

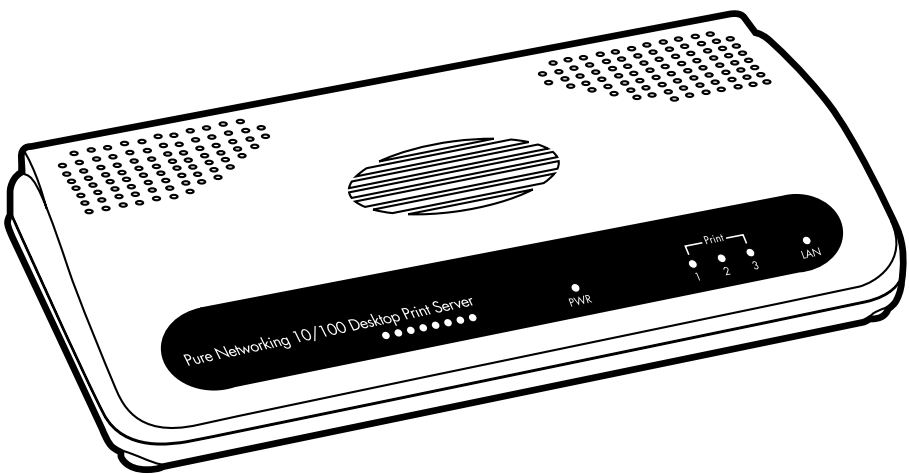


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Pure Networking 10/100 Desktop Print Server



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**FEDERAL COMMUNICATIONS COMMISSION
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RADIO FREQUENCY INTERFERENCE STATEMENTS**

Class B Digital Device. This equipment has been tested and found to comply with the limits for a Class B computing device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. This equipment generates, uses, and can radiate radio frequency energy, and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. If this equipment does cause harmful interference to radio or telephone reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

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

CAUTION

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

To meet FCC requirements, shielded cables and power cords are required to connect this device to a personal computer or other Class B certified device.

This digital apparatus does not exceed the Class B limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of Industry Canada.

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1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.
2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.
3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.
4. Todas las instrucciones de operación y uso deben ser seguidas.
5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc..
6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.
7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.
8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.
9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.
10. El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.
11. El aparato eléctrico deberá ser conectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.

12. Precaución debe ser tomada de tal manera que la tierra física y la polarización del equipo no sea eliminada.
13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.
14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.
15. En caso de existir, una antena externa deberá ser localizada lejos de las líneas de energía.
16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.
17. Cuidado debe ser tomado de tal manera que objetos líquidos no sean derramados sobre la cubierta u orificios de ventilación.
18. Servicio por personal calificado deberá ser provisto cuando:
 - A: El cable de poder o el contacto ha sido dañado; u
 - B: Objetos han caído o líquido ha sido derramado dentro del aparato; o
 - C: El aparato ha sido expuesto a la lluvia; o
 - D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o
 - E: El aparato ha sido tirado o su cubierta ha sido dañada.

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1. Specifications

Memory: Flash: 2-MB NOR; RAM: 16-MB SDRAM

Connectors: Network port: (1) RJ-45;
Printer Ports: (2) USB 1.1 Type A, (1) DB25 female

Indicators: (5) LEDs: (1) PWR, (1) LAN, (3) Print

Temperature Tolerance: Operating: 50 to 104°F (0 to 40°C)

Relative Humidity: 10 to 90%, noncondensing

Size: 1.2"H x 7.4"W x 1.6"D (3 x 18.8 x 4.1 cm)

2. Introduction

2.1 Overview

The Pure Networking 10/100 Desktop Print Server allows three printers to become shared devices on the network. It's perfect for managing printing on your LAN and the print server can be configured to suit your application.

This print server provides an RJ-45 network port (10-/100-Mbps Ethernet), two USB 1.1 Type A printer ports, and one DB25 female parallel printer port.

The print server supports IPX™, TCP/IP, AppleTalk®, and NetBEUI protocols. It is used with various common network operating systems such as Windows® 95/98/Me, Windows XP, Windows 2000, Windows NT®, and Mac® peer-to-peer printing (PTPP). It also supports Windows XP, Windows 2000, Windows NT, NetWare®, UNIX®, and Linux® server-based printing.

By using the installation wizard to help with configuration and management on the print server side, you can easily and instantly complete the settings for your printing environment.

2.2 What's Included

Your package should include the following items. If anything is missing or damaged, please contact Black Box at 724-746-5500.

- (1) Pure Networking 10/100 Desktop Print Server
- (1) Power adapter
- (1) CD-ROM containing software drivers and this users' manual in PDF format

2.3 Contents of This Manual

Chapter 3 explains the print server's hardware installation and configuration. *We strongly recommend that you read this chapter.*

Chapters 4, 5, 6, and 7 introduce:

- Windows peer-to-peer network (**Chapter 4**)
- Windows NT, Windows 2000, and Windows XP server-based network (**Chapter 5**)

- NetWare network (**Chapter 6**)
- UNIX system network (**Chapter 7**)

Select the appropriate chapters and sections to read depending on your network's printing requirements.

Chapters 8 and 9 introduce the print server's management and configuration utilities on Windows and a Web browser's environment, respectively.

Chapter 10 introduces the print server's IPP printing function and setup procedure. IPP printing provides a convenient way to print documents across the Internet using the IPP protocol.

The **Appendix** describes what to do if you have problems with the print server.

2.4 Network Printing Architecture

This section illustrates how the print server functions and operates on the network. Before you install and use the print server, read this section completely, then select only the chapters you need according to your network operating system.

Every component (print server, client user, and network server) plays an important role in the network printing environment. While a print server and client user are required, the network server is optional. This is because two types of printing are available: peer-to-peer printing and server-based printing. Figure 2-1 shows a typical server-based printing environment with all components highlighted, and Figure 2-2 illustrates a printing environment with only the server highlighted. Figure 2-3 shows the protocols supported in a typical printing environment.

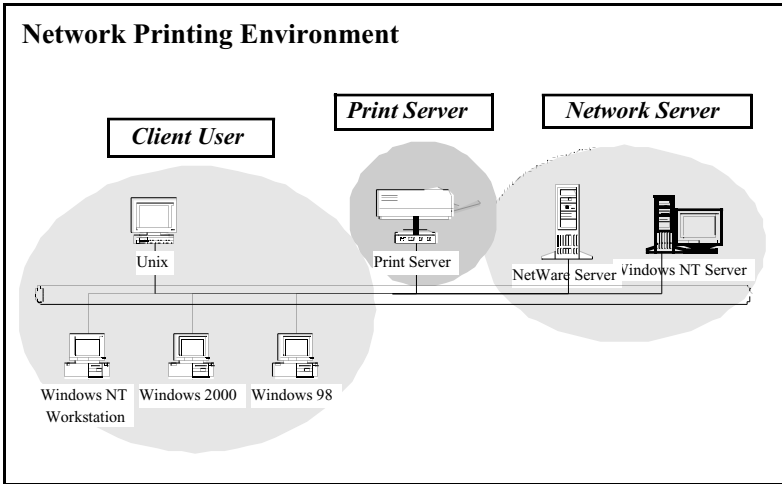


Figure 2-1. Users and servers installed.

2.4.1 PRINT SERVER NETWORK FUNCTIONS

The print server connects to Windows, UNIX, NetWare, and Windows NT workstations and servers. In Figure 2-2, the print server is highlighted.

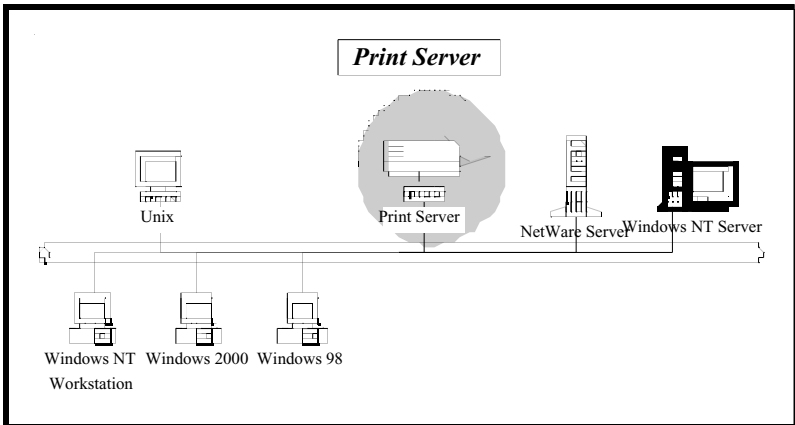


Figure 2-2. Typical print server installation.

Because the print server supports IPX, TCP/IP, and AppleTalk network protocols, any networked computer can directly connect to the print server from any of its installed protocols. IPX and TCP/IP protocols are shown in Figure 2-3; however, the AppleTalk protocol is *not* shown in the figure. The shaded areas trace the data path from the installed workstations to the printer.

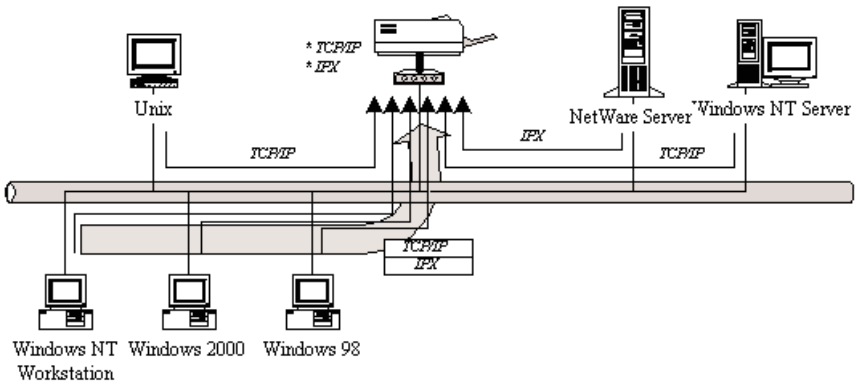


Figure 2-3. Printing from the installed protocol.

Section 2.4.2 describes the client users highlighted in Figure 2-4.

2.4.2 NETWORK PRINTING FUNCTIONS FOR CLIENTS

Client printing supports several versions of Windows. In Figure 2-4, workstations using different versions are highlighted to show that the print server is compatible with these versions.

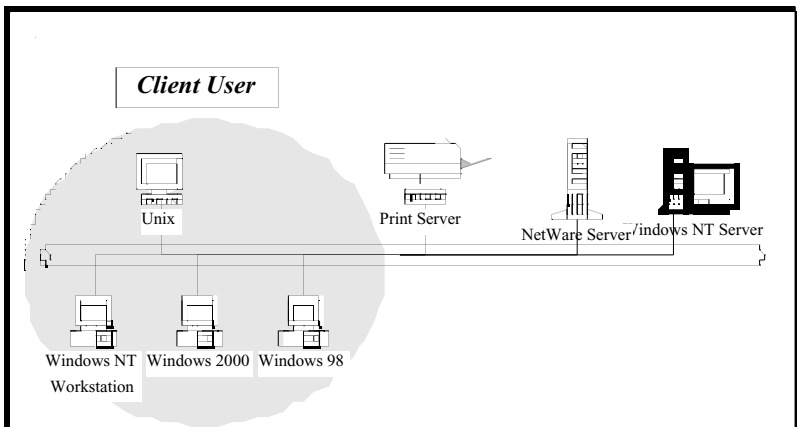


Figure 2-4. Client user printing.

PURE NETWORKING 10/100 DESKTOP PRINT SERVER

Common operating systems for clients include Windows 95/98/Me/XP, Windows 2000, Windows NT, UNIX, Linux, AppleTalk, and Mac.

The print server system provides PTPP (peer-to-peer printing) driver and utilities for Windows 95/98/Me/XP, Windows NT, and Windows 2000 users. PTPP supports IPX, TCP/IP, and NetBEUI protocols. While printing after installation, PTPP will automatically select the proper transport protocol to connect to the print server, depending on the protocols installed in each computer. (The client computer may only have IPX or TCP/IP installed.) In Figure 2-5, the supported protocols, along with the software application supported by PTPP, are highlighted.

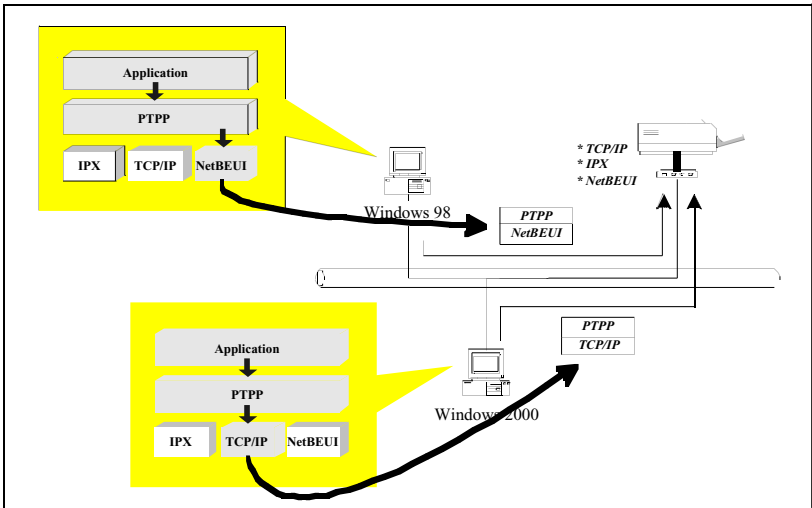


Figure 2-5. Print server functions.

In the client installation procedure, after PTPP is installed in Windows, the system will automatically search through all the print servers on the network (manual configuration is also allowed), then add their printing ports into the Windows printing port (see Figure 2-6).

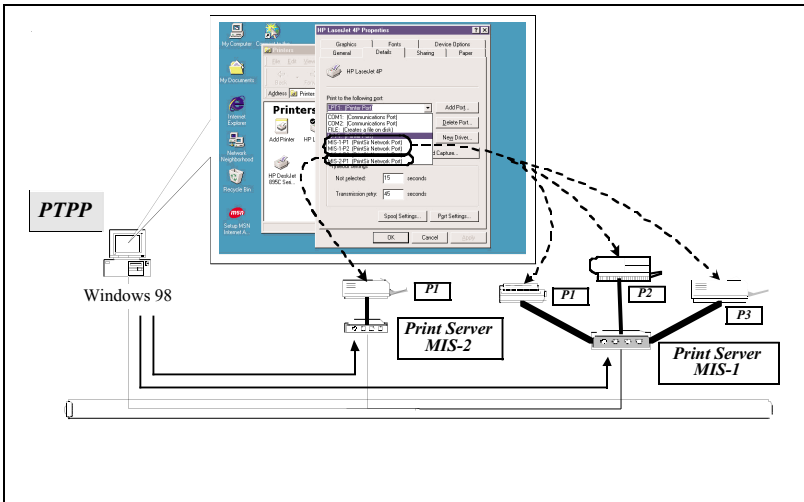


Figure 2-6. Adding printer ports.

Compatible UNIX operating systems include UNIX and Linux. UNIX (which includes HP-UX®, SCO® UNIX, SunOS, Solaris®, Unixware®, DEC™ UNIX, IBM® AIX®, and others) and Linux use the system-standard LPR to send print jobs to the print server.

Compatible Mac operating systems use the system-standard AppleTalk network to send print jobs to the print server.

Once you've configured the client user printing functions, you're ready to configure the network printing functions. **Section 2.4.3** explains how.

2.4.3 NETWORK PRINTING FUNCTIONS FOR NETWORK SERVER

The network server prints using a NetWare server or a Windows NT server. See Figure 2-7.

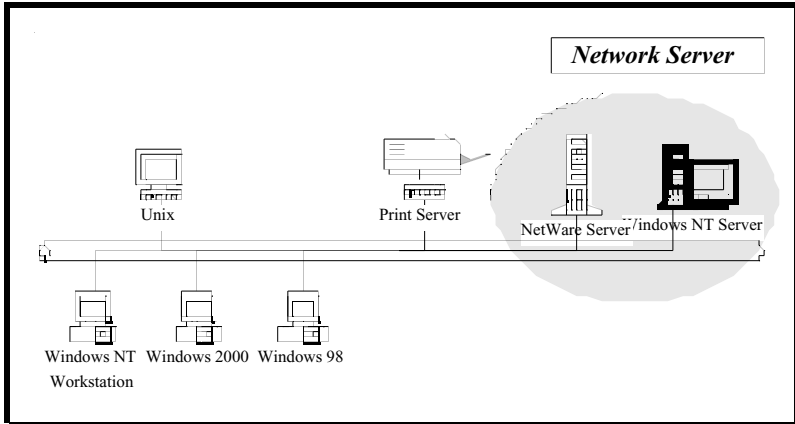


Figure 2-7. Printing over the network.

Common network servers are classified as follows:

- Windows NT, Windows 2000, and Windows XP: The print server system provides the PTPP driver and utilities for Windows NT, Windows 2000, and Windows XP. After PTPP is installed, the server can directly send print jobs to the print server. Adding this printing function to the Windows NT, Windows 2000, and Windows XP server allows a print queue, user authority management, and many other advanced features to be used.
- NetWare 3.x/4.x/5.x: In a NetWare environment, the print server offers various printing modes like print queue, remote printer, etc.

2.5 Network Printing Environment

The optional network server supports several different network environments. One common network environment is classified as a Windows peer-to-peer network. Both the print server and client's PTPP driver support IPX, TCP/IP, and NetBEUI protocols. When printing, the PTPP driver will automatically search and match up the protocol for both client and print server sides. In Figure 2-8, the printing path from the Windows workstations to the various servers (NetWare and Windows NT shown in the illustration) is highlighted in gray.

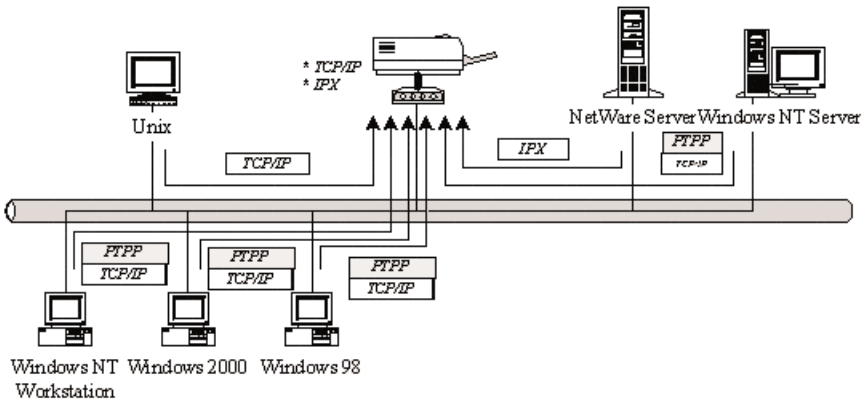


Figure 2-8. Printing in a peer-to-peer network.

If you're using a Windows NT, Windows 2000, or Windows XP network, see Figure 2-9. The network printing function will become available after the PTPP driver is installed in Windows NT, Windows 2000, or Windows XP. Adding this printing function to the Windows NT, Windows 2000, or Windows XP server allows a print queue, user authority management, and many other advanced features to be used.

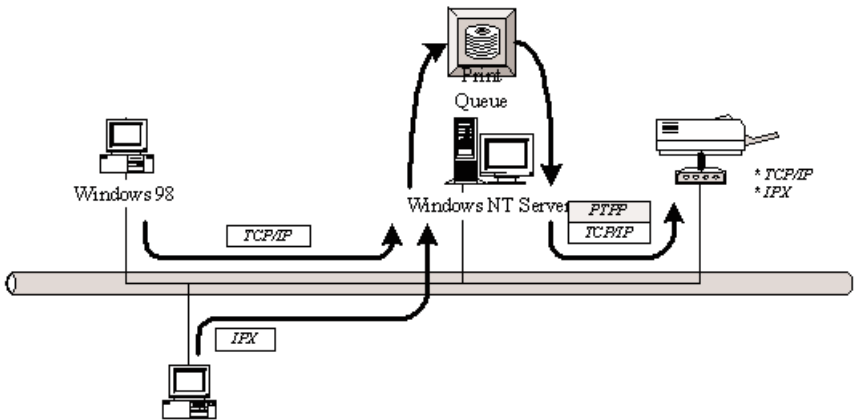


Figure 2-9. Printing in a Windows NT, Windows 2000, or Windows XP network.

For printing using a NetWare network, see Figure 2-10. It shows Windows clients connected to a NetWare server that queues the clients' print jobs to a TCP/IP and IPX printer. The main connections are highlighted in gray.

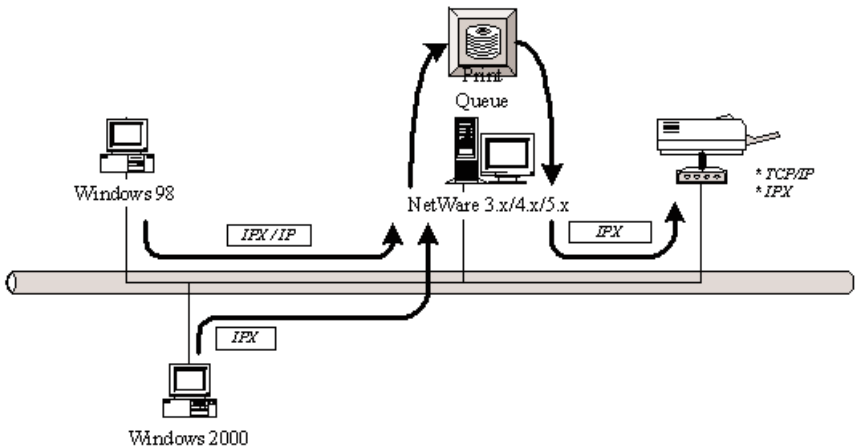


Figure 2-10. NetWare network printing.

