Providers. If you do not know which method you are using, consult your system manager.

2. Make sure that your E-mail server is capable of sending messages across the Internet. Alternatively, if you are communicating directly from the PC via a modem to an Internet Service Provider, make sure that you have an Internet mail account on the ISP, and that the PC is configured to send E-mail using this account.
3. Start the PrintraNet installation program from the CD ROM and follow the step-by-step instructions. You will need to know the following:
 - The mail transport protocol: MAPI or WINSOCK
 - The port name you wish to assign to the PrintraNet port (this port is used to access the remote TROY print server): The name must start with "PNET" and end with a number (for example, PNET3"). Note that each remote TROY print server print must have a unique port name associated with it.
 - E-Mail Address: Enter any unique legal Internet E-mail address for the remote TROY print server (for example, emailprinter@xyz.com). Note: Internet E-mail addresses cannot have spaces in them.
 - Service Name: Enter the service name on the remote TROY print server that you wish to use for printing. This is normally `_xxxxxx_P1` for the first parallel port, `_xxxxxx_S1` for the serial port, `_xxxxxx_P2` for the second parallel port, or `_xxxxxx_S2` for the second serial port., where "xxxxxx" is the last six digits of the Ethernet address (the exact service names can be found by running the print server self-test). If you do not know the service name, you may leave this field blank and the default binary service will be used. Refer to Appendix B of the appropriate TROY print server Administrator's Guide for information on how to use services.
 - Your E-Mail Address (WINSOCK users only): enter your E-mail address (for example, *shari@abc.com*).
 - SMTP E-Mail Server (SMTP users only): Enter the IP address of your SMTP E-mail server (consult your network administrator if you do not know this address).
 - Desired Notification: You may optionally have the remote TROY print server notify you when the job is complete or when the job

fails or both when the job is complete and if it fails. Select the desired option and then enter the E-mail address where you want the notification sent (generally you would want the notification sent to your own E-mail address).

4. You must now create a printer on your Windows 95/98/NT/2000 system using the standard Windows printer setup procedure. To do this, go the **Start** button, select **Settings** and then **Printers**. Select **Add Printer** to begin the printer installation and follow the instructions on the screen.
5. Select **Local Printer** or **My Computer** (not **Network Printer**) when you are asked how the printer is connected to your computer.
6. You will also need to know the following
 - The manufacturer and model of the printer at the remote site (for example, Hewlett-Packard LaserJet 5). In some cases, you will need to provide a disk with the appropriate printer driver.
 - The name of the PrintraNet port that you defined for the remote TROY print server in step 3 (PNET1 by default).
7. With PrintraNet 2.0, you can also:
 - Click on the **Address Book** button to configure other remote destinations. This capability lets you send print jobs to more than one destination without having to create a separate printer for each destination.
 - Select the partial E-mail printing option to break up the print job into several small E-mail messages. This allows PrintraNet to work with mail servers that restrict the size of incoming E-mail messages.
8. Select **No** when asked if you want to print a test page, unless you have already configured the remote TROY print server to receive PrintraNet print jobs.

You have now finished installing the PrintraNet software. If you have only one E-mail printer, go to Step 2, Configuring the Remote TROY Print Server.

Adding a Second PrintraNet Destination

You should not re-run the install program to add a new E-Mail printer port. Instead, press the **Start** button, select **Settings**, and open the **Printers** window. Click on the icon of a PrintraNet printer, select **File** from the menu bar, and then choose Properties. Click on the **Details** tab and push the **Add Port** button.

In the **Add Port** dialog, select the Other radio button and then "PrintraNet Port". Click on **OK** and it will give you the Port Name dialog (like in the install program). Any unique name can be given here as long as it starts with "PNET" and another port does not already exist with the same name. Then enter the port settings as described in step 3 of the Installing the PrintraNet Software on a Windows PC section.

Configuring the Remote TROY Print Server

The next step is to configure the TROY print server at the remote site. The remote print server can be configured with TROY's XAdmin or XAdmin32 Windows 95/98/NT/2000 configuration utility, or with the TROY WebXAdmin browser-based facility.

Before configuring the print server to receive PrintraNet print jobs, check the following:

1. Make sure that the E-mail server at the remote site (the receiving end) is configured to handle the TCP/IP POP3, and SMTP protocols (SMTP is only required if the notification feature is enabled).
2. Configure the POP3 server on the E-mail server at the remote site with a mail account and password for the remote printer (generally, the mail account name will be the first part of the name that you assigned in step 3 of the previous section; for example, if you assigned the name *emailprinter@xyz.com*, the account name would be *emailprinter*). The procedure for configuring a POP3 server varies depending on the operating system of the E-mail server, so consult your operating system documentation for details.
3. Make sure that the TROY print server is installed and running with TCP/IP enabled and has a valid IP address assigned to it.

