



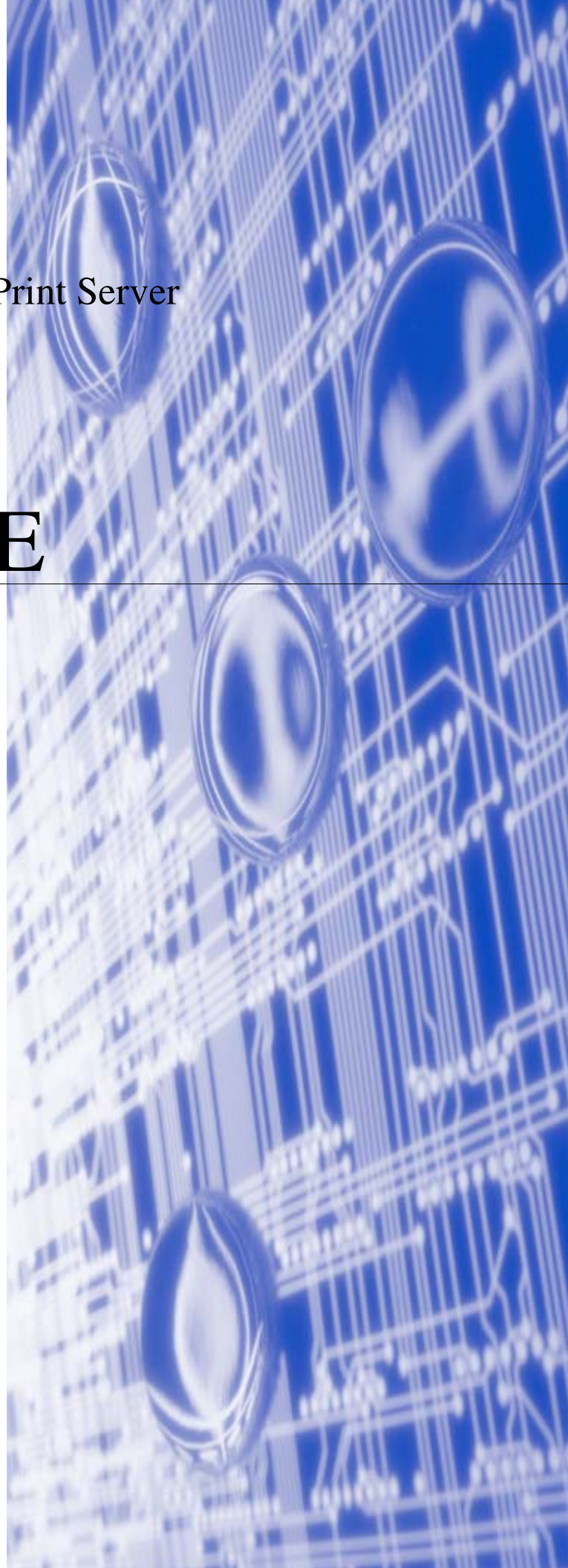
Multi-Protocol On-board Ethernet Print Server

NETWORK USER'S GUIDE

HL-5250DN series
HL-5270DN

Please read this manual thoroughly before using the printer. You can print or view this manual from the Printer CD-ROM at any time, please keep the CD-ROM in a convenient place for quick and easy reference at all times.

The Brother Solutions Center (<http://solutions.brother.com>) is your one stop resource for all your printing needs. Download the latest drivers and utilities for your Brother printers, read the FAQs and troubleshooting tips or learn about special printing solutions.



Definitions of warnings, cautions, and notes

We use the following icon throughout this User's Guide:



Notes tell you how you should respond to a situation that may arise or give tips about how the operation works with other features.

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In USA only 1-800-521-2846

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For Frequently Asked Questions (FAQs), Product Support and Technical Questions, and Driver Updates and Utilities: [**http://solutions.brother.com**](http://solutions.brother.com)

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Overview

The Brother print server allows your Brother printer to be shared on a 10/100Mb Ethernet Network and provides printing services for Windows® 95/98/Me, Windows NT® 4.0, Windows® 2000/XP supporting the TCP/IP protocols and Macintosh® supporting TCP/IP.

To use the Brother printer through a network, you need to configure the print server, and set up the computers you use.

In this chapter, you will learn the basic concept of the network connection and protocols, and in *Chapter 2* you will read information on network configuration. Chapter 3 through Chapter 7 describes how to configure your print server along with your operating system as follows:

Chapter 3: Network printing from Windows®: basic TCP/IP Peer-to-Peer printing

Chapter 4: Network printing from Windows®: NetBIOS Peer-to-Peer printing

Chapter 5: Internet printing for Windows®

Chapter 6: Network printing from Macintosh®

Chapter 7: Control panel setup

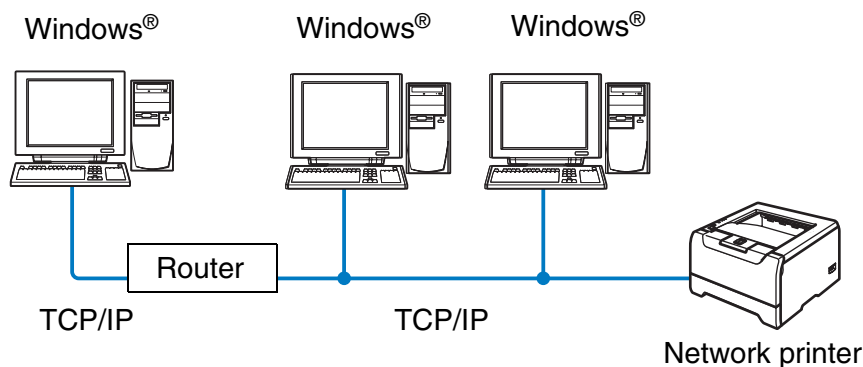
Types of network connection

Generally speaking, there are two types of network connection: Peer-to-Peer environment and a Network Shared environment.