3. Hardware Installation

1. Unpack the print server package and verify that all the items listed in **Section 2.2** are included.
2. Power off the print server and printer.
3. Connect the print server to the printer or printers that you want to share on the network using standard parallel printer cable.

NOTE

You must use the power adapter shipped with the print server. Do not use any other power adapter from other sources.

4. Connect the power adapter to the print server.
5. Power on the print server, then the printers. Powering them on in this order will prevent compatibility problems.
6. The print server will perform the power-on self-test (POST) after it is powered on. The Print LED(s) will flash six times to indicate that the print server is ready.

4. Windows Peer-to-Peer Network

The print server supports Windows peer-to-peer network printing mode; it's suitable for most medium and small network environments. Using this quick and simple installation procedure, you can immediately enjoy the convenience of network printing. Figure 4-1 shows PTPP printing; the PTPP data path is highlighted in gray.

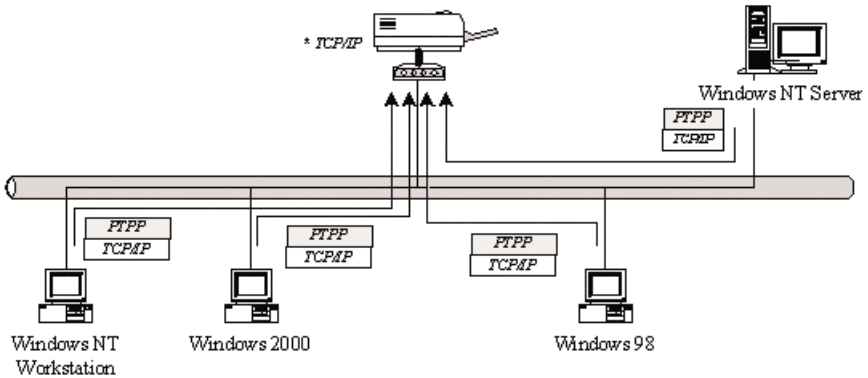


Figure 4-1. Network printing in a Windows peer-to-peer environment.

The installation procedure is separated into the following two parts:

1. Administrator installation and setup (refer to **Section 4.1** for more detailed information).

System administrators must install the administrator's utilities into his/her computer and configure the print server from the administrator's configuration utility.

2. Client installation and setup (refer to **Section 4.2** for more detailed information).

Client users must install the Windows PTPP driver for network printing.

In addition, after PTPP is installed, the system will automatically search for all print servers on the network and add the printing port of the print servers into the Windows printing port. (Refer to the network printing architecture in **Section 2.4** for more detailed information.)

4.1 Administrator Installation and Setup

The administrator installation can be performed on Windows 95/98/Me/XP, Windows 2000, and Windows NT with the same user interface. Before the installation, verify that your network protocol is installed on your PC (TCP/IP, IPX, or NetBEUI). Once you've done that, follow steps 1–13 (starting below).

1. Insert the included CD into your CD-ROM drive. Windows should automatically execute the Autorun.exe program. If not, type `Autorun.exe` and press **Enter** at the CD-ROM drive's root directory.
2. The Installation Manager will appear (see Figure 4-2).

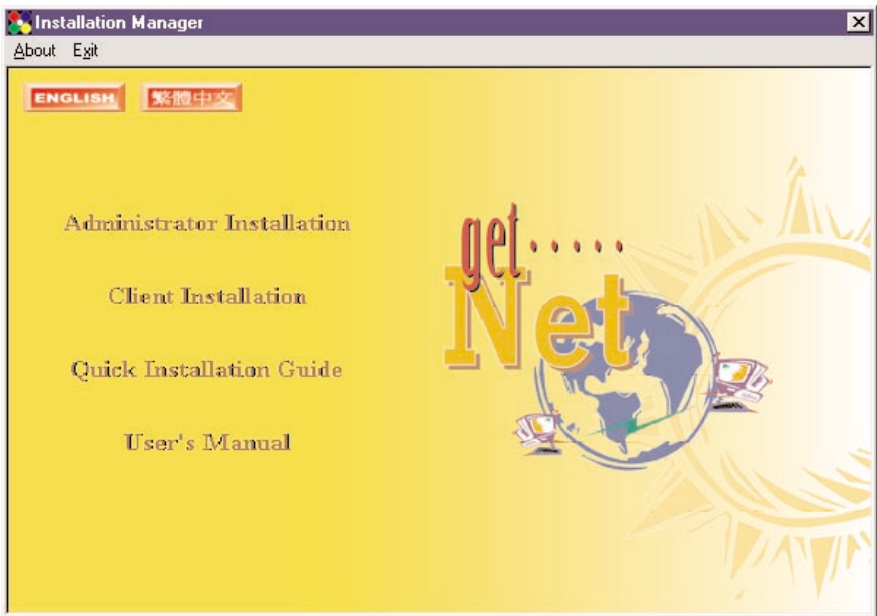


Figure 4-2. Installation Manager screen.

3. Click on **Administrator Installation**, and the Utilities Setup window will appear (see Figure 4-3).



Figure 4-3. Print Server Utilities Setup window.

4. To quit setup and close any programs you have running, click on the **Cancel** button. To go on to the next screen, click on the **Next** button. Figure 4-4 appears.

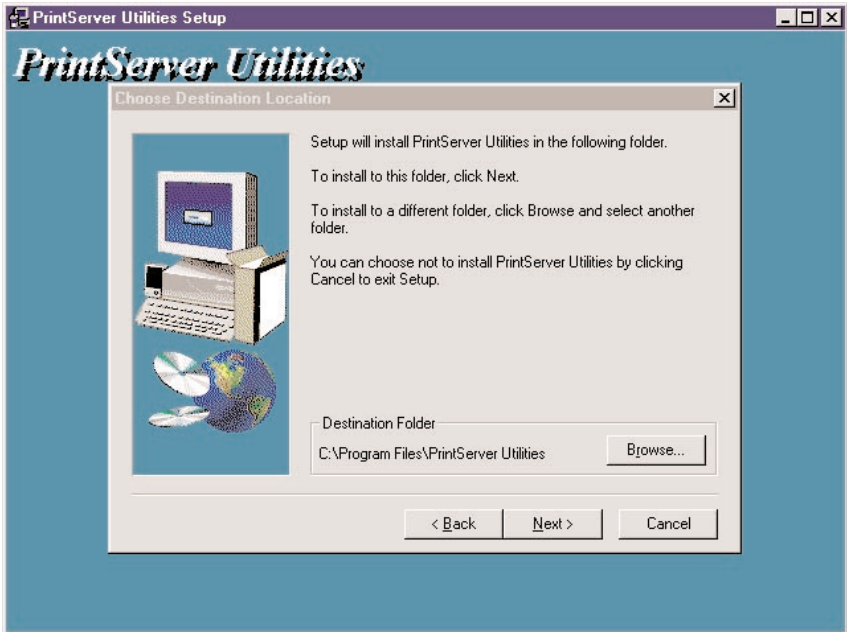


Figure 4-4. Selecting the destination folder.

5. Use the **Browse** button to specify the destination folder where the utilities will be installed. To go back to the previous screen, click on the **Back** button. To cancel your changes without saving, click on the **Cancel** button. Click on the **Next** button to save your changes and go to the next screen (Figure 4-5).

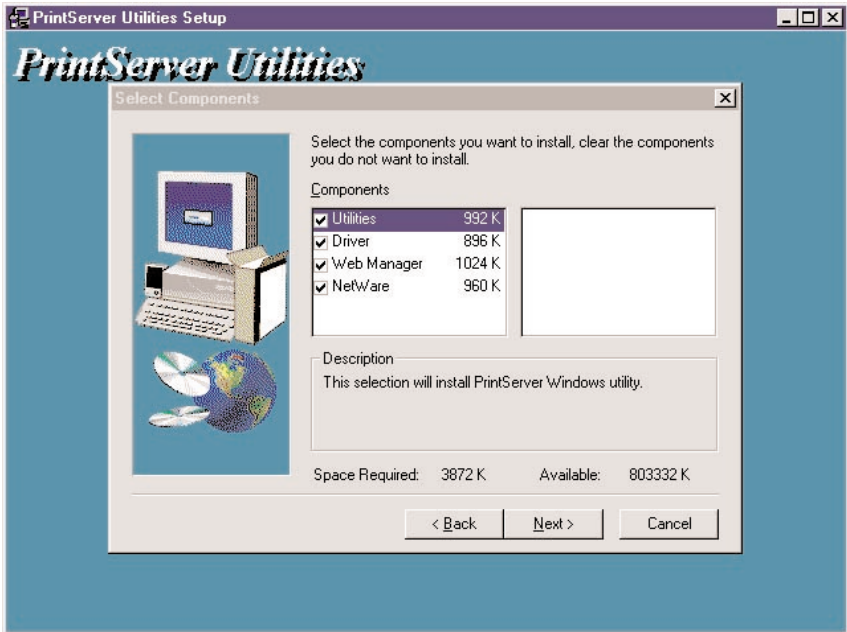


Figure 4-5. Choosing the components.

6. Select the components you want to install by checking the box next to the components. We recommend installing all provided components. To go back to the previous screen, click on the **Back** button. To cancel your changes, click on the **Cancel** button. To save your changes, click on the **Next** button. Once you press **Next**, Figure 4-6 appears.

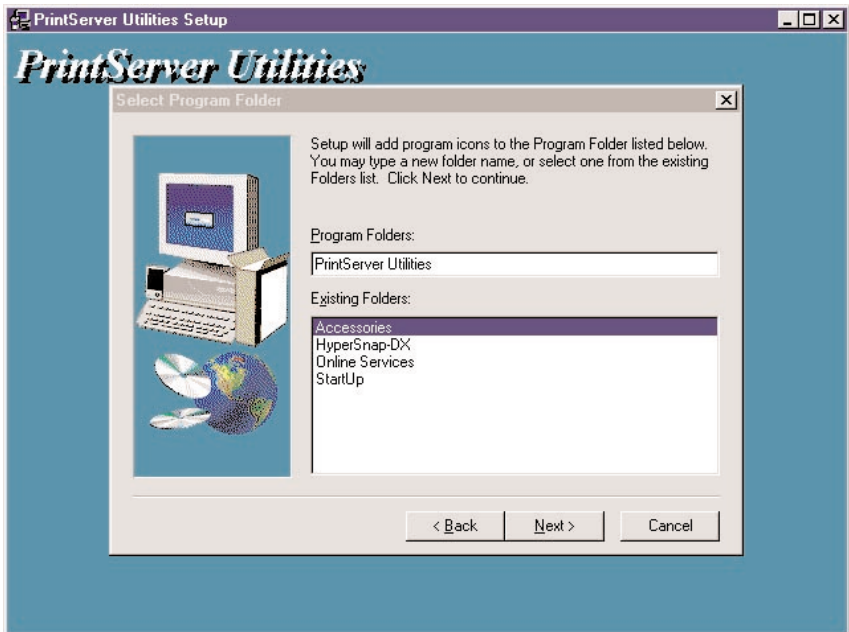


Figure 4-6. Choosing the program folder.

7. Specify the program folder where the program icons will be added. To go back to the previous screen, click on the **Back** button. To cancel your changes, click on the **Cancel** button. Click on the **Next** button to start installation. Once installation begins, Figure 4-7 will appear.

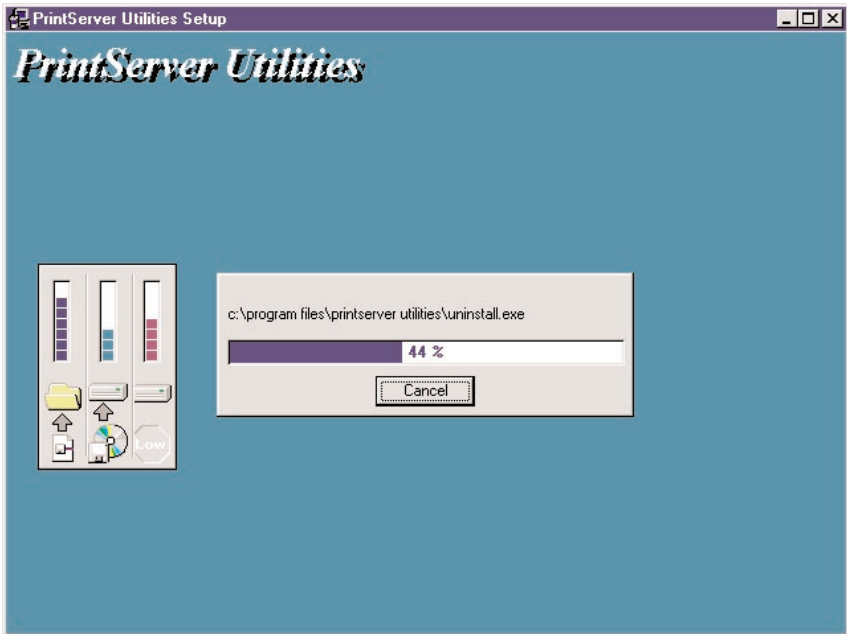


Figure 4-7. Installing the program files.

8. To stop the installation, click on the **Cancel** button. To complete the installation, do not click on the **Cancel** button; just wait for the program to finish the installation. Once it's done, Figure 4-8 will appear.

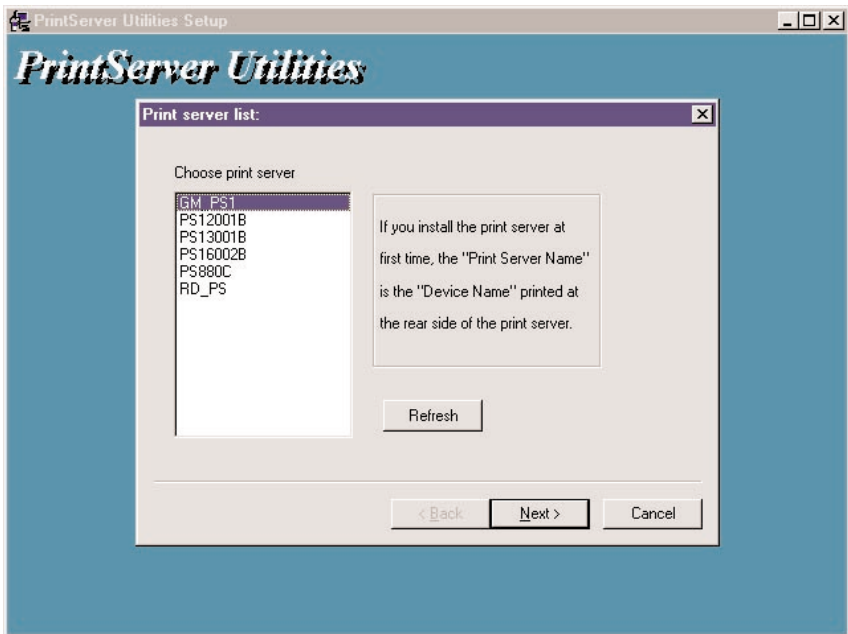


Figure 4-8. Choose print server.

9. To refresh the screen, click on the **Refresh** button. To go back to the previous screen, click on the **Back** button. To cancel your changes, click on the **Cancel** button. Click on the appropriate print server name, then click on the **Next** button. (If this is the first time you're configuring the print server, the print server name is printed on the print server's rear panel.) Once you press **Next**, Figure 4-9 will appear.

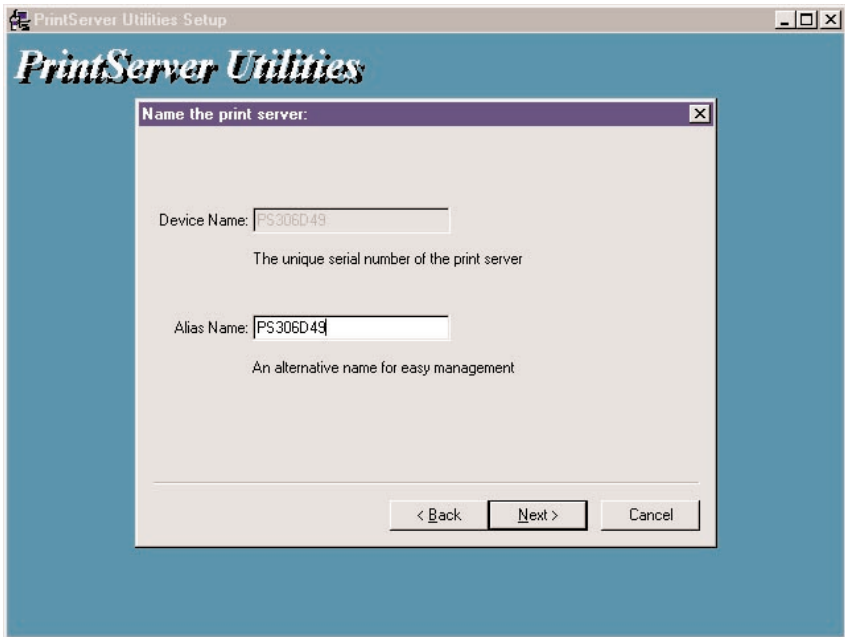


Figure 4-9. Naming the print server.

10. In the Alias Name field, type in a meaningful name for the print server. This name will be the identifier for the peer-to-peer printing (PTPP).

Click on the **Back** button to go back to the previous screen. Click on the **Cancel** button to cancel your changes. Click on the **Next** button to continue with the installation. Figure 4-10 will appear.

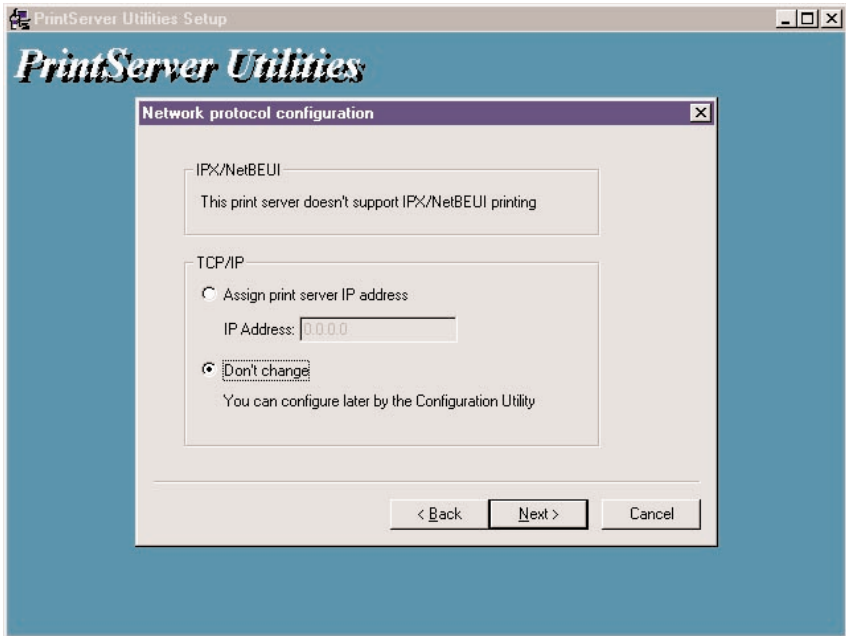


Figure 4-10. Configuring the network protocol.

This screen is divided into two sections, one for IPX/NetBEUI, the other for TCP/IP. *The print server does not support IPX/NetBEUI printing.*

For TCP/IP, either click on **Assign print server IP address** and type in the IP address, or click on **Don't change** to configure it later using the configuration utility.

11. To go back to the previous screen, click on the **Back** button. To cancel the changes, click on the **Cancel** button. Click on the **Next** button, and the configuration summary is displayed in the window (not shown). The print server setup is complete. Figure 4-11 appears.

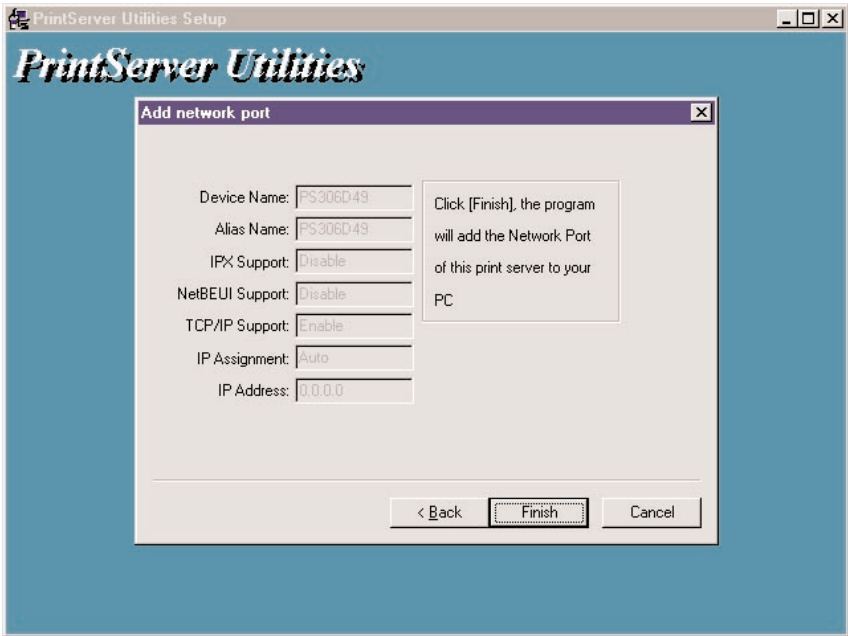


Figure 4-11. Add Network Port screen.