Because access to the E-mail server on most networks is usually restricted, you may need to have your network administrator check the configuration and add the mail account.

Two graphical user configuration programs are included on the TROY Print Server Software CD-ROM that is shipped with every TROY print server. XAdmin runs on Windows 3.11 or, Windows 95/98, while XAdmin32 runs on Windows 95/98 and Windows NT. To use XAdmin, you must be running either NetWare or Banyan VINES client software, and the PC must be on the same network as the TROY remote print server. To use Xadmin32, you must be running either NetWare or TCP/IP.

Note: *The default password for all of these utilities is ACCESS.*

WebXAdmin allows the print server to be managed by any standard web browser using the TCP/IP protocol. In order to use WebXAdmin, IP address must be assigned to the print server and to the PC used for configuration.

The steps required to configure the print server to receive print jobs from a Windows 95/98/NT/2000 PC running the PrintraNet software are as follows:

1. Select the name of the desired TROY print server from the list by double clicking on it (XAdmin or XAdmin32) or entering its IP address (WebXAdmin).
2. Click on the **Internet** tab or button.
3. Enter the IP address of the POP3 server (consult your network administrator if you do not know this address).
4. Enter the mailbox name for the remote TROY print server. Usually this will be the first part of the E-mail address that you entered in step 3 of the *Installing the Software on the Windows PC at the Local Site* section (for example, if the E-mail address of the remote print server is *emailprinter@xyz*, then the mailbox name would be *emailprinter*).
5. Enter the password for the mailbox, if any.
6. The print server is configured by default to poll the POP3 server every 30 seconds. You may change this value, if desired.
7. If you have enabled notification, enter the IP address of your SMTP server (consult your network administrator if you do not know this address).

8. Press the **OK** button., and exit XAdmin or XAdmin32. You have now configured the print server to receive print jobs. Skip to the Printing to the Remote TROY Print Server section later in this manual.

Printing to the Remote TROY Print Server

To print to the remote TROY print server from the local Windows 95/98/NT/2000 PC, you simply select the printer that you created in Step 1 and print to it the normal manner. For example, to print the remote printer named Email Printer, you would select **Print** from the menu bar, choose the printer named Email Printer, and then click **OK**.

At this point, the **Port Settings** dialog box will appear (you may disable this by unchecking the “Show this dialog for each Print Job” box). You may then use the Address Book capability or change other parameters. Click **OK** when you are ready to print, and the job will then be sent over the Internet to the remote TROY print server.

Troubleshooting

The first step in troubleshooting is to make sure that you have a valid E-mail connection on both the sending PC and the receiving print server. Try sending an E-mail message from the PC to a user at the remote site who can receive mail via the POP3 server. If this does not work, there may be an E-mail configuration problem on the PC, on the local E-mail server, or on the remote POP3 server. Double check to make sure that the E-mail parameters that you configured on the PC and on the remote print server match those that are configured on the E-mail servers.

If you get an SMTP error when using a WINSOCK connection, you may need to configure the hosts file on your Windows 95/98/NT/2000 system. To do this create a file named HOSTS in the \WINDOWS\SYSTEM directory (or edit this file if it already exists) and add an entry for your mail server similar to the following using the DOS editor (substitute the actual IP address and name of your SMTP mail server):

```
192.189.207.222      mail.troy.com
```

If you can print small files OK but are having trouble printing large files, the problem may be in the E-mail system. Some E-Mail systems have difficulties printing files that are larger than about 400KB in length. To

verify this, try sending the large file as an attachment to an E-mail message. If the file does not reach its destination intact, then the problem is with the E-Mail system. The problem can be fixed by using the PrintraNet Partial E-mail Printing option (see the *Installing the Software on a Windows PC at the Local Site* section of this chapter).

JetSend Configuration (NetSend Models Only)

The TROY The TROY NetSend Internet print servers include the HP JetSend protocol to allow simple device-to-device communications over an Ethernet network without the need for a PC. For example, a user can scan a document on a JetSend-enabled scanner (for example, the HP Digital Sender) and have that document immediately printed out on a printer that is connected to a NetSend print server.

Two NetSend models are available. The Pony 100 NetSend (PPS100-8J) is an external 100baseTX/10baseT print server that has one parallel and one serial port, while the XJet 100 NetSend (XJet 100-8J) is an internal 100baseTX/10baseT print server for HP MIO printers. In addition to the JetSend protocol, the NetSend models include TCP/IP (lpr/lpd, raw TCP port, and NetBIOS IP) and NetBEUI printing capabilities.

Important Note: *The printer must support the PCL page description language. This means that it will not work with PPA-based DeskJets like the 710C, 712C, 720C, 722C, 820C, and 1000C (most other DeskJets support PCL and will therefore work with the NetSend) or with DesignJet plotters.*

To install the hardware, refer to Chapter 2 of the *Quick Install Manual*. The Pony 100 NeSend and the XJet 100 NetSend are the same as other Pony 100 and XJet 100 models from a hardware point of view.