Network connection example

Peer-to-Peer printing using TCP/IP

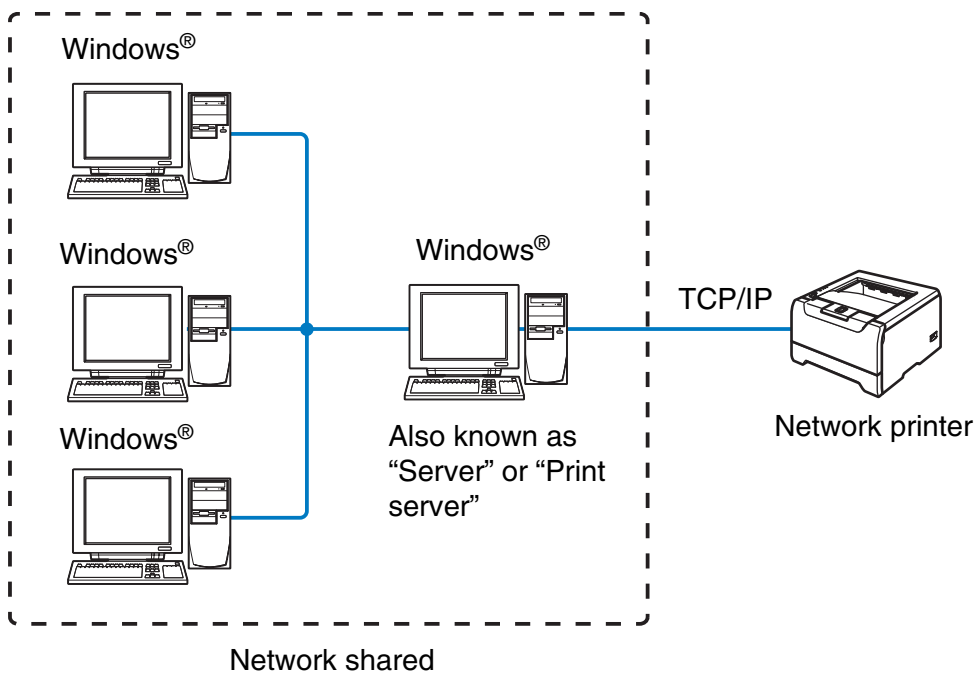
In a Peer-to-Peer environment, each computer directly sends and receives data to and from the Brother printer.



- In a smaller network of 2 or 3 computers, we recommend the Peer-to-Peer printing method as it is easier to configure than the Network Shared Printing method described on the following page. See *Network shared printing* on page 1-3.
- Each computer must use the TCP/IP Protocol.
- The Brother printer needs to have an appropriate IP address configuration.
- If you are using routers, computers can access the Brother printer through the routers. (In this case, the Gateway address must be configured to both computers and the printer.)
- The Brother printer can also communicate with Macintosh®. (TCP/IP compatible operating systems)

Network shared printing

In a network shared environment, each computer sends and receives data to and from the Brother printer via a centrally controlled computer. This type of computer is often called a “server” or a “print server”. Its job is to access print jobs from other computers and then control the printing of these jobs.



- In a larger network, we recommend a network shared printing environment.
- The “server” or the “print server” needs the TCP/IP print protocol configured.
- Each computer must use the TCP/IP Protocol.
- The Brother printer needs to have an appropriate IP address configuration.
- The Brother printer needs to have an appropriate IP address configuration unless the printer is shared via the parallel or USB interface at the server.
- The Brother printer can also communicate with Macintosh®. (TCP/IP compatible operating systems)

Protocols

TCP/IP protocols and functionalities

Protocols are the standardized sets of rules for transmitting data on a network. Protocols allow the user to gain access to network connected resources.

The print server used on this Brother product supports the TCP/IP (Transmission Control Protocol/Internet Protocol) protocol.

TCP/IP is the most popular set of protocols used for communication such as Internet and E-mail. This protocol can be used in almost all operating systems such as Windows®, Macintosh® and Linux.

The following TCP/IP protocols are available on this Brother product.

DHCP/BOOTP/RARP

By using the DHCP/BOOTP/RARP protocols, the IP address can be automatically configured.

 **Note**

To use the DHCP/BOOTP/RARP protocols, please contact your network administrator.

APIPA

If you do not assign an IP address manually (using the BRAdmin software) or automatically (using a DHCP/BOOTP/RARP server), the Automatic Private IP Addressing (APIPA) protocol will automatically assign an IP address from the range 169.254.1.0 to 169.254.254.255.

DNS client

The Brother print server supports the Domain Name Service (DNS) client function. This function allows the print server to communicate with other devices by using its DNS name.

NetBIOS/IP

NetBIOS over IP basic functionality allows the Brother print server to appear in a Windows® network neighborhood.

LPR/LPD

Commonly used printing protocols on a TCP/IP network.

Port9100

Another commonly used printing protocol on a TCP/IP network.

SMTP client

Simple Mail Transfer Protocol (SMTP) client is used to send e-mails via Internet or Intranet.

IPP

Internet Printing Protocol (IPP Version 1.0) allows you to print documents directly to any accessible printer via the internet.

mDNS

mDNS allows the Brother print server to automatically configure itself to work in a Mac OS® X Simple Network Configured system. (Mac OS® X 10.2.4 or greater).

TELNET

The Brother print server supports TELNET server for command line configuration.

SNMP

The Simple Network Management Protocol (SNMP) is used to manage network devices including computers, printers and terminals in a TCP/IP network.