12. In Figure 4-11, press the **Finish** button to add the print server's network port to your PC. Click on the **Back** button to go back to the previous screen. Click on the **Cancel** button to cancel the changes.
13. The Setup Complete window (Figure 4-12) appears; the Administrator Installation procedure is finished. Click on the **Finish** button to restart your computer. Or, click on the **Back** button to go back to the previous screen.

If you want to print from the administrator's PC to the print server, perform the Windows standard **Add Printer** procedure (starting on page 30).

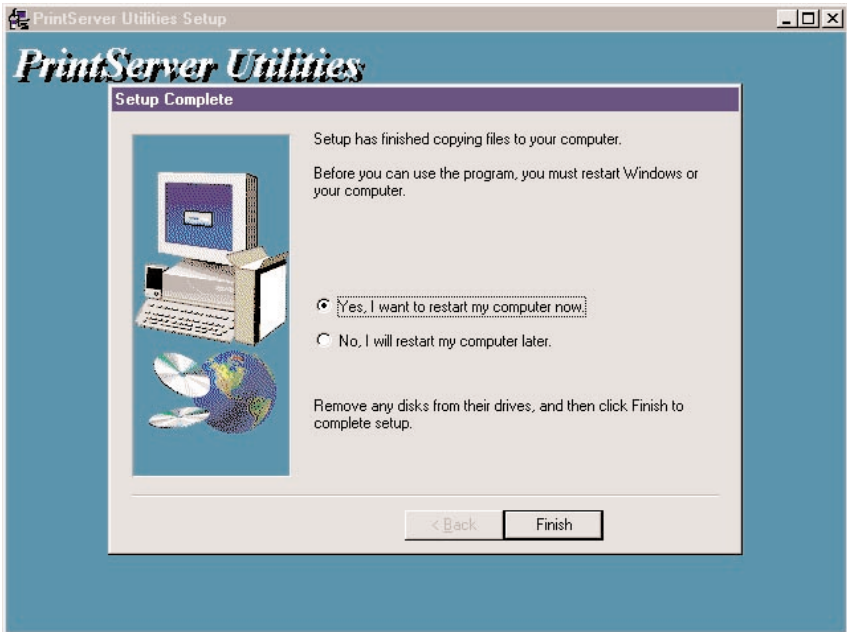


Figure 4-12. Setup Complete window.

So far, you have completed the following tasks:

- Installed all utilities and drivers to the administrator's PC.
- Configured the print server (including the print server name and network protocol).
- Added the print server's network port to the administrator's PC.

There will be several utilities in the print server's Program folder. These include: network ports quick setup, local printer port management tool (see **Section 4.3** for more information), remote ports, remote printer port management tool (see **Section 4.3** for more information), NetWare quick setup, NetWare quick installation software (see **Chapter 6** for more information), print server configuration, complete print server management tool (see **Chapter 8** for more information), uninstall, and assistant for removing all installed administrator software.

If you want to print from this administrator's PC to the print server, all you need to do is perform the procedure as described on the next page. If you don't care to, proceed to **Section 4.2** to perform the client installation procedure.

1. Click on the **Start** button, then choose **Setting**, then **Printers**.
2. Double click on **Add Printer**. Figure 4-13 appears.

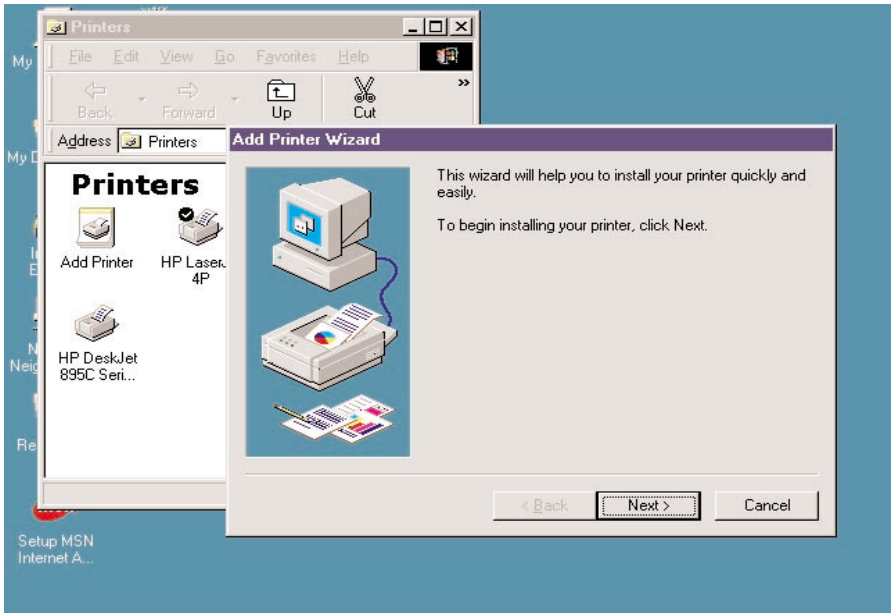


Figure 4-13. Add Printer Wizard screen.

3. To go back to the previous screen, click on the **Back** button. To stop the installation, click on the **Cancel** button. To begin installing your printer, click on the **Next** button. Figure 4-14 appears.



Figure 4-14. Choose Local Printer.

4. Select **Local printer**. To go back to the previous screen, click on the **Back** button. To cancel your changes, click on the **Cancel** button. To save the changes and go to the next screen, click on the **Next** button. Figure 4-15 appears.

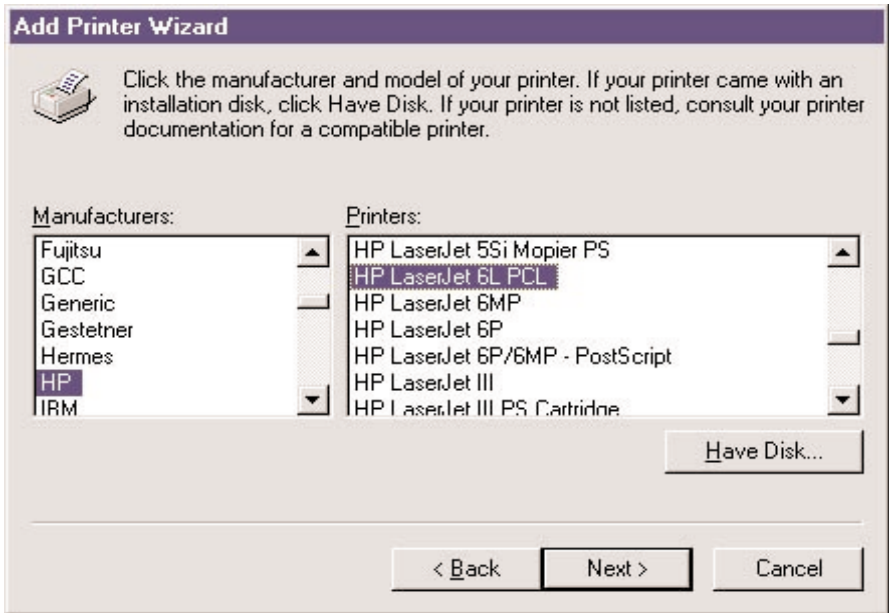


Figure 4-15. Selecting the printer manufacturer and model.

5. If your printer came with an installation disk, click on the **Have Disk** button. The Install prompt will appear, and the system will ask where the disk is located. Type in the disk's location (for example, C:\) and press **Enter**. The drivers will be loaded. Then follow the instructions that appear on your screen. Select the suitable printer manufacturer and model, then click on the **Next** button. Figure 4-16 will appear.

If you don't have an installation disk, simply select the correct manufacturer and printer model from the on-screen lists. Select **Next**; Figure 4-16 will appear.

To go back to the previous screen, click on the **Back** button in Figure 4-15. Click on the **Cancel** button to cancel your changes.

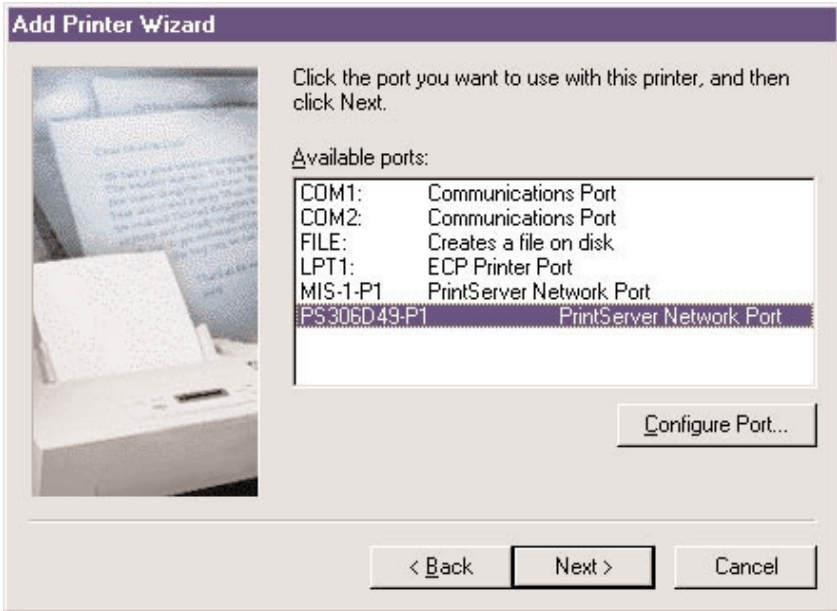


Figure 4-16. Selecting the network port.

6. To configure the port to a local printer port, simply click on **Next**. To go back to the previous screen, click on the **Back** button. Click on **Cancel** to cancel your changes.

To connect the print server to a network port, highlight the print server's network port that was created during the Client Installation process (see the Available Ports list in Figure 4-16). Then click on **Configure Port**. A protocol selection screen appears (not shown in this manual). Select the printer port's protocol (either Auto, TCP/IP, IPX, or NetBEUI) and click **OK**. The screen shown in Figure 4-16 will reappear. Click on **Cancel** to cancel your changes, or click on **Next** to go to the next screen.

7. You'll be asked to answer some additional questions in order to finish the printer setup.

4.2 Client Installation and Setup

The client installation can be performed in Windows 95/98/Me/XP, Windows 2000, and Windows NT with the same user interface. Before starting this installation procedure, confirm that your PC is connected to the network and has at least one network protocol installed. Once you've done that, follow steps 1–9 (starting below).

1. Insert the included CD into your CD-ROM drive. Windows should automatically execute the Autorun.exe program. If not, type `Autorun.exe` and press **Enter** at the CD-ROM drive's root directory.
2. The Installation Manager will appear (see Figure 4-17).

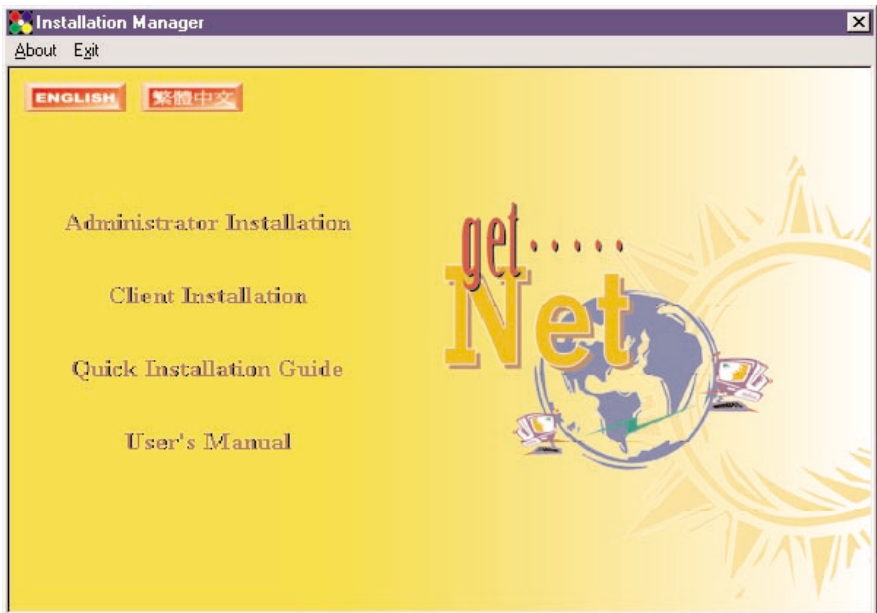


Figure 4-17. Installation Manager screen.

3. Click on **Client Installation**, and the Network Driver Setup Program window will appear (see Figure 4-18).

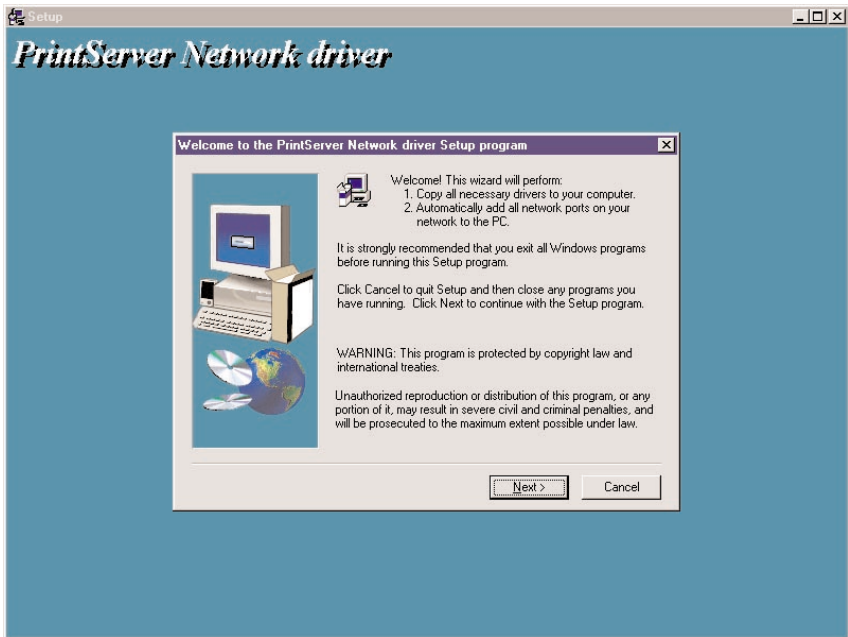


Figure 4-18. Network Driver Setup Program screen.

4. Click on the **Next** button, and Figure 4-19 appears. To quit setup and close any programs you have running, click on the **Cancel** button.

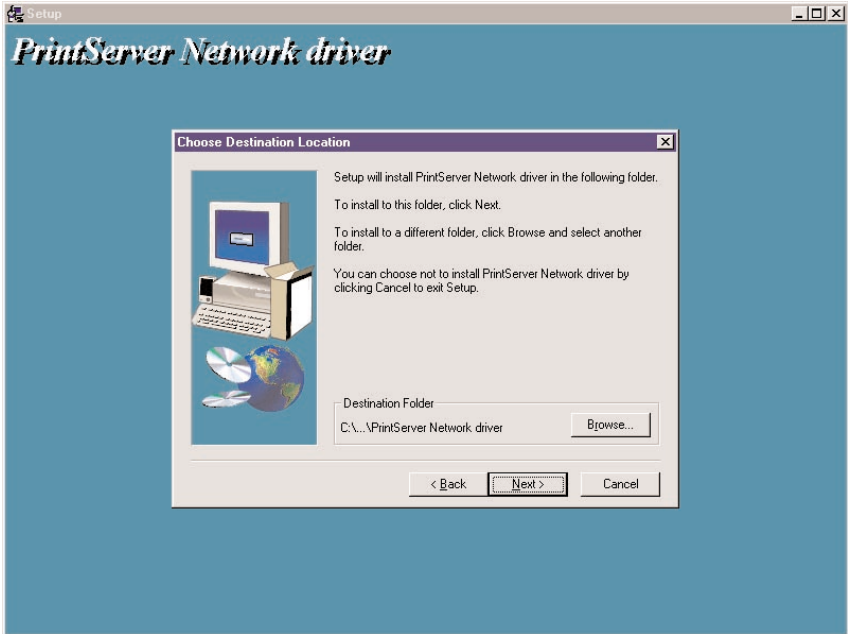


Figure 4-19. Destination folder screen.

5. Click on the **Browse** button to view the available destination folders. Select the destination folder where the program icons will be added, then click on the **Next** button to save the changes. Figure 4-20 appears.

Click on the **Back** button in Figure 4-19 to go back to the previous screen, or click on the **Cancel** button to cancel your changes.

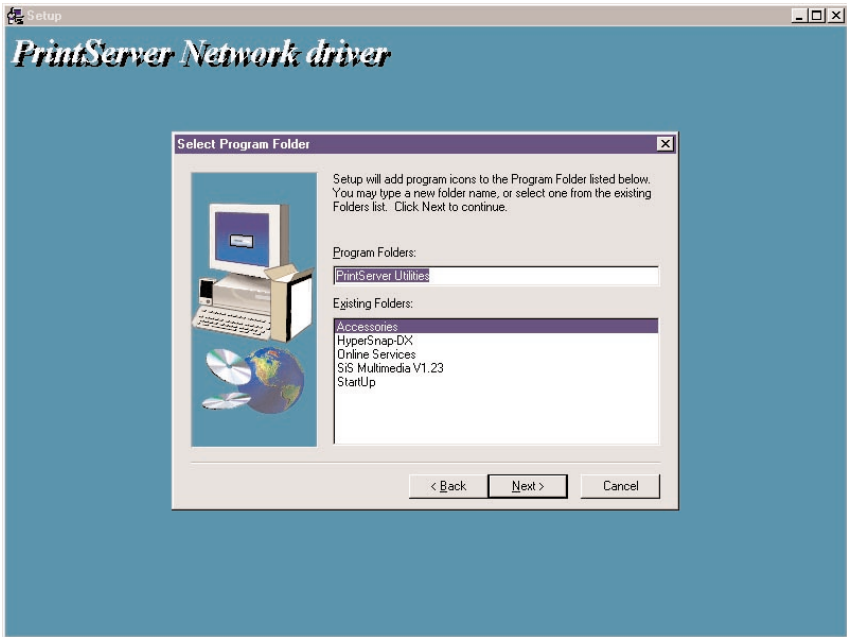


Figure 4-20. Program folders screen.

- Click on the **Next** button to start the installation. Click on the **Back** button in Figure 4-20 to go back to the previous screen. Click on the **Cancel** button to cancel your changes.

Once installation begins, Figure 4-21 will appear.

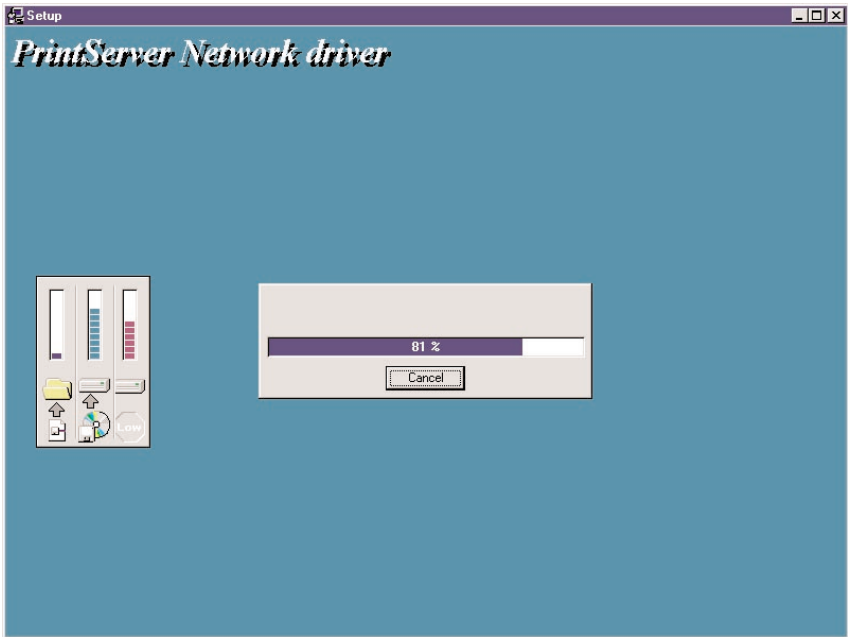


Figure 4-21. Installation in progress.

7. You can cancel the installation by clicking on the **Cancel** button. If you don't click on the **Cancel** button, the installation procedure will finish. Once it's done, Figure 4-22 will appear.