To use the JetSend capabilities of NetSend, you must first enter an IP address into the print server as described in Chapter 4. The print server is then ready to receive JetSend print jobs from any JetSend-enabled TCP/IP sending device (it will not work with infrared JetSend sending devices, except through an Infrared-to-IP gateway like the Clarinet Systems irLAN product). Please refer to the documentation for the sending device to determine how to send jobs.

The default JetSend settings are color disabled, PCL 3, and resolution 300 dpi. If your printer supports color, PCL5, and/or higher resolutions, you

can change the settings using the print server console. To do this, connect to the IP address of the print server using TELNET, type in anything for the user name, enter the password ACCESS, and then execute one or more of the following commands (examples are shown in brackets; refer to chapter 3 of the *Administrator's Guide* on the CD-ROM for additional information on how to use the console):

```
SET PORT <port name> COLOR ENA/DIS  
[SET PORT P1 COLOR ENA]
```

```
SET PORT <port name> PCL 3/5  
[SET PORT P1 PCL 5]
```

```
SET PORT <port name> RES 300/600/1200  
[SET PORT P1 RES 1200]
```

Type EXIT to exit the console and save the settings. You are now ready to use the NetSend.

IPP Configuration

The Internet Printing Protocol (IPP) allows you to print over both local area networks and LANs. IPP is currently included with the Windows 2000 operating systems, and will be supported on other operating systems in the future. It is supported on the XJet 3000, Pony 100, and XConnect 100.

Windows 2000 IPP Configuration

The following steps are required to use IPP with Windows 2000 and a TROY print server:

3. Make sure that the print server is powered on and configured with a valid IP address (see chapter 4 for information on how to configure the IP address). *Note that the printer cannot be configured unless the Windows 2000 server can communicate with the print server.* Also, make sure that your print server has V3.75 or later firmware.
4. Go to the **Start** button, click on **Printers**.
5. Double click on **Add Printer**.
6. Click on **Next**.
7. Select **Network Printer** and then click on **Next**.
8. Select **Connect to a Printer** on the Internet or on your Intranet. Enter the URL of the print server along with the service name (BINARY_P1 is the default service). For example:

```
http://192.189.207.99/binary_P1
```

9. It may take a couple of minutes to find the print server. You may also get a message that the correct driver is not installed; if so, click OK to install the driver and select the appropriate printer.
10. Select the printer type and click on **Next**.
11. If desired, make the printer the default printer and click on **Next**.
12. Click on **Finish**. You are now ready to use the IPP printer.

Configuring IPP on Other Operating Systems

IPP is beginning to be implemented on other operating systems. The procedures for configuring IPP print queue varies from system to system, but in all cases, you must specify the URL of the print server. This address has the following format:

```
http://ipaddress/service
```

where *ipaddress* is the IP address of the print server and *service* is a service on the print server that is enabled for IPP. By default the BINARY_XX services (for example, BINARY_P1 for the first parallel port or MIO/EIO port) are enabled for IPP. An example of a valid URL would be:

```
http://192.189.207.253/BINARY_P1
```

Customer Support

TROY , Inc. offers the following support options to assist you should you experience any difficulties with your print server:

Worldwide Web Support

Located at <http://www.troy.com>, the TROY web site provides answers to many common technical questions and also includes copies of product manuals and literature, as well as utilities and firmware load images.

Technical Support

If you need to talk to one of our Tech support specialists, our support line is open Monday through Friday, 8AM to 5PM Pacific Time.

Phone: (949) 399-0820

Fax: (949) 399-0825

E-mail: support@troy.com

Returning Products

If you need to return a TROY product for any reason (failures, incorrect shipments, etc.),

- Contact TROY Technical Support group and request for a Return Material Authorization Number (RMA#).
- Be prepared with the serial number of the unit that you are returning, you will be asked for it to verify warranty coverage
- Out of warranty units will be billed for the standard repair charges. P.O.#, major credit card #, check or money order is required to process RMA.

- Ship the product freight prepaid to:

TROY , Inc.
Attn: RMA# _____
1692 Browning
Irvine, CA 92606-4809 USA

Warranty

The TROY print servers are warranted to be free of defects in materials and workmanship for a period of three years. This period begins upon the date of shipment if the hardware is installed by the Purchaser, or upon installation if the Hardware is installed by TROY . During the warranty period, TROY will repair or replace the unit at no charge provided it is returned to TROY with the freight pre-paid.

The warranty on repaired products or replacement products is 30 days or the last day of the warranty of the original defective product, whichever is longer.

This warranty does not apply if the product has been damaged by accident, misuse, natural catastrophe, modification, improper service, or conditions resulting from causes external to the product. The warranty shall be void if the TROY serial numbers have been removed.