Web server (HTTP)

The Brother print server is equipped with a web server that allows you to monitor its status or change some of its configuration settings.



Note

We recommend Microsoft Internet Explorer 6.0 (or higher) or Netscape® 7.1 (or higher). If a different web browser is used, make sure it is compatible with HTTP 1.0 and HTTP 1.1.

Overview

Before using your Brother printer in a network environment, you must configure the TCP/IP settings. In this chapter, you will learn the basic steps required to print over the network using the TCP/IP protocol.



Note

You can configure the printer's TCP/IP settings using the control panel on the printer (for HL-5270DN). For further information, see *Control panel setup* in Chapter 7.

We recommend that you use the automatic installer application in the CD-ROM we have provided with the printer. By using this application, you can easily connect your printer to your network and install the network software and printer driver which you need to complete the network configuration. You will be guided by the on-screen instructions until you are able to use your Brother network printer. Please follow the instructions in the supplied Quick Setup Guide.

If you want to configure your printer without using the automatic installer application, please read this chapter and learn how to configure the TCP/IP settings. Then, in *Chapter 3*, *Chapter 4*, *Chapter 5* and *Chapter 6*, you will learn how to install the network software and the printer driver into the operating system running on your computer.

IP addresses, subnet masks and gateways

To use the printer in a networked TCP/IP environment, you need to configure the IP address and subnet mask. The IP address you assign to the print server must be on the same logical network as your host computers. If it is not, you must properly configure the subnet mask and the gateway address.

IP address

An IP address is a series of numbers that identifies each computer connected to a network. An IP address consists of four numbers separated by dots. Each number is between 0 and 255.

Example: In a small network, set the IP addresses by changing the final number.

192.168.1.1, 192.168.1.2, 192.168.1.3

How the IP address is assigned to your print server:

If you have a DHCP/BOOTP/RARP server in your network (typically a UNIX®/Linux or Windows® 2000/XP network) the print server will automatically obtain its IP address from the DHCP server and register its name with any RFC 1001 and 1002-compliant dynamic name services.

Note

On smaller networks, the DHCP server may be the router.

For more information on DHCP, BOOTP and RARP, see *Using DHCP to configure the IP address* on page A-1, *Using BOOTP to configure the IP address* on page A-2 and *Using RARP to configure the IP address* on page A-2.

If you do not have a DHCP/BOOTP/RARP server, the Automatic Private IP Addressing (APIPA) protocol will automatically assign an IP address from the range 169.254.1.0 to 169.254.254.255. For more information on APIPA, see *Using APIPA to configure the IP address* on page A-3.

If the APIPA protocol is disabled, the default IP address of a Brother print server is 192.0.0.192. However, you can easily change this IP address number to match with the IP address details of your network. For information on how to change the IP address, see *Setting the IP address and subnet mask* on page 2-3.

Subnet mask

Subnet masks restrict network communication.

Example: PC1 can talk to PC2

PC1 IP Address: 192.168.1.2
Subnet Mask: 255.255.255.0

PC2 IP Address: 192.168.1.3
Subnet Mask: 255.255.255.0

Note

0 denotes that there is no limit to communication at this part of the address.

In the above example, we can communicate with anything that has an IP address that begins with 192.168.1.X

Gateway (and router)

A gateway is a network point that acts as an entrance to another network and sends data transmitted via the network to an exact destination. The router knows where to direct data that arrives at the gateway. If a destination is located at an external network, the router transmits data to the external network. If your network communicates with other networks, you may need to configure the Gateway IP address. If you do not know the Gateway IP address then contact your Network Administrator.

Setting the IP address and subnet mask

Using the BRAdmin Professional utility to configure your network printer (for Windows® only)

BRAdmin Professional utility

The BRAdmin Professional utility is designed to allow you to manage your network connected Brother printers in a TCP/IP environment.

How to configure your printer using the BRAdmin Professional utility



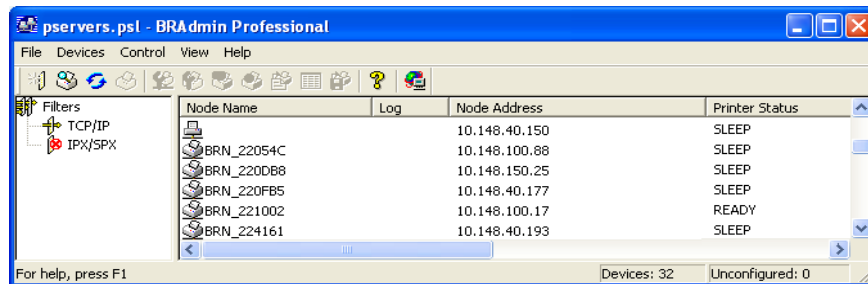
Note

- Please use the BRAdmin Professional utility version that was supplied on the CD-ROM with your Brother product. You can also download the latest Brother BRAdmin Professional utility version from <http://solutions.brother.com>. This utility is only available for Windows® users.
- If you are using Personal Firewall software (e.g. the Internet Connection Firewall available in Windows® XP), disable it. Once you are sure that you can print, re-start your Personal Firewall software.
- Node name: Node name appears in current BRAdmin Professional. The default Node name is "BRN_XXXXXX" ("XXXXXX" is the last six digits of Ethernet address.).
- The default password for Brother print servers is `access`.

1 Start the BRAdmin Professional utility (from Windows® 95/98/Me, Windows NT® 4.0 and Windows® 2000/XP), by clicking **Start / Programs / Brother Administrator Utilities / Brother BRAdmin Professional Utilities / BRAdmin Professional**.