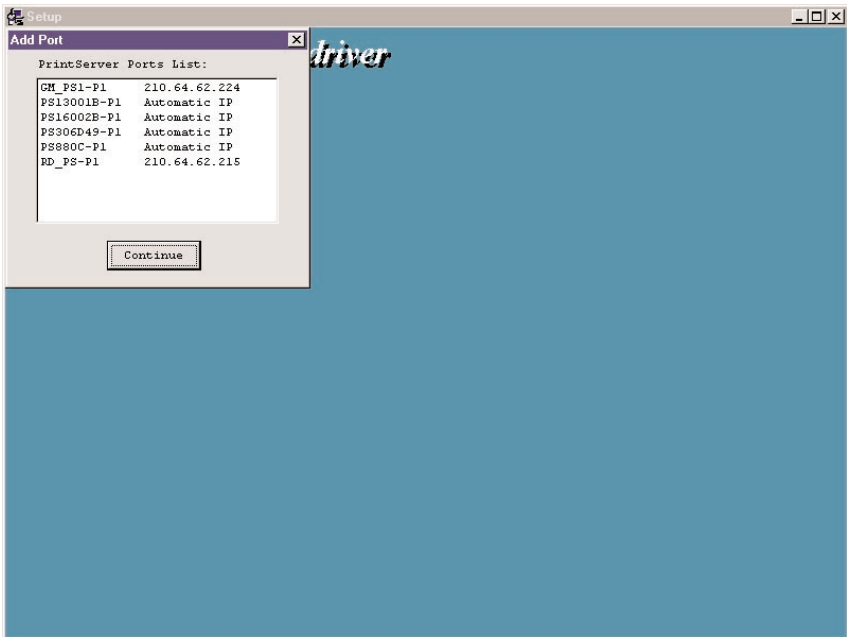


Figure 4-22. Adding ports.

8. Click on the **Continue** button, and all the print server's network ports detected on the network will be added to your PC.
9. Finally, the Setup Complete window (Figure 4-23) appears. The Client Installation procedure is finished.

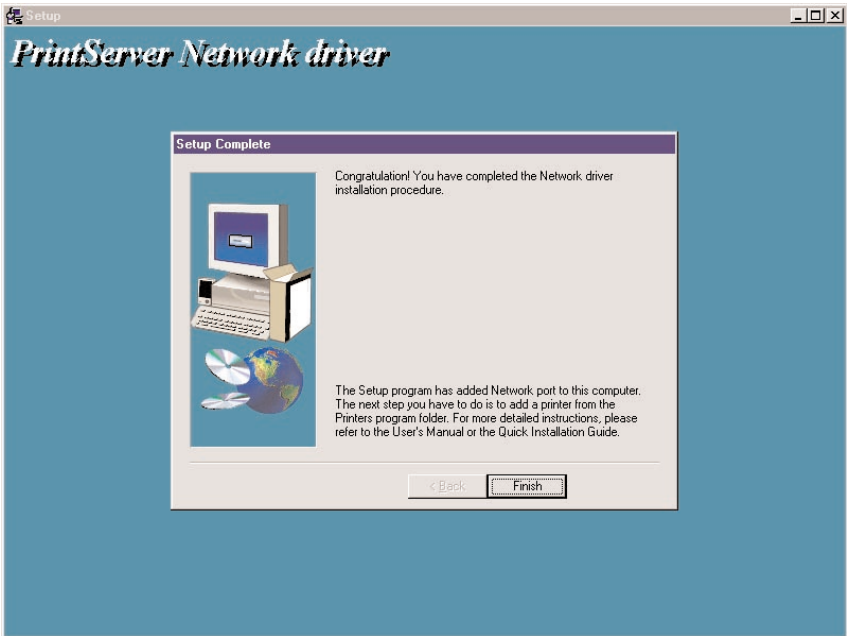


Figure 4-23. Setup Complete screen.

So far, you have completed the following tasks:

- Installed all utilities and drivers to the client's PC.
- Added all the print server's network ports to the client's PC.

You can now perform the procedure below to add network printers to your PC.

1. Click on the **Start** button, then choose **Setting**, then **Printers**.
2. Double click on **Add Printer**. Figure 4-24 appears.

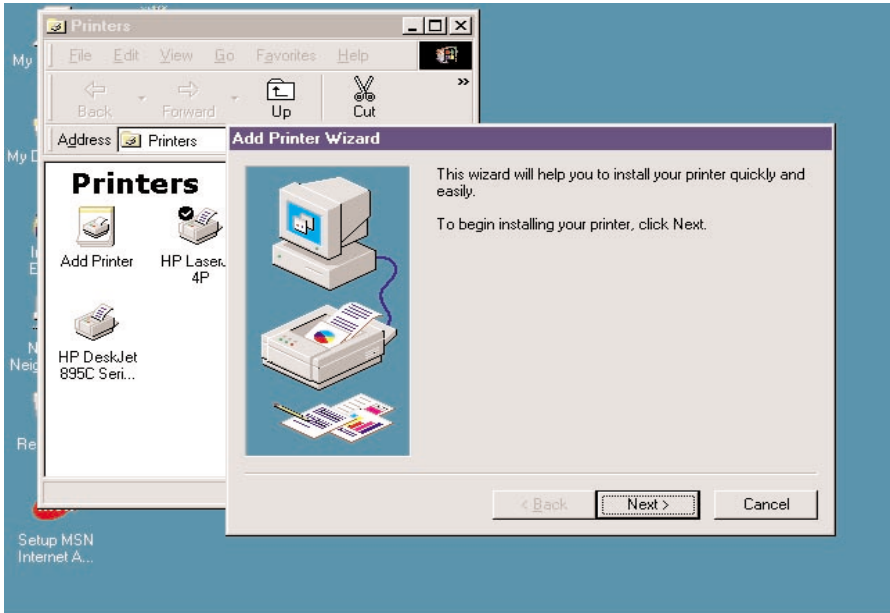


Figure 4-24. Add Printer Wizard screen.

3. Click on the **Back** button in Figure 4-24 to go back to the previous screen, or click on the **Cancel** button to cancel the changes. Click on **Next** to start installing a printer. Figure 4-25 appears.

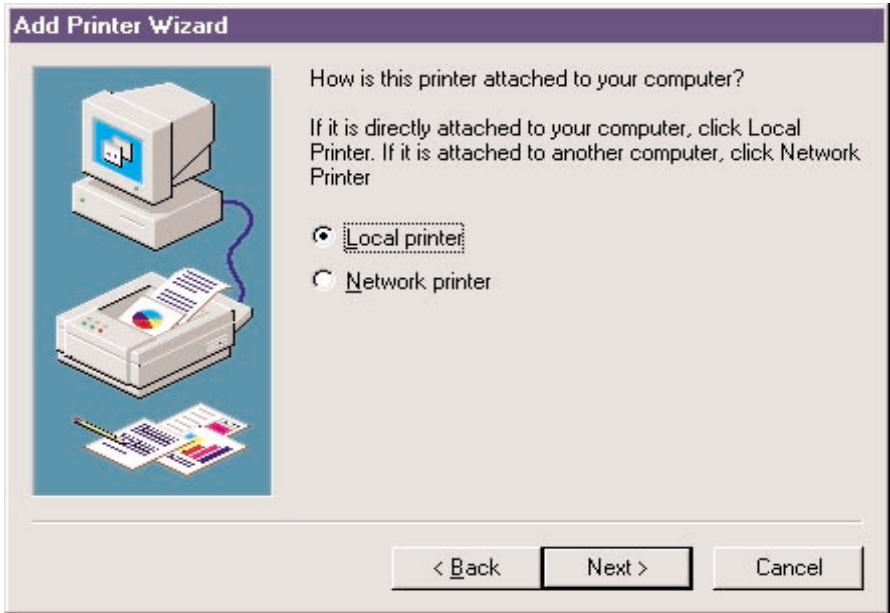


Figure 4-25. Selecting the local printer.

4. Select **Local printer**. To go back to the previous screen, click on the **Back** button. To cancel your changes, click on the **Cancel** button. To save the changes and go to the next screen, click on the **Next** button. Figure 4-26 appears.

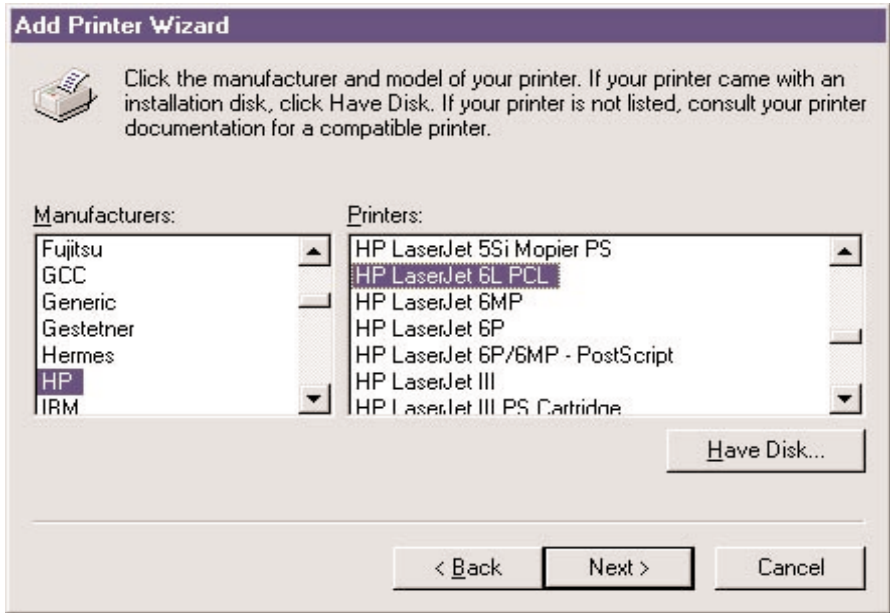


Figure 4-26. Selecting the printer manufacturer and model.

5. If your printer came with an installation disk, click on the **Have Disk** button. The Install prompt will appear, and the system will ask where the disk is located. Type in the disk's location (for example, C:\) and press **Enter**. The drivers will be loaded. Then follow the instructions that appear on your screen. Select the suitable printer manufacturer and model, then click on the **Next** button. Figure 4-27 will appear.

If you don't have an installation disk, simply select the correct manufacturer and printer model from the on-screen lists. Select **Next**; Figure 4-27 will appear.

To go back to the previous screen, click on the **Back** button in Figure 4-26. Click on the **Cancel** button to cancel your changes.

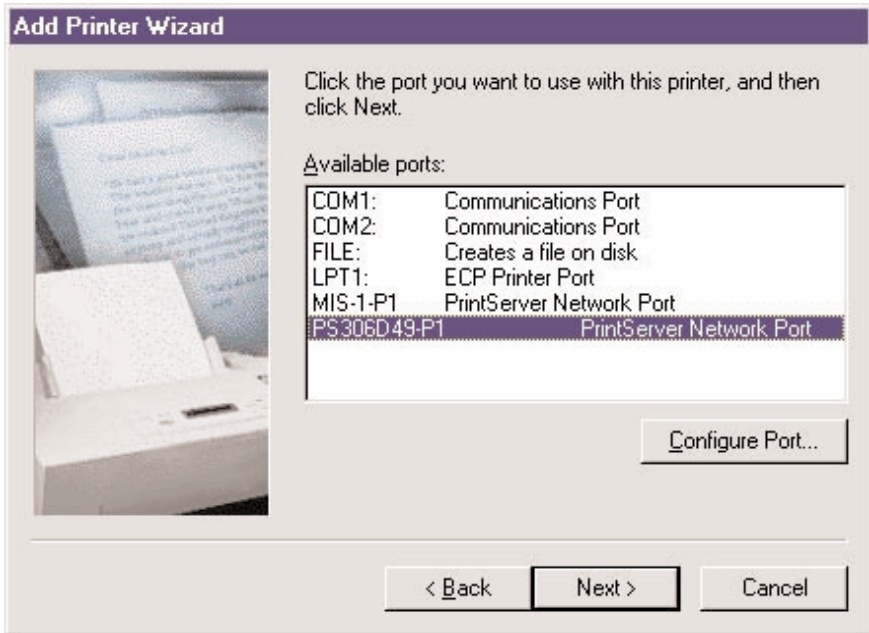


Figure 4-27. Configuring the print server port.

- To configure the port to a local printer port, simply click on **Next**. To go back to the previous screen, click on the **Back** button. Click on **Cancel** to cancel your changes.

To connect the print server to a network port, highlight the print server's network port that was created during the Client Installation process (see the Available Ports list in Figure 4-27). Then click on **Configure Port**. A protocol selection screen appears (not shown in this manual). Select the printer port's protocol (either Auto, TCP/IP, IPX, or NetBEUI) and click **OK**. The screen shown in Figure 4-27 will reappear. Click on **Cancel** to cancel your changes, or click on **Next** to go to the next screen.

- You'll be asked to answer some additional questions in order to finish the network printer setup.

4.3 Client Utilities

After the client installation is complete, there will be three tools in the print server's program folder: network ports quick setup, remote ports utility, and uninstall network driver.

The uninstall network driver tool will help you remove all installed client software.

The first two tools are described in the following sections.

4.3.1 NETWORK PORTS QUICK SETUP

The network ports quick setup utility offers a very simple method to add or remove a print server's printer port from the client's computer.

If you have just installed a new print server on the network, you must run the quick setup utility first. This program will search for new print servers and allow you to add the new network printer port into a client's computer. Perform the standard Add Printer procedure, then you can print directly to the printer through the newly installed print server. See Figure 4-30.

During the client's installation procedure, the system will automatically search for all print servers on the network. See Figure 4-28.

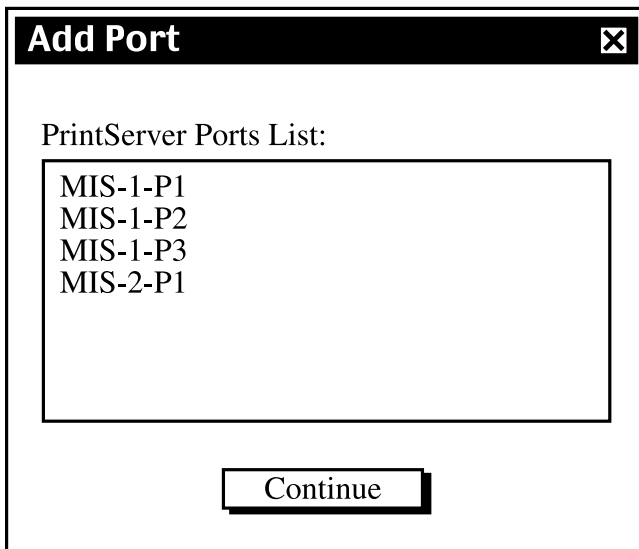


Figure 4-28. Print server ports list.

To add the print server ports to a client's computer's printer ports, click on **Continue**. Figure 4-29 appears.

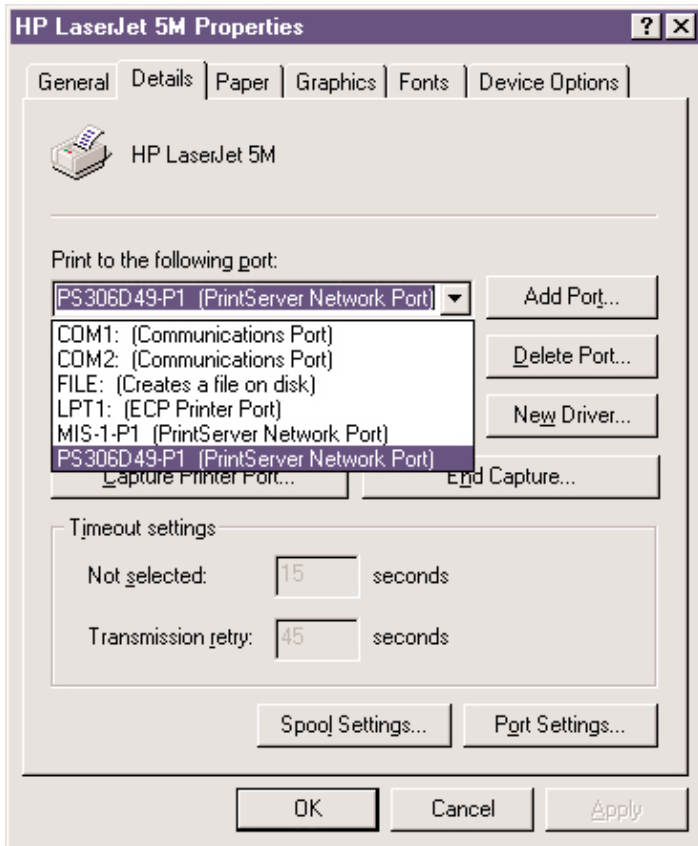


Figure 4-29. Selected print server's properties screen, Details tab.

Table 4-1 describes the parameters shown in the screen in Figure 4-29.

Table 4-1. Print server's properties screen parameters.

Parameter	Description
Add Port	Click on this button to add a print server network port.
Delete Port	Click on this button to delete a port.
New Driver	Click on this button to add a new print driver.
Capture Printer Port	Click on this button to select the printer ports.
End Capture	Click on this button to finish selecting printer ports.
Not selected	Type in the port timeout in seconds. After this time, the port will be deselected.
Transmission retry	Type in the time, in seconds, that the print server will wait before attempting to transmit.
Spool Settings	Sets the memory allocated to the print server.
Port Settings	Sets LPR or LPT printing.
OK	Click on this button after entering each individual parameter to save the parameter.
Cancel	Click on this button to cancel your changes and go back to the previous screen.
Apply	Click on this button to apply your changes and go to the next screen.

Once you click **Apply**, the Details tab settings will be saved and Figure 4-30 will appear.

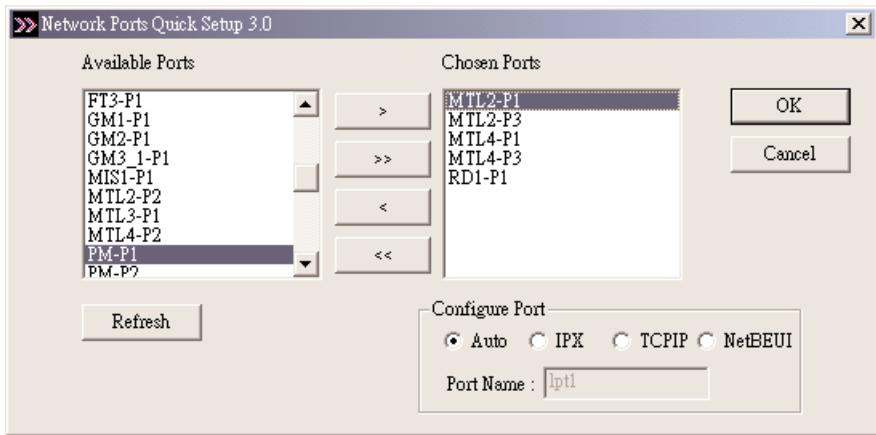


Figure 4-30. Network Ports Quick Setup screen.

Please be aware that Network Ports Quick Setup screen (Figure 4-30) can only detect and configure print servers on the same network. It cannot search and configure print servers on other subnets across network segments. You must use the Remote Ports Utility described in **Section 4.3.2** to manage remote (across network segments) print servers. Table 4-2 describes the parameters in Figure 4-30.

Table 4-2. Network Ports Quick Setup parameters.

Parameter	Description
Available Ports	Lists the available ports in a scroll-down menu.
Refresh	Click on this button to refresh the screen, which will show all available ports.
Chosen Ports	Select the chosen ports from the scroll-down menu.
OK	Click on this button to save your changes.
Cancel	Click on this button to cancel your changes.
Auto	Select this button to automatically configure the port.

Table 4-2 (continued). Network Ports Quick Setup parameters.

Parameter	Description
IPX	Select this button to configure the port using IPX.
TCPIP	Select this button to configure the port using TCP/IP.
NetBEUI	Select this button to configure the port using NetBEUI.
Port Name	Type in the port name that you want to configure.

4.3.2 REMOTE PORTS UTILITY

The Remote Ports utility offers a convenient way for you to manage and add printer ports to the remote print server. From this utility's assistant, you can print to other print servers outside the subnet across network segments. However, this function only supports the TCP/IP network protocol.

1. Create a remote port list. To do this, go to the Remote Port Setup screen (Figure 4-31), then click on the **Add** button. To delete a port from the list, click on the **Delete** button. To exit the Remote Port Setup screen, click on the **Exit** button.

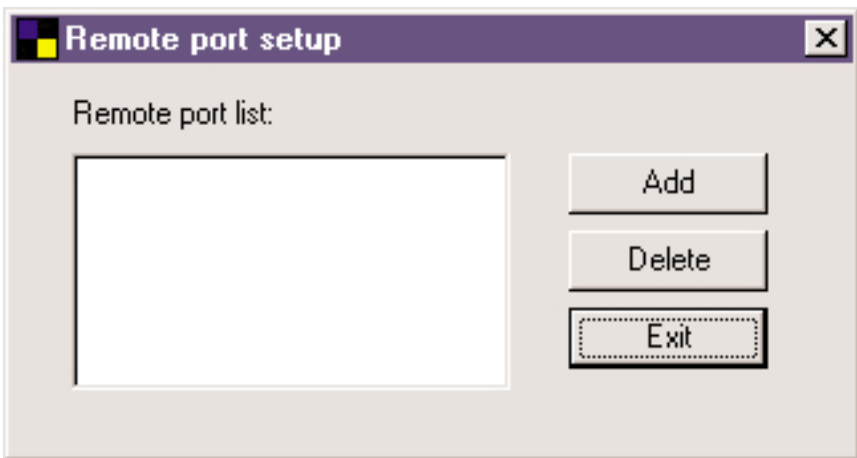


Figure 4-31. Remote Port Setup screen.