2 Select **TCP/IP** in the left frame of the main BRAdmin window.

- 3 Select **Search Active Devices** from the **Devices** menu. BRAdmin Professional will search for new devices automatically.



Note

- If the print server is set to its factory default settings without using a DHCP/BOOTP/RARP server, the device will appear as APIPA in the BRAdmin Professional utility screen.
- You can find the node name and Ethernet address (**Node Address** above) by printing out the Printer Settings Page. See *Printing the Printer Settings Page* on page 7-6 for information on how to print the Printer Settings Page on your print server.

4 Double-click the unconfigured device.

5 Enter the **IP address**, **Subnet Mask** and **Gateway** (if needed) of your print server.

6 Click **OK**.

7 With the correctly programmed IP address, you will see the Brother print server in the device list.

Using the control panel to configure your machine for a network (for HL-5270DN)

You can configure your network printer using the control panel **Network** menu. See *Control panel setup* on page 7-1.

Using other methods to configure your network printer

You can configure your network printer using other methods. See *Other ways to set the IP address (for advanced users and administrators)* on page A-1.

Changing the print server settings

Using the BRAdmin Professional utility to change the print server settings (for Windows® only)

2

- 1** Start the BRAdmin Professional utility (from Windows® 95/98/Me, Windows NT® 4.0 and Windows® 2000/XP), by clicking **Start / Programs / Brother Administrator Utilities / Brother BRAdmin Professional Utilities / BRAdmin Professional**.
- 2** Select **TCP/IP** in the left frame of the main BRAdmin window.
- 3** Select the print server which you want to configure, in the right frame of the main BRAdmin window.
- 4** Select **Configure Print Server** from the **Control** menu.
- 5** Enter a password. The default Password is `access`.
- 6** You can now change the print server settings.

Using the control panel to change the print server settings (for HL-5270DN)

You can configure and change the print server settings using the control panel NETWORK menu. See *Control panel setup* on page 7-1.

Using the HTTP (web browser) to change the print server settings

A standard web browser (we recommend Microsoft Internet Explorer version 6.0 (or higher), or Netscape® version 7.1 (or higher)) can be used to change your print server settings using the HTTP (Hyper Text Transfer Protocol). To use a web browser, you must have assigned an IP address to the print server.

- 1 Type `http://printer_ip_address/` into your browser. (Where `printer_ip_address` is the IP address or the print server name)

For example: `http://192.168.1.2/` (if the printer's IP address is 192.168.1.2.)



Note

If you have edited the hosts file on your computer or are using Domain Name System, you can also enter the DNS name of the print server. As the print server supports TCP/IP and NetBIOS names, you can also enter the NetBIOS name of the print server. The NetBIOS name can be seen in the printer settings page. The NetBIOS name assigned is the first 15 characters of the node name and by default it will appear as `BRN_XXXXXX` where `XXXXXX` is the last six digits of the Ethernet address.

- 2 Click **Network Configuration**.
- 3 Enter a user name and a password. The User Name is `admin` and the default Password is `access`.
- 4 Click **OK**.
- 5 Click **Configure TCP/IP**.
- 6 You can now change the printer server settings.

Overview

If you are a Windows® user and want to print using the TCP/IP protocol in a Peer-to-Peer environment, please follow the instructions in this chapter. This chapter explains how to install the network software and the printer driver which you will need to be able to print using your network printer.



Note

- You must configure the IP address on your printer before you proceed with this chapter. If you haven't done yet, see *Chapter 2* first.
- Verify the host computer and print server are either on the same subnet, or that the router is properly configured to pass data between the two devices.
- The default password for Brother print servers is `access`.

For Windows® 2000/XP users

By default, Windows® 2000/XP systems install the necessary print software to enable you to print. This section describes the most commonly used configuration, Standard TCP/IP Port printing. Windows® 2000/XP users can also print via the Internet using the IPP protocol. For more information, see *Internet printing for Windows®* on page 5-1.

If you have already installed the printer driver, jump to *Printer driver already installed* on page 3-2.

Configuring the standard TCP/IP port

Printer driver not yet installed

- 1** For Windows® XP: Go to the **Start** button and select **Printers and Faxes**.
For Windows® 2000: Go to the **Start** button, select **Settings** and then **Printers**.
- 2** For Windows® XP: Click **Add a printer** to get the **Add Printer Wizard**.
For Windows® 2000: Double click the **Add Printer** icon to get the **Add Printer Wizard**.
- 3** Click **Next** when you see the **Welcome to the Add Printer Wizard** screen.
- 4** Select **Local printer** and deselect the **Automatically detect and install my Plug and Play printer** option.
- 5** Click **Next**.
- 6** You must now select the correct Network printing port. Select **Create a new port** and select **Standard TCP/IP Port** port from the pull-down window.

- 7 Click **Next**.
- 8 The **Add Standard TCP/IP Printer Port Wizard** will now appear. Click **Next**.
- 9 Enter the IP address, or the print server name you wish to configure. The Wizard will automatically enter the Port name information for you.
- 10 Click **Next**.
- 11 Windows® 2000/XP will now contact the printer that you specified. If you did not specify the correct IP address or name then you will receive an error message.
- 12 Click the **Finish** button to complete the Wizard.
- 13 Now that you have configured the port, you must specify which printer driver you wish to use. Select the appropriate driver from the list of supported printers. If you are using a driver supplied with the printer on CD-ROM then select the **Have Disk** option to browse to the CD-ROM.
- 14 For example, select the “X:\Driver\PCL\WIN2K_XP\your language” folder (where X is your drive letter). Click **Open**, and then **OK**. Select your printer model, then click **Next**.
- 15 Specify a name and click the **Next** button.
- 16 Now specify if you wish to share the printer, enter the share name and click **Next**.
- 17 Continue through the Wizard clicking the **Finish** button when complete.

Printer driver already installed

If you have already installed the printer driver and wish to configure it for network printing, follow these steps:

- 1 Select the printer driver you wish to configure.
- 2 Select **File** and then **Properties**.
- 3 Click the **Ports** tab of the driver and click **Add Port**.
- 4 Select the port that you wish to use. Typically this would be **Standard TCP/IP Port**. Then click the **New Port...** button.
- 5 The **Standard TCP/IP Port Wizard** will start. Follow steps 8 to 12 of *Printer driver not yet installed* on page 3-1.

For Windows NT® 4.0 users

Windows NT® 4.0 users can send print job using Brother Peer-to-Peer Print software provided on the Brother CD-ROM supplied with the printer.

Installing the TCP/IP protocol

If you did not install the TCP/IP protocol during the installation of your Windows NT®4.0 system (either workstation or server) follow these steps. If you have already installed the TCP/IP protocol, proceed to the next section, *Installing the Brother Peer-to-Peer software* on page 3-3.

- 1 Go to the **Start** button, select **Settings**, and then **Control Panel**.
- 2 Run the **Network** applet by double clicking the **Network** icon and then click the **Protocols** tab.
- 3 Select **Add**, and double click the **TCP/IP Protocol**.
- 4 Insert the requested disk(s), or CD-ROM, to copy the required files.
- 5 Click **Close**. The Windows NT® 4.0 system will review protocol bindings and then you will see the **TCP/IP Properties** dialog.
- 6 Configure the host IP address, subnet mask, and gateway address in that dialog. Consult your system administrator for these addresses.
- 7 Click **OK** to exit (your Windows NT®4.0 workstation or server will need to be re-booted).

Installing the Brother Peer-to-Peer software

- 1 Start the CD-ROM installation menu program according to the printer Quick Setup Guide.
- 2 Select your model and the desired language. Then click **Install Other Drivers or Utilities**.
- 3 Select the **Network Print Software** installation program.
- 4 Click **Next** in response to the Welcome message.
- 5 Read the license agreement carefully. Then follow the on-screen instructions.
- 6 Select the **Brother Peer-to-Peer Print (LPR)** button.
- 7 Select the desired directory to install the **Brother Peer-to-Peer Print (LPR)** files and click **Next**. The installation program will create the directory for you if it does not already exist on your disk.
- 8 Enter the Port name that you wish to use and click **OK**. The default port name is BLP1. Whichever name you choose, it must be unique and it **MUST** begin with BLP.

- 9** You must now enter the actual IP address of the print server and the print server name. If you have edited the hosts file on your computer or are using Domain Name System, you can also enter the DNS name of the print server. As the print server supports TCP/IP and NetBIOS names, you can also enter the NetBIOS name of the print server. The NetBIOS name can be seen in the printer settings page. The NetBIOS name assigned is the first 15 characters of the node name and by default it will appear as BRN_XXXXXX where XXXXXX is the last six digits of the Ethernet address.

**Note**

- The node name and the NetBIOS name is printed on the Printer Settings Page. To learn how to print the Printer Settings Page, see *Printing the Printer Settings Page* on page 7-6.
- If you search the device using the search function in Step 8 above, disable the Personal Firewall software if you are using it. Once you are sure that you can print, re-start your Personal Firewall software.

- 10** Click the **Finish** button. When prompted you must re-boot your computer.

Associating to the printer

You must now create a printer on your Windows® system using the standard Windows® printer setup procedure.

- 1** To do this, go to the **Start** button, select **Settings** and then **Printers**.
- 2** Double click the **Add Printer** icon to get the **Add Printer Wizard**.
- 3** Select **My Computer** (not Network Printer) and click **Next**.
- 4** Select the Brother LPR Port (the port name you assigned in step 7 of the “Installing Brother Peer-to-Peer Software” section in this chapter) and click **Next**.
- 5** Select the desired printer model. If the correct model is not displayed, click the **Have Disk** option and insert the CD-ROM supplied with your printer.
- 6** If the driver already exists, select **Keep Existing Driver** (if it does not exist, this step will be skipped), and then click **Next**.
- 7** If desired, change the name of the printer then click **Next**.
- 8** If desired, make the printer shared (so other user can access it), and select the operating system(s) that these other computers will be running. Click **Next**.
- 9** Select **Yes** when you asked **Would you like to print a test page?**. Click **Finish** to complete the installation. You may now print to the printer as if it were a local printer.

Adding a second Brother LPR port

You do not need to re-run the install program to add a new Brother LPR port. Instead, go to the **Start** button, select **Settings**, and open the **Printers** window. Click the icon of the printer that you wish to configure, select **File** from the menu bar, and then **Properties**. Click the **Ports** tab and then the **Add Port** button. In the **Printer Ports** dialog, highlight **Brother LPR Port**. Click the **New Port** button and enter the port name. The default port name is BLP1. If you have already used this name, you will get an error message if you try to use it again, in which case use BLP2, etc... Once you have specified the port name, click **OK**. You will then see the **Port Settings** dialog.

Enter the IP address of the printer that you wish to print to and click **OK**. And then click **Close** in the **Printer Ports** dialog. You should now see the port that you have just created in the **Print to the following port(s)** setting of the printer driver.

For Windows® 95/98/Me users

Windows® 95/98/Me users can send print job using Brother Peer-to-Peer Print software provided by the CD-ROM which we have supplied with the printer.

Installing the Brother Peer-to-Peer software



Note

If you already installed the driver from the printer's CD-ROM Installer and you selected "Brother Peer-to-Peer Network Printer" during the installation then you do not need to install the Brother Network Print Software again.