2. Once you click on the **Add** button (Figure 4-31), the Create Remote Port screen (Figure 4-32) appears. Type in the print server's name, IP address, select used ports, and enter each port's LPR queue name.

Figure 4-32. Create Remote Port screen.

Table 4-3 describes the parameters shown in Figure 4-32.

Table 4-3. Create Remote Port screen parameters.

Parameter	Description
Print Server Name	Type in the print server's name.
IP Address	Type in the print server's IP address.
OK	Click on this button to save your changes.
Cancel	Click on this button to cancel your changes.

Table 4-3 (continued). Create Remote Port screen parameters.

Parameter	Description
Port	Click on the box next to P1, P2, or P3 to select port numbers.
LPR Setting	Type in the queue names for each selected port.

- Click on the **OK** button (Figure 4-32) to add the remote printer port to your computer's printer ports. Figure 4-33 appears.

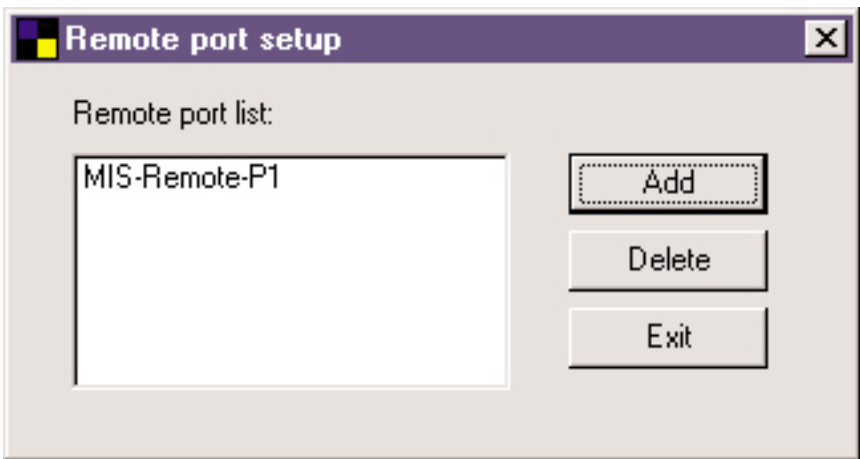


Figure 4-33. Remote port list.

To use the remote printing function, proceed with the normal Add Printer procedure and select your printer port as the newly added remote printer port. Click on **Add** in the Remote port setup screen (see Figure 4-33). Figure 4-34 appears.

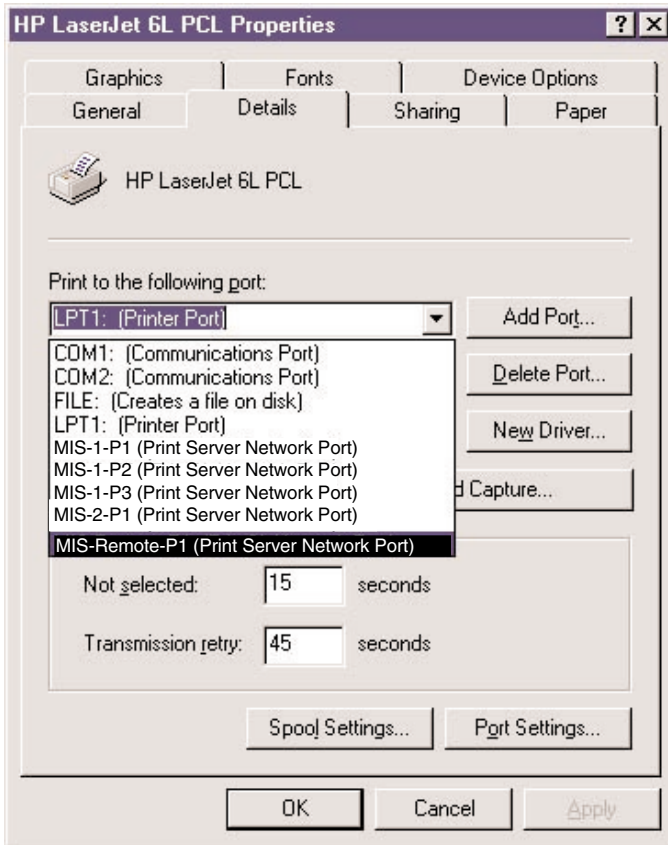


Figure 4-34. Choosing which port to print to.

Follow the instructions that begin on page 40 to use the Add Printer Wizard to add a printer.

5. Windows NT, Windows 2000, and Windows XP Network

In a Windows network environment, other than the peer-to-peer network printing described in the previous chapter, you can also use the server-based printing for Windows NT, Windows 2000, or Windows XP servers. Only one Windows NT, Windows 2000, or Windows XP server is required to have the Windows PTPP driver installed to share the network printing service among all Windows users on the network. Other network users can simply connect to the server and access the shared printer. Figure 5-1 shows a typical PTPP environment using a Windows print server. The network connection path is shown in gray in the figure.

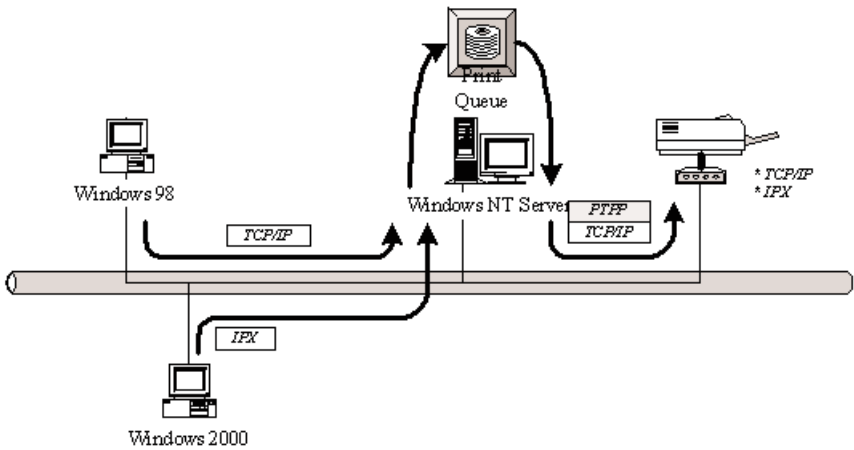


Figure 5-1. Server-based printing environment.

5.1 Windows NT, Windows 2000, and Windows XP Server Installation and Setup

Figure 5-2 shows a Windows NT server installed with a PTPP connection to the print server.

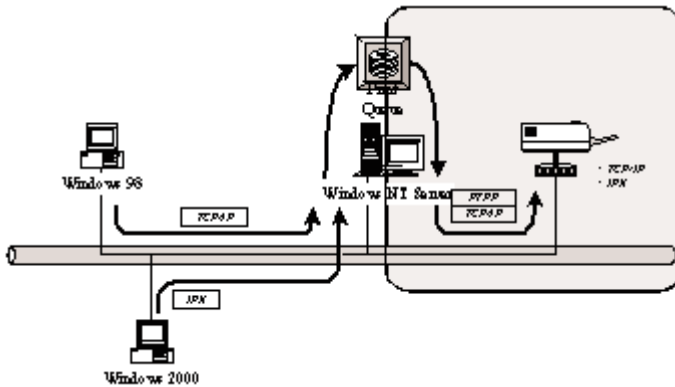


Figure 5-2. Windows workstations interacting with a Windows server.

1. If this is your first time installing the print server, begin by installing the administrator software on the Windows NT, Windows 2000, or Windows XP server. Refer to **Section 4.1** for installation instructions.

If your network already has an installed working print server and your Windows NT, Windows 2000, or Windows XP server has not yet installed the PTPP driver, install the client software. Refer to **Section 4.2** for installation instructions.

2. Add and configure the PTPP for the Windows NT, Windows 2000, or Windows XP network printer, and verify that you can print from Windows NT, Windows 2000, or Windows XP to the print server by the installed PTPP driver.
3. Share the above server's printer to the network by performing the standard Windows printer-sharing process.

5.2 User Installation and Setup

Figure 5-3 shows a standard user installation.

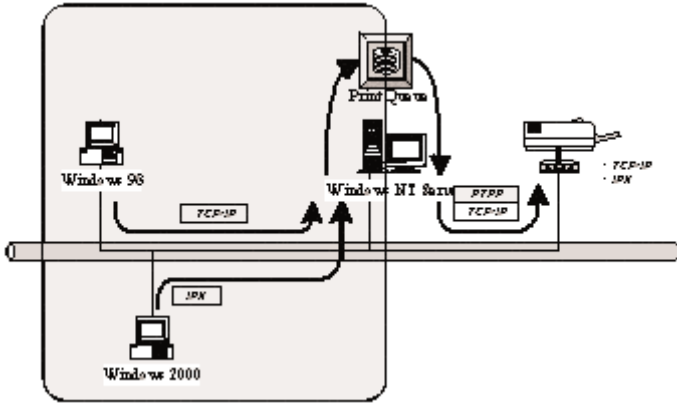


Figure 5-3. Client users accessing the shared printer.

After the server side’s installation is complete, the client side will be able to find the server’s shared printer in the network neighborhood. You only need to perform the Windows standard Add New Printer procedure (see page 40), select **Network Printer** from the screen shown in Figure 5-4, and click on **Next**. Answer the prompts that appear on the subsequent screens (not shown) to access the shared printer.

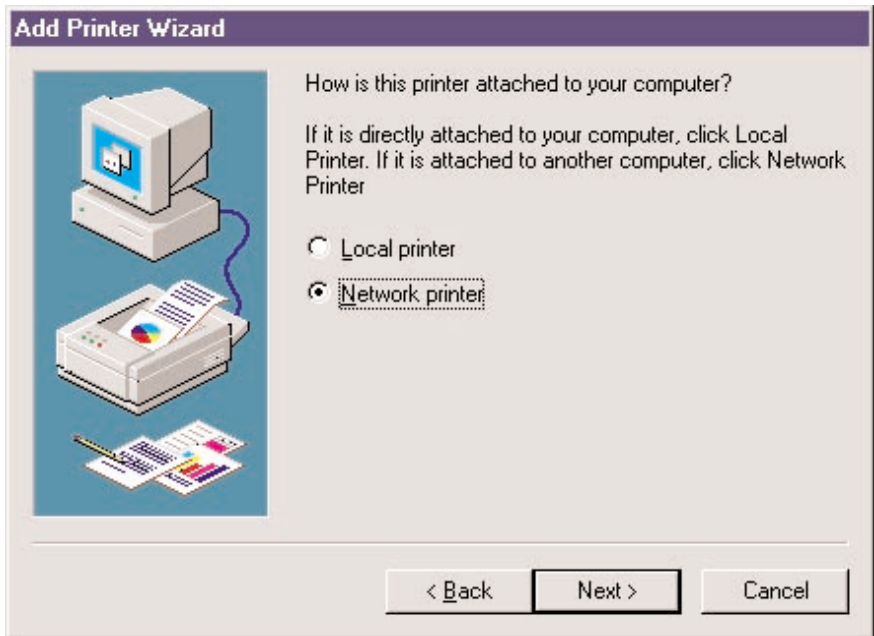


Figure 5-4. Add Printer Wizard screen.

6. NetWare Network

NetWare printer sharing is built into the print server itself. It allows one or more printers attached by a print server to be connected to the network.

Embedded print server, which emulates the NetWare print server's queue management function, is a PSERVER program running on the NetWare server. A user prints a job at a workstation, the job is routed to a NetWare server, the NetWare server stores the job in a print queue, then the print server gets the print job from the queue to the printers. (See Figure 6-1 below.)

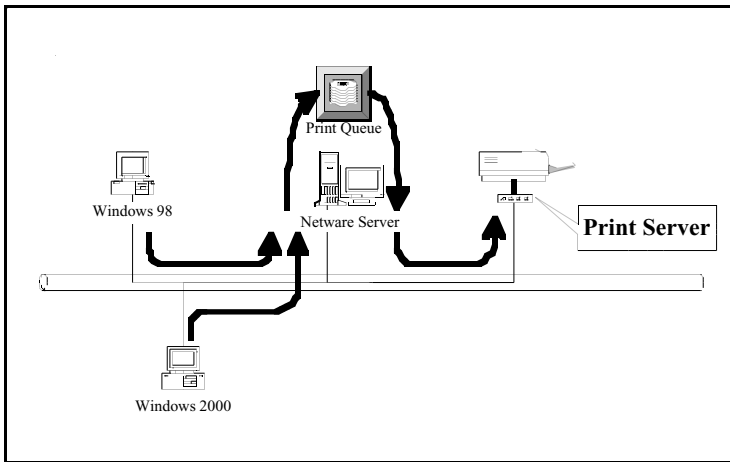


Figure 6-1. Embedded print server mimics the NetWare queue management function.

Compared with regular NetWare printing, the advantages of embedding the NetWare network printing function in the print server include:

- Installation is easier and quicker.
- Network management is easier.
- Printing performance is enhanced.
- It relieves the NetWare file server's burden.
- It relieves the workstation's need to run the remote printer utility.

- It improves productivity by locating the printer near the workgroup.

Each print server should log into a NetWare server before servicing the print jobs. Each print server will occupy a user account with which it can log into the NetWare server.

Once your print server is connected to your Ethernet network, you can set it up for use with your networking software. To begin setting up the NetWare print server and print queue objects, follow these steps.

1. Run the NetWare PCONSOLE program.
2. Change the current file server (if necessary) using the **Change Current File Server** menu selection.
3. Choose the **Print Queue Information** menu selection.
4. Press the **Insert** key to add a new print queue.
5. Type in a print queue name, such as PQ or Q1. See Figure 6-2.

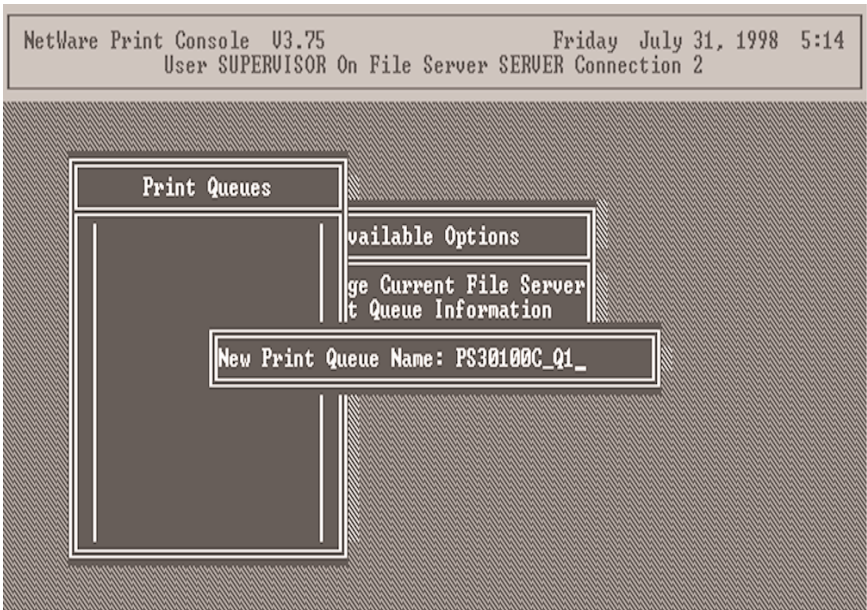


Figure 6-2. Typing in a new print queue name.

14. Select **Queues Serviced by Printer**, then select **Printer 0** (or **Printer 1** or **Printer 2**) and press **Enter**.
15. Press **Insert** and add your newly created print queue to the list of queues serviced by the printer. Enter a priority number for the queue service, or press **Enter** to accept the default.
16. Repeatedly press **Escape** to exit the PCONSOLE program.
17. Reset the print server to have the changes take effect.

NOTE

If the print server you have is with multiple printer connectors, you may create multiple print queues and printer objects.

Your print server is now ready for use. You should be able to redirect printing to your print server using a CAPTURE command. (See your NetWare manual for details on using the CAPTURE command.)

7. UNIX System Network

The print server is available for TCP/IP printing by the UNIX lpd (Line Printer Daemon) protocol. The lpd protocol that originated with the UNIX release is based on the BSD UNIX version and is supported under most UNIX versions.

This chapter explains how to configure the print server for TCP/IP operation and how to modify configuration files on your UNIX system to allow printing to the print server. The configuration examples in this manual follow the syntax for BSD-based UNIX systems. Refer to the related system documentation for the correct syntax for your system.

To configure the print server for lpd printing:

1. Enable the print server's TCP/IP support (see **Section 7.1**).
2. Set up the print server's IP address (see **Section 7.2**).
3. Verify the print server's IP address (see **Section 7.3**).
4. Configure the remote lpd printing on the host (see **Section 7.4**).
5. Print a test page (see **Section 7.5**).

7.1 Enable the Print Server's TCP/IP Support

The print server's default configuration has TCP/IP support enabled. You can configure the print server to enable TCP/IP support using the configuration program or the PSETUP program in the print server's included CD-ROM.

7.2 Set Up the Print Server's IP Address

The print server must have a unique IP address in order to be recognized by the network.

You can set up the IP address on the various UNIX systems using either DHCP (Dynamic Host Configuration Protocol) or BOOTP (Bootstrap Protocol).

The print server will use the DHCP and BOOTP protocols to obtain its IP address automatically if its IP address is configured as Auto (0.0.0.0).

7.2.1 DHCP

Many UNIX systems support the DHCP protocol, and the procedures to configure the DHCP server database vary. This manual does not describe the DHCP server configuration on the UNIX systems. Locate the DHCP server on the same network as the print server.

7.2.2 BOOTP

If you have the BOOTP daemon, `bootpd`, running on your UNIX system that's accessible by the print server, you can use the BOOTP protocol to set up the print server's IP address. Locate the BOOTP server on the same subnet as the print server. If you use Network Information Services (NIS) in your system, you may need to rebuild the NIS map with the BOOTP services before doing the following BOOTP configuration. To rebuild the NIS map, refer to your system documentation.

To configure the IP address data for the BOOTP server, log into the BOOTP server's host as the superuser (`root`). Perform these steps to add address entries.

1. Assign a name corresponding to the print server's IP address. You can add this address to the `/etc/hosts` file by adding a line such as:

```
203.66.191.12 pserver
```

2. Add an entry to the host's `/etc/bootptab` file similar to the following:

```
hostname:\
:ht=1:\
:ha=print_server_ethernet_address:\
:ip=print_server_ip_address:
```

The hostname is the print server's device name, the `ht=1` tag specifies the Ethernet hardware type, and the `ha = tag` specifies the print server's Ethernet address, which is the print server's Node ID. The `ha` tag must be preceded by the `ht` tag. The `ip = tag` should correspond to the IP address you want to assign to the print server.

For example, a print server with the following configuration:

Node ID: 0000B4010101 (this implies that the Ethernet address is 0000B4010101)

IP address: 203.66.191.12

The entry for this print server in the `/etc/bootptab` file should be:

```
PS010101:\  
  
:ht=1:\  
  
:ha=0000B4010101:\  
  
:ip=203.66.191.12:
```

7.3 Verify the Print Server's IP Address

To verify that your print server is responding to the newly assigned IP address using a PING command:

```
ping ip-address
```

7.4 Configure Remote lpd Printing on the Host

The procedure you use to configure your UNIX host(s) to allow printing to your network remote print server varies between different UNIX varieties. The procedure below can be used for UNIX variants that are related to BSD UNIX, such as SunOS or Linux. For other UNIX versions, consult your system documentation, keeping in mind:

1. Treat the print server as a BSD networked print server host.
2. The host name should be the name (or IP address) that you have assigned to the print server.
3. The remote host's printer name (or queue name) should be `lpt1`, `lpt2`, or `lpt3` (the print server's printer port name).

Perform the tasks below, logged in as the superuser (root). To configure your UNIX host for printing:

1. Assign a name corresponding to the print server's IP address. You can add this address to the `/etc/hosts` file, by adding a line such as:

```
203.66.191.186 pserver
```

2. Create the printer's spool directory in the same directory where spool directories are normally kept on the machine, such as `/var/spool` or `/var/spool/lpd`:

```
mkdir /var/spool/lpd/pserverd
chown daemon /var/spool/lpd/pserverd
chgrp daemon /var/spool/lpd/pserverd
chmod 775 /var/spool/lpd/pserverd
```

3. Add an entry to the host's `/etc/printcap` file, similar to the following:

```
printer-name:\
:lp=:\
:rm=203.66.191.186:\
:rp=lpt1:\
:lf=/var/spool/lpd/pserverd.log:\
:sd=/var/spool/lpd/pserverd:\
:mx#0:
```

You can use more than one printer name, with variants separated by vertical bars (name1|name2).

The `rm =` entry should correspond to the assigned print server IP address. You can also use a host name if you have assigned one in the `/etc/hosts` file.

The `sd =` entry should correspond to the spool directory you created in the previous step.