- 1 Start the CD-ROM installation menu program according to the Quick Setup Guide.
- 2 Select your model and the desired language. Then click **Install Other Drivers or Utilities**.
- 3 Select the **Network Print Software** installation program.
- 4 Click **Next** in response to the Welcome message.
- 5 Read the license agreement carefully. Then follow the on-screen instructions.
- 6 Select the **Brother Peer-to-Peer Print (LPR)** button.
- 7 Select the desired directory to install the **Brother Peer-to-Peer Print (LPR)** files and push **Next**. The installation program will create the directory for you if it does not already exist on your disk.
- 8 Enter the **Port name** that you wish to use and click **OK**. The default port name is BLP1. Whichever name you choose, it must be unique and it **MUST** begin with BLP.

- 9** You must now enter the actual IP address of the print server and the print server name. If you have edited the hosts file on your computer or are using Domain Name System, you can also enter the DNS name of the print server. As the print server supports TCP/IP and NetBIOS names, you can also enter the NetBIOS name of the print server. The NetBIOS name can be seen in the printer settings page. The NetBIOS name assigned is the first 15 characters of the node name and by default it will appear as BRN_XXXXXX where XXXXXX is the last six digits of the Ethernet address.

**Note**

- The node name and the NetBIOS name is printed on the Printer Settings Page. To learn how to print the Printer Settings Page, see *Printing the Printer Settings Page* on page 7-6.
- If you search the device using the search function in Step 8 above, disable the Personal Firewall software if you are using it. Once you are sure that you can print, re-start your Personal Firewall software.

- 10** Click the **Finish** button. When prompted you must re-boot your computer.

Associating to the printer

You must now create a printer on your Windows® system using the standard Windows® printer setup procedure.

- 1** To do this, go the **Start** button, select **Settings** and then **Printers**.
- 2** Double click **Add Printer** to begin the printer installation.
- 3** Click **Next** when you get the **Add Printer Wizard** window.
- 4** Select **Local Printer** when you are asked how the printers are connected to your computer, and then click **Next**.
- 5** Select the correct driver. Click **Next** when you are done.
- 6** If you have selected a printer driver that is already being used, you have the option of either keeping the existing driver (recommended) or replacing it. Select the desired option and click **Next**.
- 7** Select the Brother LPR port (the port name you assigned in step 7 of the *Installing the Brother Peer-to-Peer software* on page 3-5) and click **Next**.
- 8** Enter any desired name for the Brother printer and click **Next**. For example, you could call the printer “Networked Brother Printer”.
- 9** Windows® will now ask you if you wish to print out a test page, select **Yes** and then select **Finish**. You have now finished installing the Peer-to-Peer Print (LPR) software.

Adding a second Brother LPR port

You do not re-run the install program to add a new Brother LPR port. Instead, go to the **Start** button, select **Settings**, and open the **Printers** window. Click the icon of the printer that you wish to configure, select **File** from the menu bar, and then **Properties**. Click the **Details** tab and then the **Add Port** button. In the **Add Port** dialog, select the **Other** radio button and then highlight **Brother LPR port**. Click **OK** and enter the port name. The default port name is BLP1. If you have already used this name, you will get an error message if you try to use it again, in which case use BLP2, etc... Once you have specified the port name, click the **OK** button. You will then see the **Port Properties** dialog.

Enter the IP address of the printer that you wish to print to and click **OK**. You should now see the port that you have just created in the **Print to the following port** setting of the printer driver.

Other sources of information

See *Chapter 2* of this User's Guide to learn how to configure the IP address of the printer.

Network printing from Windows[®]: NetBIOS Peer-to-Peer printing

Overview

Brother print server range supports SMB (Server Message Block). This means that just like regular Windows[®] PC's, Brother printers can appear in your network neighborhood. The main advantage of NetBIOS printing is that you are able to print from legacy DOS applications that are running on PC's that are connected to Microsoft[®] networks.



Note

- You must configure the IP address on your printer before you proceed with this chapter. See *Chapter 2* for more information.
- The default password for Brother print servers is `access`.
- The default domain name of the print server is `WORKGROUP`, to change it use your web browser or the BRAdmin application.

Print server configuration for Windows[®] 95/98/Me, Windows[®] 2000/XP and Windows NT[®] 4.0

Print server configuration

In order for this function to work, you must correctly change the domain name or workgroup name to match that of your network. Once this is done, the print server will appear automatically in your network neighborhood and you will be able to send print documents to it without having to install additional software. However, in some instances you may find that your Windows[®] 95/98/Me/2000/XP and Windows NT[®]4.0 systems may receive "Printer is busy" error messages when more than one person attempts to access the printer. In this instance Brother has provided the "Brother NetBIOS Port Monitor" software which allows users to continue spooling print jobs while the printer is busy, down or out of paper. The port monitor will hold the jobs until the printer is again available.

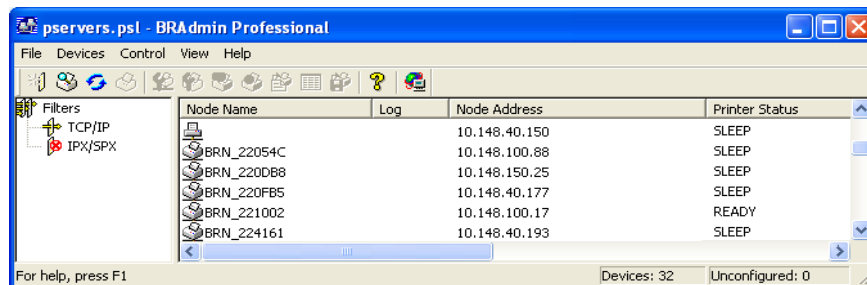
When you install Windows[®] 95/98/Me you are asked which workgroup you belong to. The default workgroup name for Windows[®] 95/98/Me is `WORKGROUP`, however you could change this to anything you want. With Windows NT[®]4.0, Microsoft introduced the concept of "Domains". A domain offers centralized security management whereas a workgroup offers distributed security management. The print server does not care if your network consists of a Workgroup or a Domain, the only thing you must tell it is the name of the workgroup or domain. The Brother print server automatically has a default workgroup/domain name of `WORKGROUP`. If you need to change name, you can configure the Brother print server to recognize this. There are three ways of doing this. (If you are unsure about the name of your workgroup or domain, look in the identification tab in your network applet).

Changing the Workgroup/Domain Name using the BRAdmin Professional utility

Note

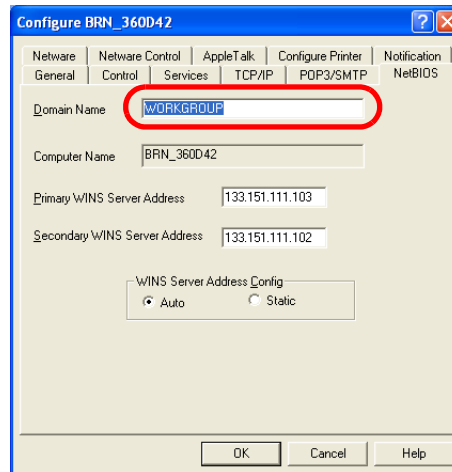
- The print server must have a valid IP address and your computer must also have a valid IP address; you can configure the IP address by using the BRAdmin Professional utility. See *Using the BRAdmin Professional utility to configure your network printer (for Windows® only)* on page 2-3.
- Please use the BRAdmin Professional utility version that was supplied on the CD-ROM with your Brother product. You can also download the latest Brother BRAdmin Professional utility version from <http://solutions.brother.com>. This utility is only available for Windows® users.
- The default password for Brother print servers is `access`.

- 1 Start the BRAdmin Professional utility (from Windows® 95/98/Me, Windows NT® 4.0 and Windows® 2000/XP), by clicking **Start / Programs / Brother Administrator Utilities / Brother BRAdmin Professional Utilities / BRAdmin Professional**.



- 2 Select **TCP/IP** in the left frame of the main BRAdmin window.
- 3 Select the print server which you want to configure, in the right frame of the main BRAdmin window.
- 4 Select **Configure Print Server** from the **Control** menu.
- 5 Enter a password. The default Password is `access`.

6 Select **NetBIOS** tab. Enter a workgroup/domain name.



4



Note

Because of the way that Microsoft® networks work, the print server may take several minutes to appear in the network neighborhood. You will also find that the print server may take several minutes to disappear from the network neighborhood even if the printer is switched off. This is a feature of Microsoft® workgroup and domain based networks.

Changing the Workgroup/Domain Name using a web browser

You can also use a standard WWW browser to change the NetBIOS name. To do this, connect to the print server using its IP address and then select the **Configure NetBIOS** option from the **Network Configuration** screen, then enter your workgroup/domain name into the **Domain Name** text box. Make sure you submit the changes (click the **Submit** button).

Changing the Workgroup/Domain Name using TELNET

If you are unable to use the BRAdmin Professional utility, you can use TELNET.

When you are connected to the print server, enter the default password `access` in response to the `#` prompt. Type in anything in response to the `Enter Username>` prompt, you will then be at the `Local>` prompt.

Now enter the command:

```
SET NETBIOS DOMAIN domainname
EXIT
```

Where `domainname` is the name of the domain or workgroup that you are on. If you are not sure what your domain name or workgroup name is, look in the Identification tab in your Windows® 95/98/Me and Windows NT®4.0 network applet.

Installing the Brother NetBIOS Port Monitor

The Brother NetBIOS Port Monitor requires the TCP/IP transport protocols to be installed on your Windows® 95/98/Me/2000/XP and Windows NT®4.0 computer. To install those protocols, see your Windows® documentation. If you are using the TCP/IP protocol, the proper IP address should be defined on both the Brother print server and your client PC.



Note

If you already installed the driver from the printers CD-ROM Installer and you selected “Brother Peer-to-Peer Network Printer” during the installation, then you do not need to install the Brother Network Print Software again.

- 1 Start the CD-ROM installation menu program according to the printer Quick Setup Guide.
- 2 Select your model and the desired language. Then click **Install Other Drivers or Utilities**.
- 3 Select the **Network Print Software** installation program.
- 4 Click **Next** in response to the Welcome message.
- 5 Read the license agreement carefully. Then follow the on-screen instructions.
- 6 Select **Brother Peer-to-Peer Print (NetBIOS)** installation.
- 7 Select the desired directory to install the Brother Network Direct Print files and click **Next**.
- 8 Enter the port name that you wish to use. The port name must start with "BNT". For example BNT1. Whichever name you choose, it must be unique. Then click **OK**. The name must be unique on your PC, however other computers can use the same port name as the name you specify on your PC.
- 9 You must now enter the server name and port name for the actual print server. You can use the **Browse** button to search for the print server, select the domain/workgroup name, and then the server is listed. If the print server does not automatically appear in your browse list, then you must ensure that the domain name is configured correctly. Otherwise you must enter the name manually. The name should be compliant with UNC (Universal Name Convention). For example: `\\NodeName\ServiceName`.

Where `NodeName` is the NetBIOS name of the Brother print server (the default name is usually `BRN_XXXXXX`, where `XXXXXX` is the last six digits of the Ethernet address), and `ServiceName` is the service name for NetBIOS of the print server. By default it is `BINARY_P1`. For example:
`\\BRN_310107\BINARY_P1`



Note

You can find the NetBIOS name and node name by printing out the Printer Settings Page. See *Printing the Printer Settings Page* on page 7-6.