The `rp =` entry should correspond to the remote printer's port name. The values should be `lpt1`, `lpt2`, or `lpt3` (depending on the printer port).

The print server is now available for printing from your UNIX host.

7.5 Print a Test Page

To print to the print server, type in the `lpr` command:

```
lpr -Pprinter-name file ...
```

or, type in the `lp` command on an SCO Open Server:

```
lp -d printer-name file ...
```

`Printer-name` is one of the names for the printer in the `/etc/printcap` file, which you created in the previous step.

Consult your system documentation for more information about printer configuration and administration and about `lpr` and other printing commands.

8. Configuration Utility

This chapter introduces the print server's system configuration utility in a Windows environment. This utility is automatically installed during the Windows Administrator installation procedure—refer to **Section 4.1**.

This utility provides the most complete management and configuration functions on the print server side. This utility only provides configuration functions for the print server itself; it does not include configuration functions for the client side, other file servers, or NetWare servers in the network environment.

The Configuration utility provides the following configuration and management functions:

- General print server information (**Section 8.1**)
- Print server status (**Section 8.2**)
- Attached printer status (**Section 8.3**)
- IP address configuration (**Section 8.4**)
- NetWare print server configuration (**Section 8.5**)
- Print server network ability setting (**Section 8.6**)
- Restore to default (**Section 8.7**)
- Firmware upgrade/update (**Section 8.8**)
- DHCP server configuration (**Section 8.9**)
- DHCP server information (**Section 8.10**)
- Email printing setting (**Section 8.11**)
- SMB printing setting (**Section 8.12**)
- SNMP parameter setting (**Section 8.13**)
- AppleTalk configuration (**Section 8.14**)

8.1 General Print Server Information

Each time you run the print server's configuration utility, the system will initially delay for several seconds because the utility is using the system's available network protocols to search for all print servers on the network. Therefore, you must first select the print server you would like to configure from the drop-down menu in the Print Server Name's field under the General tab (see Figure 8-1). The system will simultaneously display the model numbers.

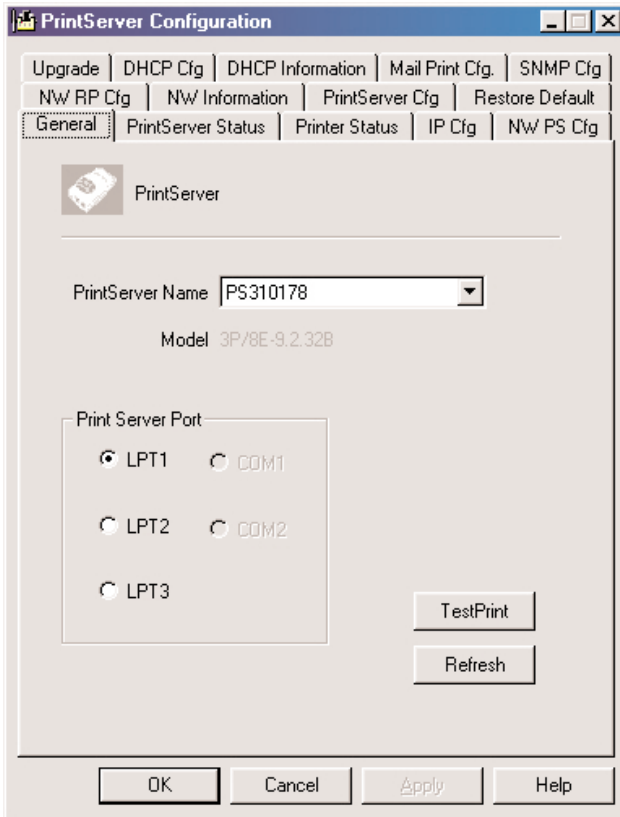


Figure 8-1. General tab.

Table 8-1 describes the options shown in Figure 8-1.

Table 8-1. Print server configuration parameters.

Parameter	Description
Print Server Name	This is the print server's name.
Print Server Port	Click on LPT1, LPT2, or LPT3, COM1 or COM2.
TestPrint	Press this button to test print to the selected print server port.
Refresh	Press this button to manually search again for print servers on the network.
OK	Click on this button to save your selections.
Cancel	Click on this button to cancel your selections.
Apply	Click on this button to apply changes.
Help	Click on this button to view the help screen.

8.2 Print Server Status

The Print Server Status page displays the print server status in detail.

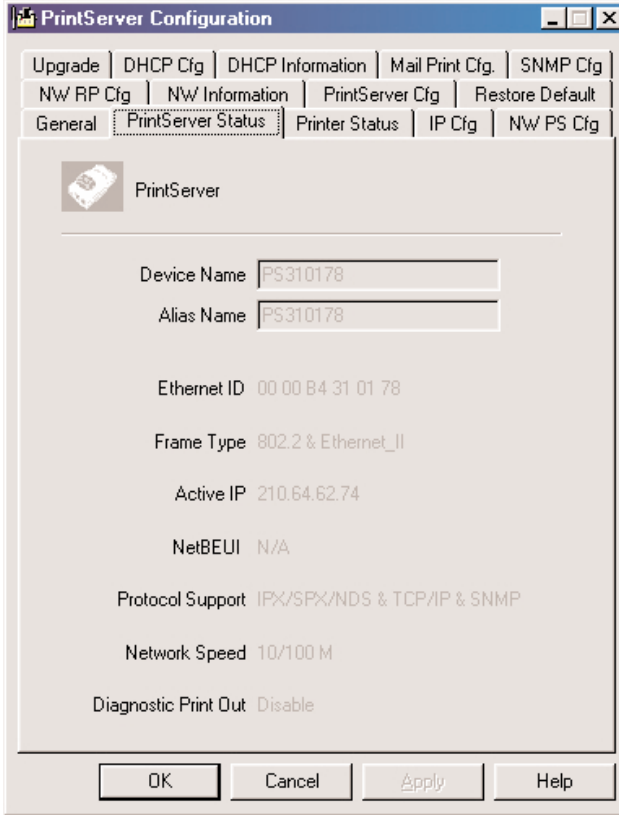


Figure 8-2. Print Server Status screen.

Table 8-2 describes the options in Figure 8-2.

Table 8-2. Print Server Status parameters.

Parameter	Description
Device Name	This is the print server's name.
Alias Name	This is the print server's nickname.
Ethernet ID	This option is for display only and cannot be changed in this screen.
Frame Type	This option is for display only and cannot be changed in this screen.
Active IP	This option is for display only and cannot be changed in this screen.
NetBEUI	This option is for display only and cannot be changed in this screen.
Protocol Support	This option is for display only and cannot be changed in this screen.
Network Speed	This option is for display only and cannot be changed in this screen.
Diagnostic Print Out	This option is for display only and cannot be changed in this screen.
OK	Click on this button to save your print server status information.
Cancel	Click on this button to cancel your selections.
Apply	Click on this button to apply changes.
Help	Click on this button to view the help screen.

8.3 Attached Printer Status

The Printer Status page (see Figure 8-3) displays the printer status for each port.

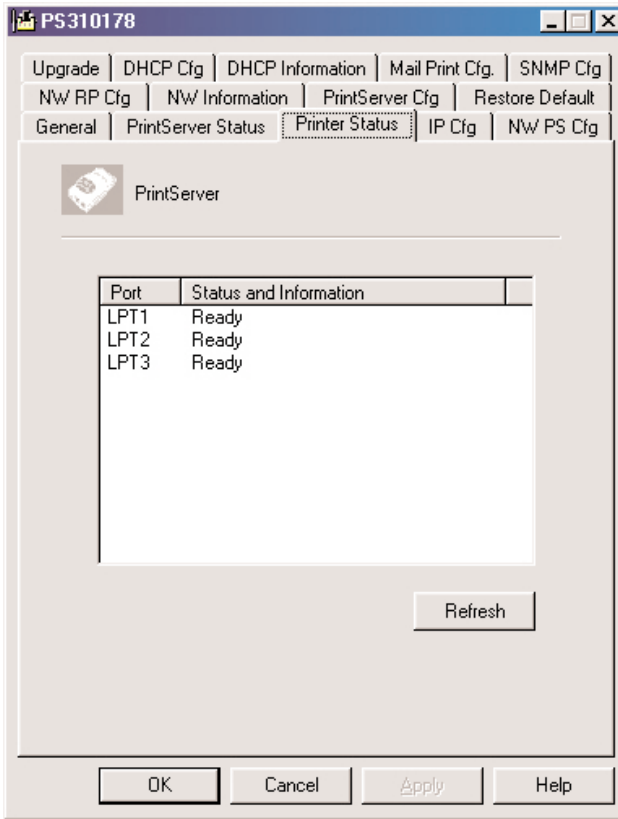


Figure 8-3. Printer Status screen.

Table 8-3 describes the printer status options.

Table 8-3. Printer Status parameters.

Parameter	Description
Port	This is the port type (LPT1, LPT2, etc.).
Status and Information	Describes the port's status (Ready or Not Ready).
Refresh	Click on this button to refresh the screen and select a new printer.
OK	Click on this button to save the printer status information.
Cancel	Click on this button to cancel your selections.
Apply	This button is not used.
Help	Click on this button to view the help screen.

8.4 IP Address Configuration

The IP Cfg page allows you to configure the IP address where the print server will be located. The print server will obtain its IP address automatically if you configure the IP address as Auto.

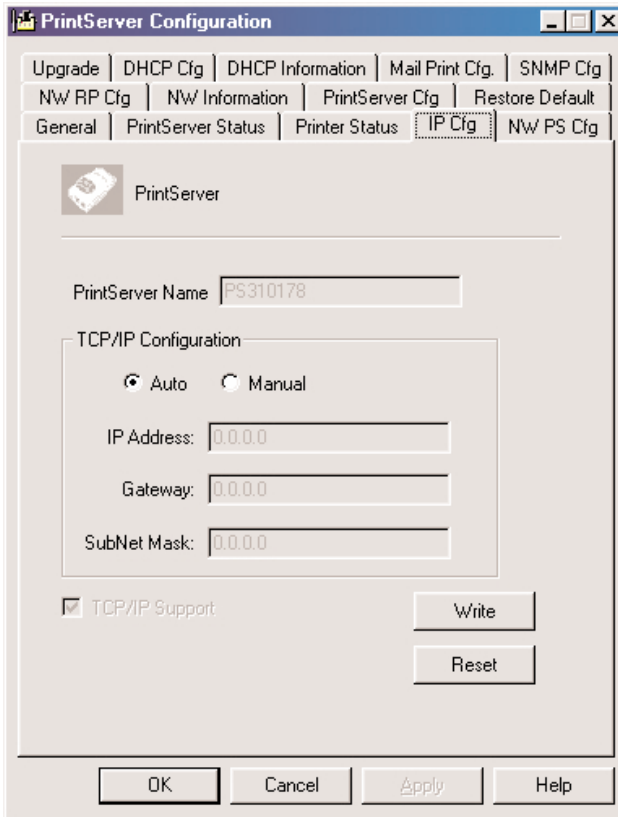


Figure 8-4. IP Cfg tab.

Table 8-4 lists the IP Cfg screen options.

Table 8-4. IP Configuration information.

Parameter	Description
Print Server Name	This is the print server's name.
TCP/IP Configuration	Click on the Auto or Manual button.
IP Address	Type in the print server's IP address.
Gateway	Type in the print server's gateway address.
Subnet Mask	Type in the print server's subnet mask.
TCP/IP Support	Check this box to enable TCP/IP support.
Write	Click on this button to save the configuration to the print server.
Reset	Click on this button to reset the print server and have the changes take effect.
OK	Click on this button to save the IP configuration information.
Cancel	Click on this button to cancel your selections.
Apply	This button is not used.
Help	Click on this button to view the help screen.

8.5 NetWare Print Server Configuration

This screen allows you to configure the print server to work with NetWare IPX.

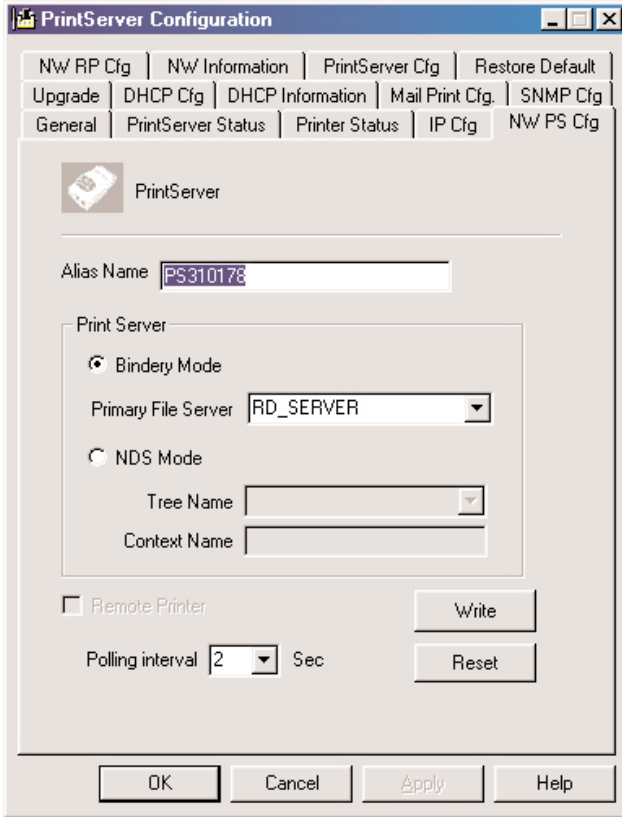


Figure 8-5. NW PS Cfg screen.

Table 8-5 describes the options you can choose in Figure 8-5.

Table 8-5. NetWare Print Server Configuration parameters.

Parameter	Description
Alias Name	A nickname for the print server (in addition to the PSxxxxxx name printed on the label).
Bindery Mode	Click on this button to enable bindery mode.
Primary File Server	The server where the NetWare print server object is located.
NDS Mode	Click on this button to enable NDS mode.
Tree Name	A computer workgroup's name.
Context Name	This is the path a print job takes to get to the print server.
Remote Printer	Click on this button to configure the remote printer.
Polling Interval	Determines how often (in seconds) the print server checks the print queues.
Write	Press this button to save the configuration to the print server.
Reset	Press this button to reset the print server and have the changes take effect.
OK	Click on this button to save your changes.
Cancel	Click on this button to cancel your selections.
Apply	This button is not used.
Help	Click on this button to view the help screen.

8.6 Print Server Network Ability Setting

The print server cfg page allows you to set the diagnostic printout, TCP/IP support, NetWare support, and NetBEUI support. See Figure 8-6.

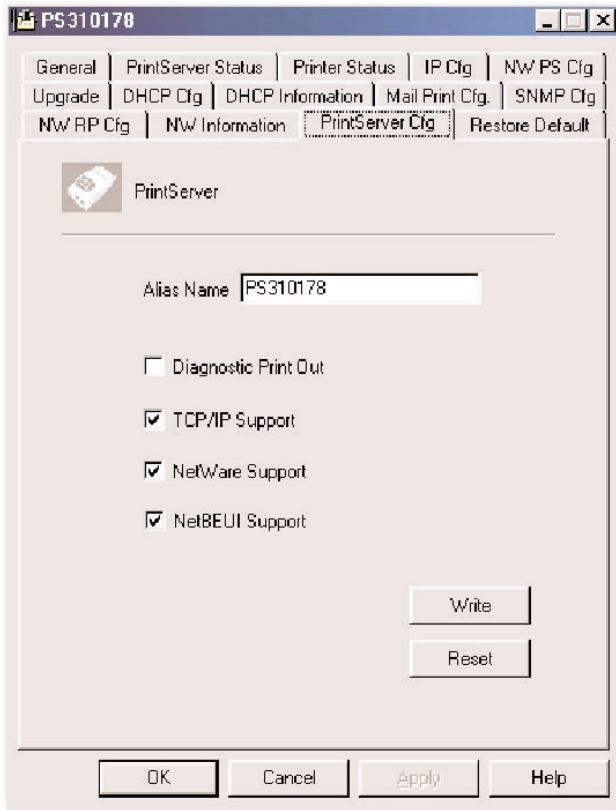


Figure 8-6. Print Server Cfg page.

Table 8-6 describes the options shown in Figure 8-6.

Table 8-6. Print Server network ability parameters.

Parameter	Description
Alias Name	This is the print server's nickname.
Diagnostic Print Out	This determines whether or not a diagnostic printout should be printed on the printer that's connected to the print server.
TCP/IP Support	This determines whether or not TCP/IP network printing is supported.
NetWare Support	This determines whether or not NetWare network printing is supported.
NetBEUI Support	This determines whether or not NetBEUI network printing is supported.
Write	Press this button to save the configuration to the print server.
Reset	Press this button to reset the print server to have the changes take effect.
OK	Click on this button to save your selections.
Cancel	Click on this button to cancel your selections.
Apply	This button is not used.
Help	Click on this button to view the help screen.

8.7 Restore to Default

This option allows you to erase all of the print server's settings and restore them to the default settings.

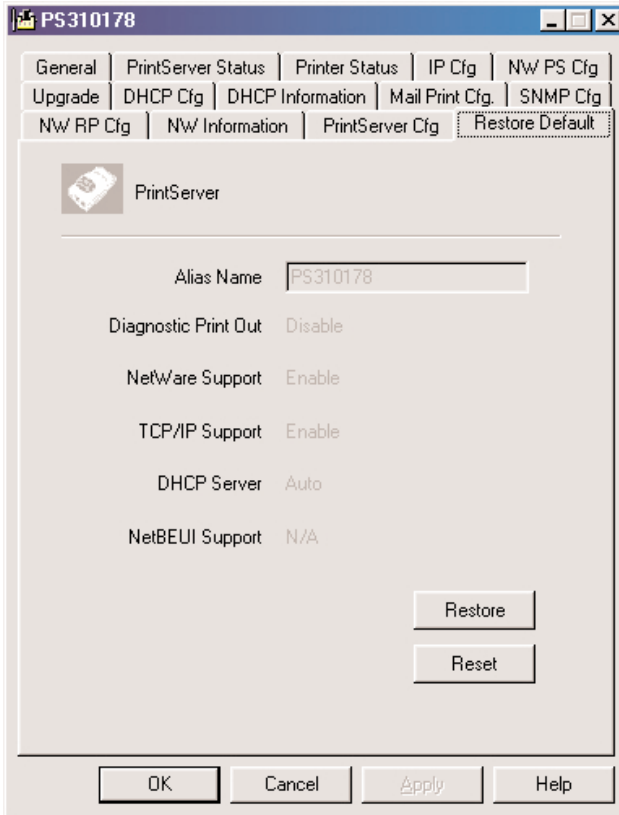


Figure 8-7. Restore to Default page.

Table 8-7 describes the parameters shown in Figure 8-7.

Table 8-7. Restore to Default parameters.

Parameter	Description
Alias Name	Type in the print server's nickname.
Diagnostic Print Out	Shows status (Enable or Disable). Cannot be changed in this screen.
NetWare Support	Shows status (Enable or Disable). Cannot be changed in this screen.
TCP/IP Support	Shows status (Enable or Disable). Cannot be changed in this screen.
DHCP Server	Shows status (Enable, Disable, or Auto). Cannot be changed in this screen.
NetBEUI Support	Not supported.
Restore	Saves the default configuration displayed in this page to the print server.
Reset	Resets the print server so the changes can take effect.
OK	Click on this button to save your selections.
Cancel	Click on this button to cancel your selections.
Apply	This button is not used.
Help	Click on this button to view the help screen.

8.8 Firmware Upgrade/Update

The print server stores its internal programs in “flash” memory, which you can upgrade when new versions of the print server’s software become available.

Make sure the updated *PxxxM_xP.BIN* (depending on your model) file is stored in your computer or CD-ROM.

Choose the updated firmware in the File Name field. For example,

```
<CD Driver>\FLASHROM\<PS100M_3P>\PSxxROM.BIN
```

Click on the **Upgrade** button in Figure 8-8 to upgrade the print server’s flash memory. The print server’s yellow Print LED(s) should be lit continuously.

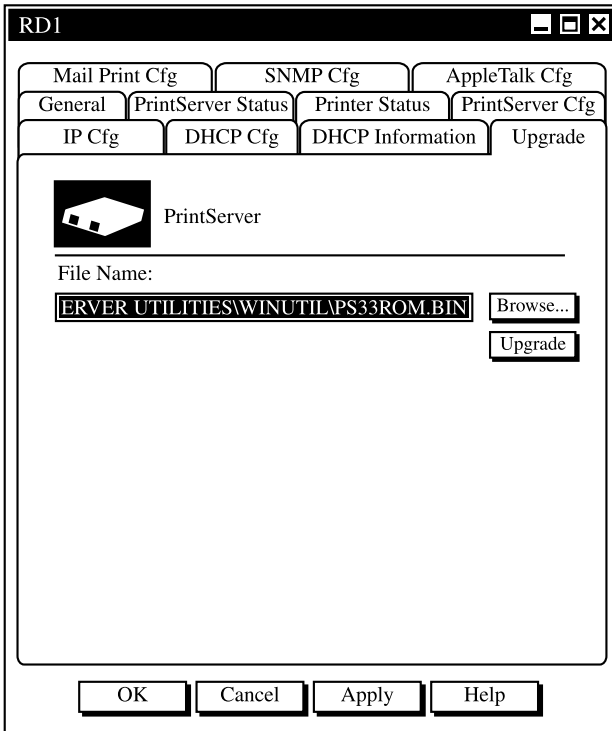


Figure 8-8. Firmware upgrade/update.

Table 8-8 describes the options available in Figure 8-8.

Table 8-8. Firmware upgrade parameters.

Parameter	Description
File Name	Type in the print server's filename.
Browse	Click on this button to browse through the available print servers.
Upgrade	Click on this button to upgrade the selected print server.
OK	Click on this button to save your selections.
Cancel	Click on this button to cancel your selections.
Apply	This button is not used.
Help	Click on this button to view the help screen.

8.9 DHCP Server Configuration

The print server can be configured as a DHCP server to automatically assign IP addresses to attached devices.

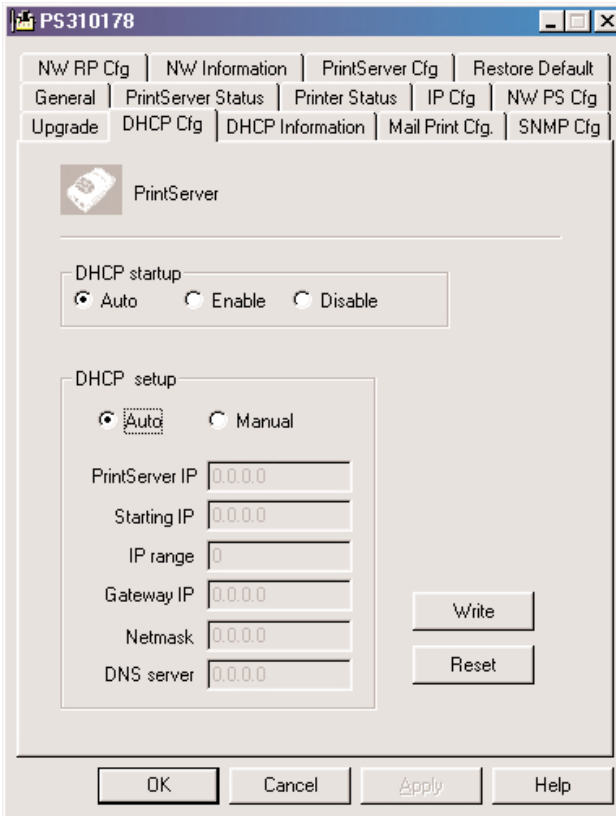


Figure 8-9. DHCP Server Configuration screen.

The DHCP Cfg page allows you to set the DHCP startup. This determines if the print server will act as a DHCP server. If this item is set to **Auto**, the print server will detect if there is any DHCP server on the network when it boots up. If there is no DHCP server on the network, then the print server will configure itself as a DHCP server; otherwise, it will disable this function.

DHCP setup is used to configure TCP/IP parameters that will be assigned to a DHCP client. If this item is set to **Auto**, the print server will determine all TCP/IP parameters automatically; otherwise, you will configure the parameters described in Table 8-9.

Table 8-9. DHCP parameters.

Parameter	Description
DHCP Startup	Choose Auto, Enable, or Disable.
DHCP Setup	Choose Auto or Manual.
Print Server IP	Specifies the IP address of the print server itself.
Starting IP	Specifies the starting IP address for assigning to DHCP clients.
IP Range	Specifies how many IP addresses are available to DHCP clients.
Gateway IP	Gives the IP address of the default gateway.
Netmask	Gives the network mask.
DNS Server	Gives the IP address of the domain name server.
Write	Saves the configuration to the print server.
Reset	Reset the print server to let the changes take effect.
OK	Click on this button to save your selections.
Cancel	Click on this button to cancel your selections.
Apply	This button is not used.
Help	Click on this button to view the help screen.

8.10 DHCP Server Information

The DHCP Information page can be used to display the DHCP server information when the print server is functioning as a DHCP server.

The screenshot shows the 'PrintServer Configuration' window with the 'DHCP Information' tab selected. The window title is 'PrintServer Configuration'. The navigation menu includes: NW RP Cfg, NW Information, PrintServer Cfg, Restore Default, General, PrintServer Status, Printer Status, IP Cfg, NW PS Cfg, Upgrade, DHCP Cfg, **DHCP Information**, Mail Print Cfg, and SNMP Cfg. The main content area shows a 'PrintServer' icon and the name 'PS310178'. Below this is a 'DHCP Server' section with the following fields: Status (Auto/inactive), Starting IP (0.0.0.0), Next available IP (0.0.0.0), Gateway IP (0.0.0.0), Netmask (0.0.0.0), and DNS server (0.0.0.0). At the bottom are buttons for OK, Cancel, Apply, and Help.

Figure 8-10. DHCP Information tab.

Table 8-10 describes the selections in Figure 8-10.

Table 8-10. DHCP server parameters.

Parameter	Description
Print Server Name	This is the print server's name.
Status	Displays whether or not the print server is configured as a DHCP server.
Starting IP	Displays the starting IP address for assigning to DHCP clients.
Next Available IP	Displays the next available IP address that can be assigned to a DHCP client.
Gateway IP	Displays the configured IP address of the default gateway.
Netmask	Displays the configured network mask.
DNS Server	Displays the configured IP address of the domain name server.
OK	Click on this button to save your selections.
Cancel	Click on this button to cancel your selections.
Apply	This button is not used.
Help	Click on this button to view the help screen.

8.11 Email Printing Setting

Using the print server's email printing function (see Figure 8-11), the client user on the Internet can email the printing file to a dedicated mailbox. The print server will automatically get the email from that mailbox and print it to the attached printer. **Chapter 10** describes this option in detail.

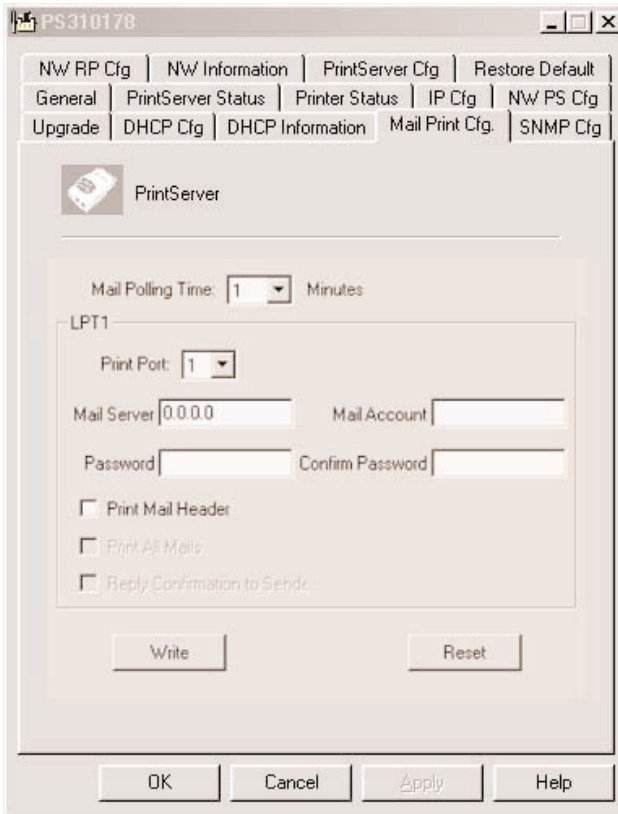


Figure 8-11. Mail Print Cfg screen.

Table 8-11 describes the options shown in Figure 8-11.

Table 8-11. Email printing parameters.

Parameter	Description
Mail Polling Time	Default value is zero (1 minute). This is the system polling time for getting the email from the mail server.
Print Port	This is the printer port that the print server is connected to.
Mail Server	Enter the mailbox's IP address of where the mail server resides.
Mail Account	The mailbox account in the mail server.
Password	The mail account's password.
Confirm Password	Double check the mail account's password.
Print Mail Header	Select whether or not the printing job will print out the mail header. (The two boxes below Print Mail Header in Figure 8-11 are not used, so they are grayed out.)
Write	Click on this button to save the configuration to the print server.
Reset	Click on this button to reset the print server so the changes can take effect.
OK	Click on this button to save your selections.
Cancel	Click on this button to cancel your selections.
Apply	This button is not used.
Help	Click on this button to view the help screen.

8.12 SMB Printing Setting

The SMB Cfg page (see Figure 8-12) allows you to configure the print server's SMB parameters. This can allow your PC to print to this print server via the SMB protocol.

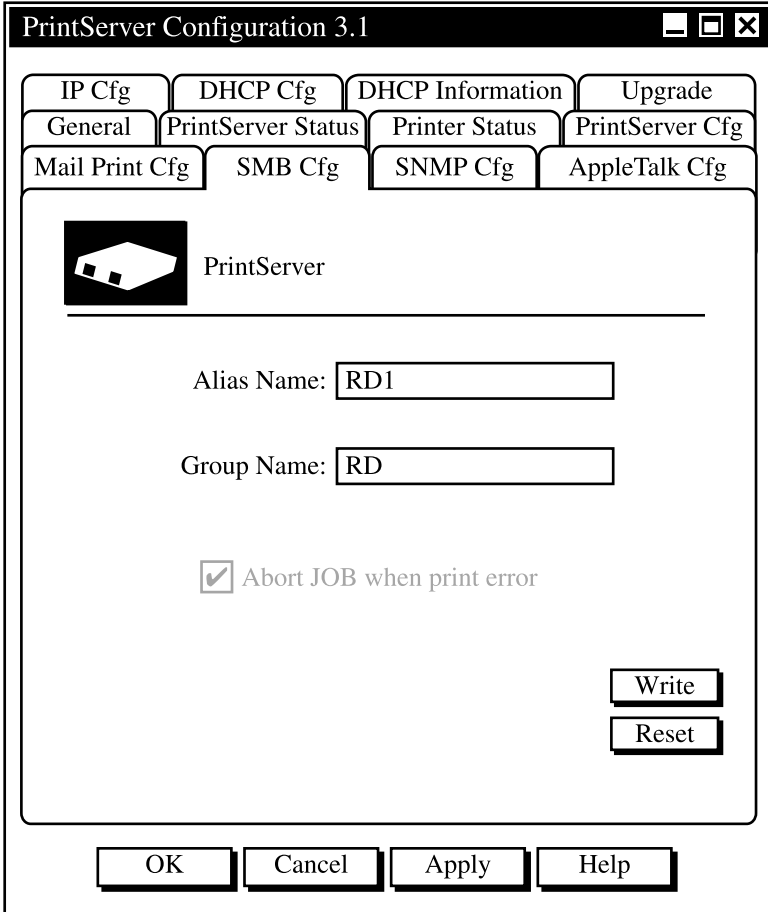


Figure 8-12. SMB Cfg screen.

Table 8-12 describes the SMB options.

Table 8-12. SMB printing parameters.

Parameter	Description
Alias Name	The print server's SMB alias name.
Group Name	The name of SMB group that the print server joins to.
Abort JOB when print error	If you check this item, the print server will abort the printing job when any printing error occurs.
Write	Click on this button to save the configuration to the print server.
Reset	Click on this button to reset the print server so the changes can take effect.
OK	Click on this button to save your selections.
Cancel	Click on this button to cancel your selections.
Apply	This button is not used.
Help	Click on this button to view the help screen.

8.13 SNMP Parameter Setting

The SNMP Cfg page (see Figure 8-13) allows you to configure the print server's SNMP parameters.

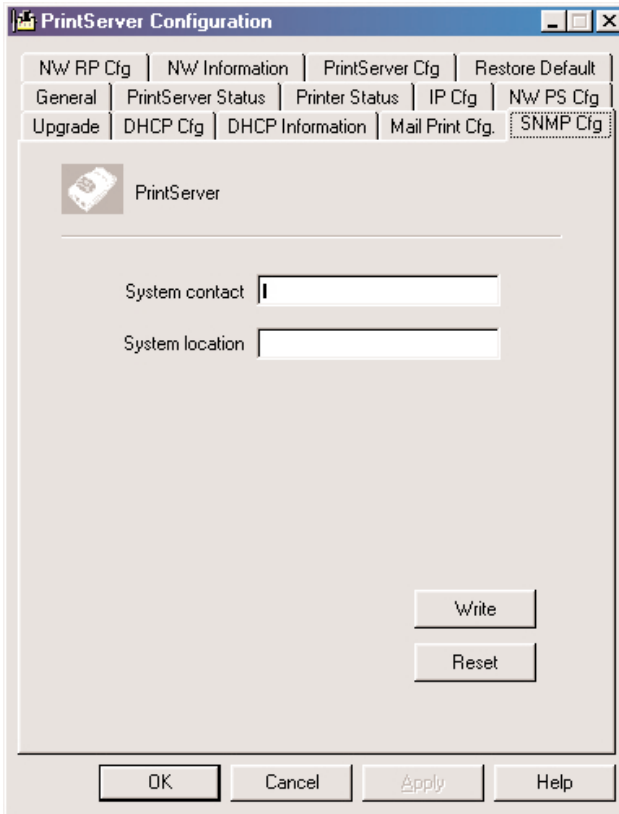


Figure 8-13. SNMP screen.

Table 8-13 lists the SNMP configuration options.

Table 8-13. SNMP parameters.

Parameter	Description
System Contact	The print server's system Administrator information.
System Location	The print server's system location.
Write	Click on this button to save the configuration to the print server.
Reset	Click on this button to reset the print server and have the changes take effect.
OK	Click on this button to save your selections.
Cancel	Click on this button to cancel your selections.
Apply	This button is not used.
Help	Click on this button to view the help screen.

8.14 AppleTalk Configuration

The AppleTalk Cfg page (see Figure 8-14) allows you to configure the print server's AppleTalk network parameters. AppleTalk is a data communication protocol often used by Macintosh® computers. The print server can use these parameters to join the AppleTalk network and share the printer with other AppleTalk workstations. Only the printer attached to the P1 printer port can be shared with AppleTalk network workstations.

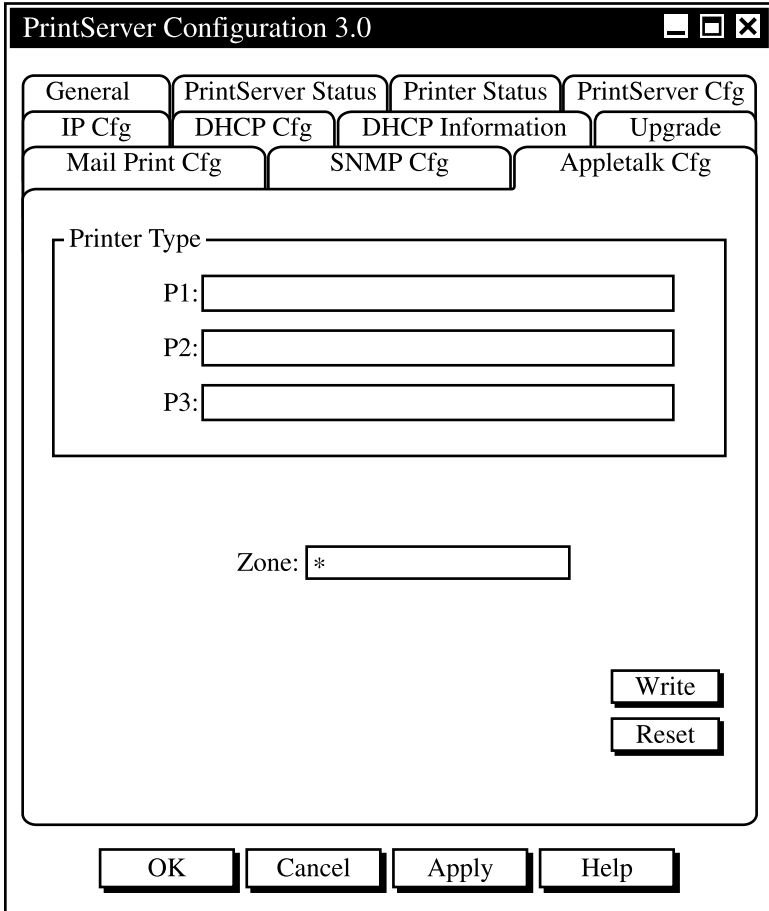


Figure 8-14. AppleTalk Configuration screen.

Table 8-14 lists the options for Figure 8-14.

Table 8-14. AppleTalk Configuration parameters.

Parameter	Description
Printer Type	The type of printer attached to the P1, P2, or P3 printer port. You can get the printer type from the printer's manufacturer.
Zone	The zone name that the print server wants to join. Only workstations in the same zone can share the printer. If you want to share the printer with all workstations in all zones, enter only an asterisk (*) in this field.
Write	Click on this button to save the configuration to the print server.
Reset	Click on this button to reset the print server and have the changes take effect.
OK	Click on this button to save your selections.
Cancel	Click on this button to cancel your selections.
Apply	This button is not used.
Help	Click on this button to view the help screen.

9. Web Management

The print server can be configured and managed on the Web. Through a Local Area Network—or even the Internet—the administrator can easily configure and manage the print server's various main functions in browsers. Simply enter the print server's IP address into your browser's address field to manage a print server using the print server's built-in Web server.

In addition, in order to increase management convenience, the print server provides a Web Manager utility to assist you in browsing all print servers and managing the print server's printing environment on your LAN systematically. Refer to **Section 9.1** for details about the Web Manager utility.

9.1 Web Manager Utility

The Web Manager utility is implemented by World Wide Web (WWW) plug-in technology. After installing this utility in Windows, you do not need to memorize the print server's IP address or the number of print servers installed on the same network. After executing the Web Manager utility, all print servers on the LAN are detected by the system automatically and listed in the browser. Simply click on the print server you want to configure to access its built-in Web pages.

9.1.1 INSTALLATION AND EXECUTION

Since the Web Manager utility is part of the Administrator utility, after installing the Windows Administrator utility, it is already installed. Execute the Web Manager Administrator in the Program folder named **Print Server utilities**.

9.1.2 STARTING THE WEB MANAGER UTILITY

When you execute the Web Manager utility, the system will display the print server's Web Console page (see Figure 9-1) for approximately five seconds. Meanwhile, the system will be searching for all print servers on the same subnet.

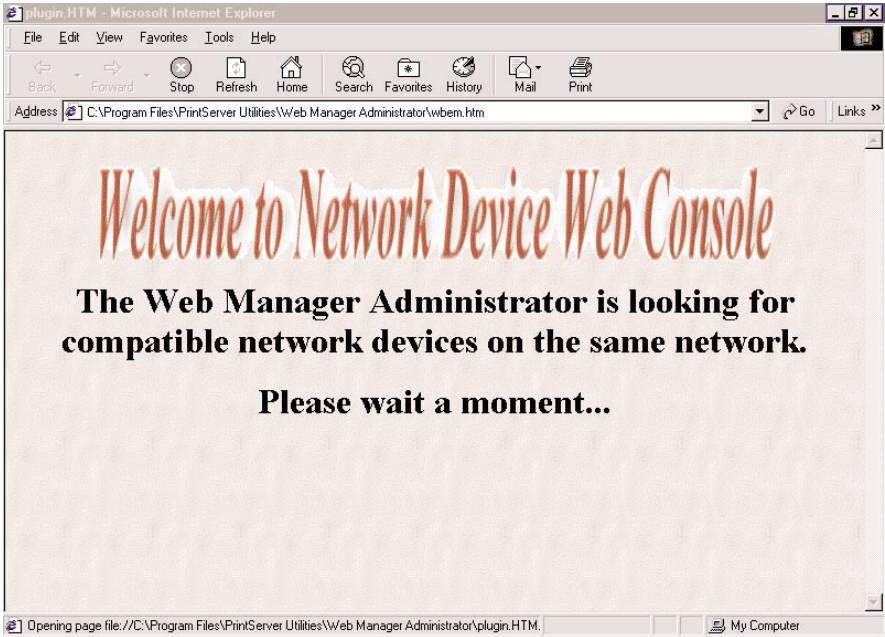


Figure 9-1. Web Console page.

After searching is completed, the screen shown in Figure 9-2 will appear.

The screenshot displays the 'PrintServer Web Utilities' interface. On the left side, there is a sidebar with a 'Web Manager' header, a 'Magic Packet' button, a 'Refresh' button, and a 'Print Server:' section containing a list of servers: RD1, GM1, PS13001B, PS880C, and PS310178 (which is highlighted in red). Below this is a 'Networked P' section with users vicky and christina. The main content area is titled 'PrintServer Web Utilities' and contains a navigation menu with links for PrintServer info, Printer status, NetWare status, DHCP status, Device Cfg, IP Cfg, DHCP Cfg, Mail print Cfg, SNMP Cfg, and Utilities. Below the menu is the heading 'PrintServer information' followed by a table of configuration details for the selected server.

Device name	PS310178
Alias name	PS310178
Model	3P/8E-9.2.32B
Ethernet ID	00:00:B4:31:01:78
Frame type	ETHERNET_802.2 & ETHERNET_II
Protocols support	IPX/SPX/NDS & TCP/IP
Applications	print server/LPD
Network speed	10/100 Mbps
Diagnostic printout	Disable

Figure 9-2. The Print Server Information screen appears once it has completed the search for all print servers.

The window will be split into two parts:

- The Print Server list is on the left portion. It lists all print servers found on the same network.
- The Web Utilities for the selected print server is at the top of the page, and the print server's configuration information is below it.

On the left side of the screen, click on the print server that you want to manage and configure. The print server's Web configuration screen will be displayed on the right side of the page. Instead of executing the Web Manager utility, you may also directly enter the print server's IP address into the address field of any browser to display its Web management screen. The only difference is that the list on the left side of the screen will not be displayed.

9.2 Managing the Print Server via the Web

9.2.1 USING THE BROWSER

You may use any Web browser to review the status or configure the print server's settings. The print server's management screen contains three frames: control panel, status lines, and configuration pages. Figure 9-3 shows the utilities screen.

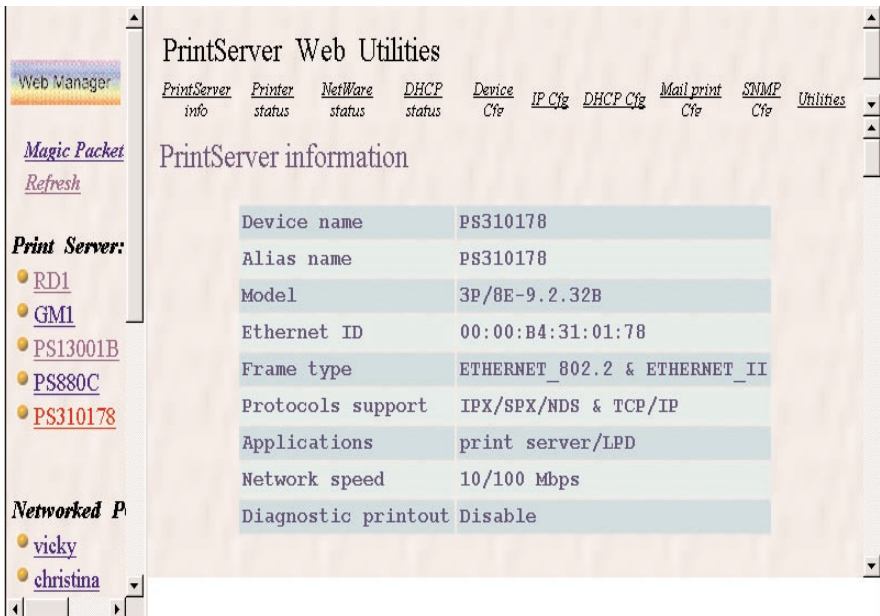


Figure 9-3. Access the print server information.

- The control panel is at the top of the screen. It contains several HyperText links that connect to an information or configuration page.
- The status line is on the bottom of the screen. It displays warning or error messages.
- Configuration pages (located underneath the control panel) contain information about the print server and its attached printer(s). There are several configuration pages that are used to set up the print server.

The browser will group the configuration items into the following topics.

- **Print Server Info:** General information about the print server.
- **Printer Status:** The attached printers' current status.
- **NetWare Status:** Print server connection information for NetWare.
- **DHCP Status:** Current DHCP server status and information.
- **Device Cfg:** Device configuration.
- **IP Cfg:** IP configuration.
- **DHCP Cfg:** DHCP parameter configuration.
- **Mail Print Cfg:** Email printing configuration.
- **SNMP Cfg:** SNMP information configuration.
- **Utilities:** Some of the print server utilities.

To protect your print server, you can get all of the information pages at any time, but you can't save the configuration pages before password verification. You will be asked to check the username and password when you want to save a configuration page that you have not saved yet. Ignore the username and enter the password, then reload the configuration pages again. The configuration pages will now display in the browser window.

9.2.2 GETTING PRINT SERVER INFORMATION

Each time you run the browser to connect to a print server, you will get this Print Server Information page initially. The Print Server Information page (see Figure 9-4) displays general information about the print server.

The screenshot shows the 'PrintServer Web Utilities' interface. At the top, there are navigation links: [PrintServer info](#), [Printer status](#), [NetWare status](#), [DHCP status](#), [Device Cfg](#), [IP Cfg](#), [DHCP Cfg](#), [Mail print Cfg](#), [SNMP Cfg](#), and [Utilities](#). Below these is the 'PrintServer information' section, which contains a table with the following data:

Device name	PS310178
Alias name	PS310178
Model	3P/8E-9.2.32B
Ethernet ID	00:00:B4:31:01:78
Frame type	ETHERNET_802.2 & ETHERNET_II
Protocols support	IPX/SPX/NDS & TCP/IP
Applications	print server/LPD
Network speed	10/100 Mbps
Diagnostic printout	Disable

On the left side of the interface, there is a 'Web Manager' section with links for [Magic Packet](#) and [Refresh](#). Below that is a 'Print Server:' section with a list of items: [RD1](#), [GM1](#), [PS13001B](#), [PS880C](#), and [PS310178](#). At the bottom left, there is a 'Networked P' section with user names [vicky](#) and [christina](#).

Figure 9-4. View the Print Server Information screen.

9.2.3 GETTING PRINTER STATUS

The Printer Status page (see Figure 9-5) can be used to display the printer(s) status for each port.

The screenshot shows the 'PrintServer Web Utilities' page. On the left is a navigation sidebar with links for 'Web Manager', 'Magic Packet', 'Refresh', 'Print Server:' (with sub-links RD1, GMI, PS13001B, PS880C, PS310178), and 'Networked P' (with sub-links vicky, christina). The main content area has a menu with options: [PrintServer info](#), [Printer status](#), [NetWare status](#), [DHCP status](#), [Device Cfg](#), [IP Cfg](#), [DHCP Cfg](#), [Mail print Cfg](#), [SNMP Cfg](#), and [Utilities](#). The 'Printer status' option is selected, displaying a table with printer status for LPT1, LPT2, and LPT3 ports.

Print port	Status
LPT1 Printer status	Ready
LPT2 Printer status	Ready
LPT3 Printer status	Ready
LPT1 Printer info.	No bidirectional information or printer busy
LPT2 Printer info.	No bidirectional information or printer busy
LPT3 Printer info.	No bidirectional information or printer busy

Figure 9-5. Display port status via the Printer Status page.

9.2.4 GETTING NETWARE INFORMATION

The NetWare Status page (see Figure 9-6) displays the print server's NetWare connection information.

The screenshot shows the 'PrintServer Web Utilities' interface. At the top, there is a navigation menu with links: [PrintServer info](#), [Printer status](#), [NetWare status](#) (highlighted), [DHCP status](#), [Device Cfg](#), [IP Cfg](#), [DHCP Cfg](#), [Mail print Cfg](#), [SNMP Cfg](#), and [Utilities](#). Below the menu, the 'NetWare status' section displays the following information:

Printing mode	NetWare print server at bindery mode
File server	RD_SERVER
Attached queue LPT1	PS310178_Q1 at RD_SERVER
Attached queue LPT2	PS310178_Q2 at RD_SERVER
Attached queue LPT3	PS310178_Q3 at RD_SERVER
Network address	00000222
Q polling time	2 seconds

On the left side of the interface, there is a sidebar with the following elements:

- Web Manager** (with a logo)
- [Magic Packet](#)
- [Refresh](#)
- Print Server:**
 - [RD1](#)
 - [GM1](#)
 - [PS13001B](#)
 - [PS880C](#)
 - [PS310178](#)
- Networked P**
 - [vicky](#)
 - [christina](#)

Figure 9-6. View NetWare information for the print server.

9.2.5 GETTING DHCP STATUS

The DHCP Status page (see Figure 9-7) displays the DHCP information when the print server's client DHCP function is enabled.

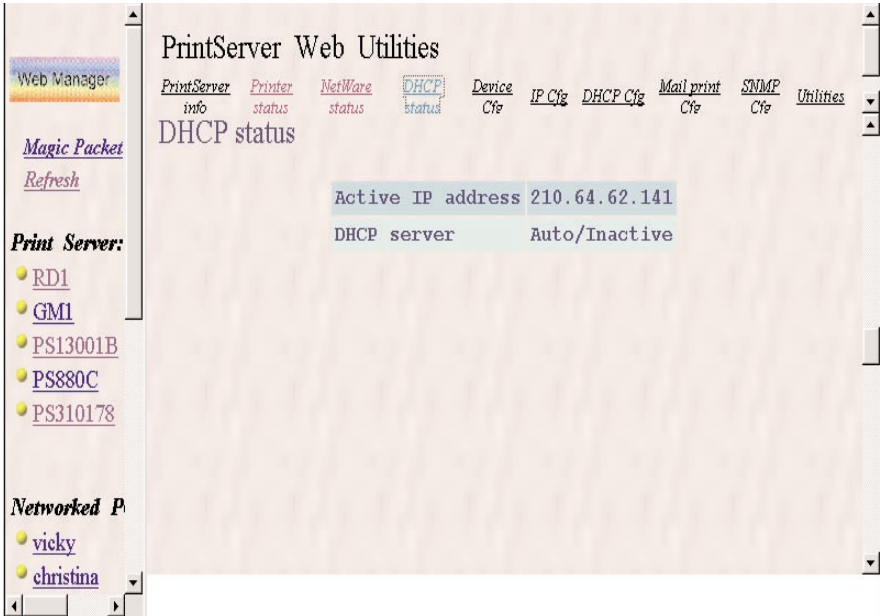


Figure 9-7. DHCP Status page.

9.2.6 CHANGING DEVICE CONFIGURATION

The Device Configuration page (see Figure 9-8) allows you to set several options.

The screenshot shows a web browser interface for the 'Device configuration' page. At the top, there is a navigation menu with links: [PrintServer info](#), [Printer status](#), [NetWare status](#), [DHCP status](#), [Device Cfg](#), [IP Cfg](#), [DHCP Cfg](#), [Mail print Cfg](#), [SNMP Cfg](#), and [Utilities](#). The main heading is 'Device configuration'. Below this, the 'Device name' is set to 'PS310145' and the 'Alias name' is also 'PS310145'. There are three checkboxes: 'NetWare Protocol Support' (checked), 'NetBEUI Protocol Support' (checked), and 'POST diagnostic printout' (unchecked). A 'Save to Print Server' button is located below the checkboxes. Further down, there are two password input fields: 'Type new password' and 'Re-type new password', followed by a 'Change password' button.

Figure 9-8. Device Configuration page.

- Alias Name, another name for the print server (in addition to the PSxxxxxx name printed on the label).
- NetWare Protocol Support. This determines whether or not the print server supports the NetWare printing function.
- NetBEUI Protocol Support. Determines whether or not the print server supports the NetBEUI network protocol.
- The POST Diagnostic Printout determines whether or not a diagnostic printout should be printed to the attached printer.
- The Save to Print Server button saves the configuration to the print server.
- The Type New Password changes to the new password.
- The Retype New Password confirms the new password.
- The Change Password button saves the new password to the print server.

The print server will verify your password (it will ignore the User Name item) when you save the configuration.

Make sure to reset the print server (described in [Section 9.2.10](#)) in order for the changes to take effect.

9.2.7 SETTING THE IP ADDRESS

The IP Configuration page (see [Figure 9-9](#)) allows you to configure the IP address where the print server is to be located. Click on the **Manual** button, then type in the IP address, Subnet mask, and Gateway address.

The screenshot shows a web interface for IP configuration. At the top, there is a navigation menu with links: [PrintServer info](#), [Printer status](#), [NetWare status](#), [DHCP status](#), [Device Cfg](#), [IP Cfg](#) (highlighted), [DHCP Cfg](#), [Mail print Cfg](#), and [SNMP Cfg Utilities](#). Below the menu, the page title is "IP configuration". Underneath, it says "IP address setting". There are two radio buttons: "Automatic" (unselected) and "Manual" (selected). Below the radio buttons, there are three rows of input fields: "IP address", "SubNet mask", and "Gateway Address". Each row has four input boxes separated by dots, all containing the number "0". At the bottom left, there is a button labeled "Save to Print Server".

Figure 9-9. Set the IP address.

The print server will obtain its IP address automatically by the protocol DHCP, BOOTP, or RARP if you click on the **Automatic** button. Click on the **Save to Print Server** button to save the print server's configuration.

The print server will verify your password (it will ignore the User Name item) when you save the configuration. Make sure to reset the print server (described in [Section 9.2.10](#)) in order for the changes to take effect.

9.2.8 CONFIGURING DHCP PARAMETERS

The print server can be configured as a DHCP server (see Figure 9-10) to assign IP addresses to other devices on the network.

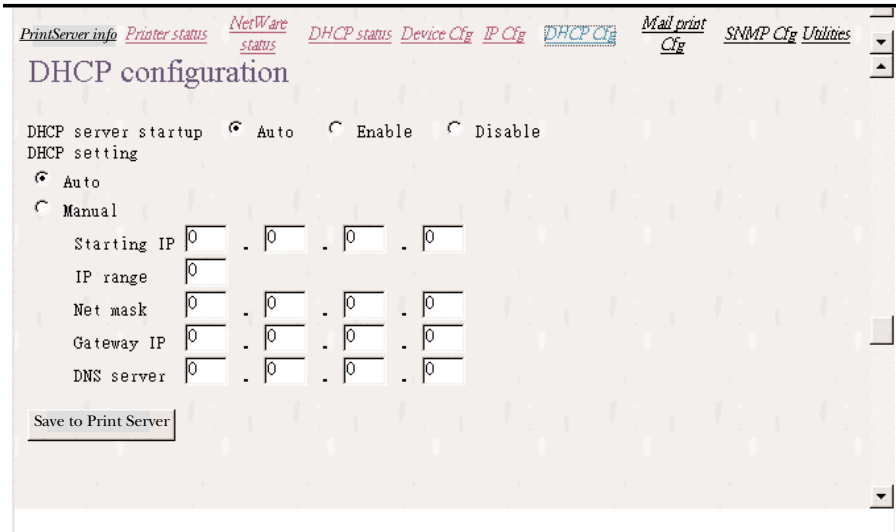


Figure 9-10. DHCP Configuration screen.

The DHCP Configuration page allows you to set:

- The DHCP Server Startup. This determines if the print server will act as a DHCP server. You can enable or disable this option, or set it to Auto. If this item is set to Auto, the print server will detect if there is any other DHCP server on the network when it boots up. If there is no DHCP server on the network, then the print server will configure itself as a DHCP server; otherwise, it will disable this function.
- DHCP Setting is used to configure TCP/IP parameters that will be assigned to a DHCP client. If this item is set to Auto, the print server will determine all TCP/IP parameters automatically; otherwise, you will configure the following parameters:
 - The Starting IP specifies the starting IP address for assigning to DHCP clients.
 - IP Range identifies how many IP addresses are available to DHCP clients.
 - Net Mask lists the network mask.

- Gateway IP is the IP address of the default gateway.
- DNS Server lists the IP address of the domain name server.
- The Save to Print Server button saves the DHCP settings to the print server.

Make sure to reset the print server (described in **Section 9.2.10**) in order for the changes to take effect.

9.2.9 CONFIGURING SNMP PARAMETERS

The SNMP Configuration page (see Figure 9-11) allows you to configure the print server's SNMP parameters. This information can be browsed with the SNMP MIB browser.

Figure 9-11. SNMP Configuration page.

The page allows you to set the System Contact and the System Location. The System Contact is the print server's system administrator information. The System Location is the print server's system location.

9.2.10 SYSTEM UTILITIES

You can perform several tasks from this page (see Figure 9-12), as described below.



Figure 9-12. System Utilities page.

- The Software Reset option determines whether or not to reset the print server.
- The Restore to Factory Default option determines whether or not to erase all of the print server's settings and restore them to the default configuration the print server had when it was shipped from the factory.
- The Print Diagnostic Page determines whether or not to print a diagnostic page to an attached printer connected to the print server's LPT1, LPT2, or LPT3. This feature can be used to test the print server to make sure it's operating properly or to isolate any installation problems.
- The Do It button does the action specified above.

10. IPP Printing

IPP (Internet Printing Protocol) printing provides convenient remote TCP/IP printing. The print server supports IPP printing by default. It is needless to do any setting. Any PC that can support IPP printing (for example Windows 2000 or Windows XP) can directly use the print server via IP. By using the IPP printing, you can share the printer with all the PCs that can access the print server via IP. You can even share your printer with Internet users.

On the print server side, no setting is required. Make sure the print server has correct IP settings. If you want to share the printers with Internet users, you have to set a real IP to the print server. You also have to make sure that any gateway, router, or firewall does not block IPP protocol if you have these gateway devices installed in your network.

You only need to perform the Windows standard Add New Printer procedure (see page 30), select a network printer (shown in Figure 10-1), and click on **Next**.

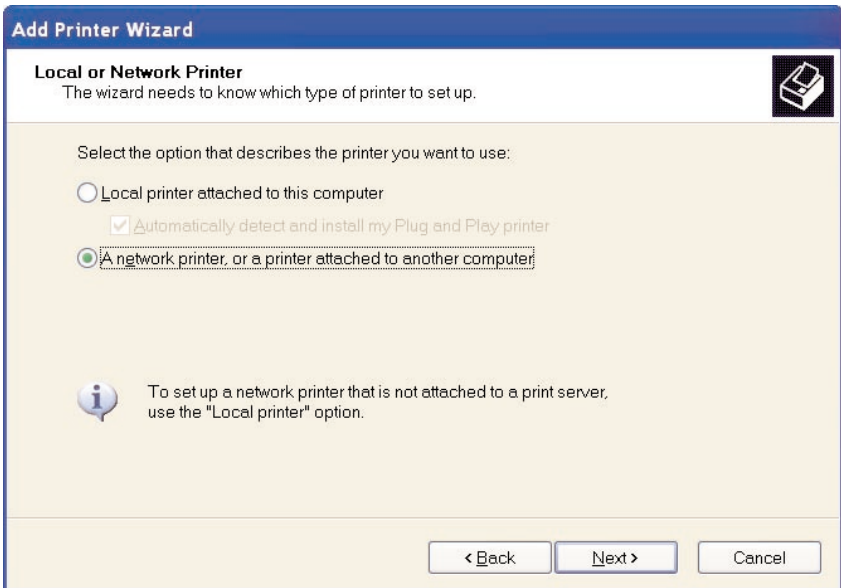


Figure 10-1. Add Printer Wizard screen.

Select **Connect to a printer on the Internet or on a home or office network** (see Figure 10-2) and enter the print server's URL. The URL format is *http://IP:631/LPT_PORT*. The IP should be the print server's IP. LPT_PORT is the port name of print server that your print is connected to. For the one-port print server, the port name is "lpt1". For the three-port print server, the port name is one of the three (lpt1, lpt2, or lpt3). The last number, 631, is IPP standard port number. An example of the URL is *http://192.168.12.13:631/lpt1*. After entering the print server's URL, press **Next** and complete the configurations afterward to access the shared printer.

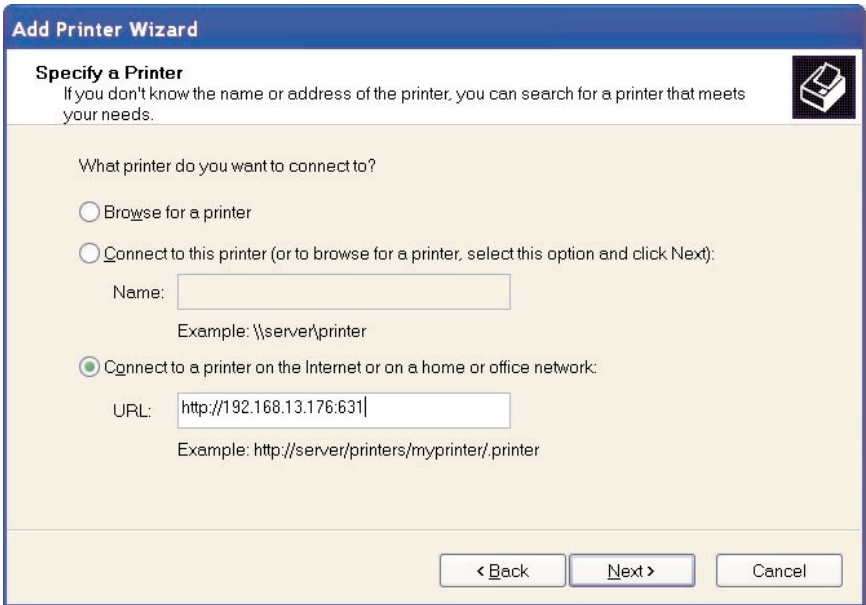


Figure 10-2. Specify a Printer screen.

Appendix. Troubleshooting

A.1 Calling Black Box

If you determine that your Pure Networking 10/100 Desktop Print Server is malfunctioning, do not attempt to alter or repair the unit. It contains no user-serviceable parts. Contact Black Box at 724-746-5500.

Before you do, make a record of the history of the problem. We will be able to provide more efficient and accurate assistance if you have a complete description, including:

- the nature and duration of the problem.
- when the problem occurs.
- the components involved in the problem.
- any particular application that, when used, appears to create the problem or make it worse.

A.2 Shipping and Packaging

If you need to transport or ship your Pure Networking 10/100 Desktop Print Server:

- Package it carefully. We recommend that you use the original container.
- If you are shipping the print server for repair, make sure you include everything that came in the original package. Before you ship, contact Black Box to get a Return Authorization (RA) number.