10 Then click **OK**.

11 Click the **Finish** button. You must now restart your computer before you can continue.

Associating to the printer

4

You must now create a printer on your Windows® 95/98/Me, Windows NT®4.0 and Windows® 2000/XP systems using the standard Windows® printer setup procedure.

Windows® 95/98/Me

- 1** Go to the **Start** button, select **Settings** and then **Printers**.
- 2** Double click **Add Printer** to begin the printer installation.
- 3** Click **Next** when you get the **Add Printer Wizard** window.
- 4** Select **Local Printer** when you are asked how the printer is connected to your computer, and then click **Next**.
- 5** Select the correct driver. Click **Next** when you are done.
- 6** If you have selected a printer driver that is already being used, you have the option of either keeping the existing driver (recommended) or replacing it. Select the desired option and click **Next**.
- 7** Select the **Brother NetBIOS Port** (the port name you assigned in step 7 of the “Installing the Brother NetBIOS Port Monitor” section) and click **Next**.
- 8** Enter any desired name for the Brother printer and click **Next**. For example, you could call the printer "Networked Brother Printer".
- 9** Windows® will now ask you if you wish to print out a test page, select **Yes** and then select **Finish**.

You are now ready to print. If necessary, you can share the printer on your PC so that all print jobs are routed through your computer.

Windows NT®4.0 / Windows® 2000/XP

- 1** For Windows® XP: Go to the **Start** button and select **Printers and Faxes**.
For Windows® 2000: Go to the **Start** button, select **Settings** and then **Printers**.
- 2** For Windows® XP: Select **Add a printer** to begin the printer installation.
For Windows® 2000 and Windows NT® 4.0: Double click **Add Printer** to begin the printer installation.
- 3** Click **Next** when you get the **Add Printer Wizard** window.
- 4** Select **Local printer** (Windows® 2000), **Local printer attached to this computer** (Windows® XP) or

My computer (Windows NT® 4.0) when you are asked how the printer is connected to your computer, and then click **Next**.

- 5 Select the **Brother NetBIOS Port** (the port name you assigned in step 7 of the “Installing the Brother NetBIOS Port Monitor” section) and click **Next**.
- 6 Select the correct driver. Click **Next** when you are done.
- 7 If you have selected a printer driver that is already used, you have the option of either keeping the existing driver (recommended) or replacing it. Select the desired option and click **Next**.
- 8 Enter any desired name for the Brother printer and click **Next**. For example, you could call the printer "Networked Brother Printer".
- 9 Select **Not Shared** or **Shared** and **Share Name** and click **Next**.
- 10 Windows® will now ask you if you wish to print out a test page, select **Yes** and then select **Finish**.

You are now ready to print. If necessary, you can share the printer on your PC so that all print jobs are routed through your computer.

Adding a second NetBIOS print port

- 1 You do not need to re-run the installation program to add a new NetBIOS port. Instead, click the **Start** button, select **Settings**, and open the **Printers** window. Click the icon of the printer that you wish to configure, select **File** from the menu bar, and then **Properties**.

Windows® 95/98/Me

- 2 Click the **Details** tab and click the **Add Port** button. In the **Add Port** dialog, select the **Other** radio button and then highlight **Brother NetBIOS port**. Click **OK** and enter the port name. The default port name is BNT1. If you have already used this name, you will get an error message if you try to use it again, in which case use BNT2, etc... Once you have specified the port name, click the **OK** button. You will then see the **Port Properties Dialog**. Enter the print server and port name of the printer that you wish to print to and click **OK**. You should now see the port that you have just created in the **Print to the following port** setting of the printer driver.

Windows NT®4.0 / Windows® 2000/XP

- 2 Click the **Ports** tab and click the **Add Port** button. In the **Add Port** dialog, highlight **Brother NetBIOS port**. Click **New Port** and enter the port name. The default port name is BNT1. If you have already used this name, you will get an error message if you try to use it again, in which case use BNT2, etc... Once you have specified the port name, click the **OK** button. You will then see the **Port Properties Dialog**. Enter the print server and port name of the printer that you wish to print to and click **OK**. You should now see the port that you have just created in the **Print to the following port** setting of the printer driver.

Other sources of information

- 1 Visit <http://solutions.brother.com> for more information on network printing.
- 2 See *Chapter 2* of this User's Guide to learn how to configure the IP address of the printer.

Overview

Windows® 2000/XP users can print using TCP/IP using the standard Network Printing software and IPP protocol software built into any Windows® 2000/XP installation.

Note

- You must configure the IP address on your printer before you proceed with this chapter. If you haven't done yet, see *Chapter 2* first.
- Verify the host computer and print server are either on the same subnet, or that the router is properly configured to pass data between the two devices.
- The default password for Brother print servers is `access`.

Windows® 2000/XP IPP printing

Use the following instructions if you wish to use the IPP printing capabilities of Windows® 2000/XP.

- 1** For Windows® 2000: Go to the **Start** button, select **Settings** and then **Printers**.
For Windows® XP: Go to the **Start** button and select **Printers and Faxes**.
- 2** For Windows® 2000: Double click the **Add Printer** icon to get the **Add Printer Wizard**.
For Windows® XP: Click **Add a printer** to get the **Add Printer Wizard**.
- 3** Click **Next** when you see the **Welcome to the Add Printer Wizard** screen.
- 4** Select **Local printer** or **Network printer**. For Windows® 2000: Make sure that you select **Network Printer**.
For Windows® XP: Make sure that you select **A network printer, or a printer attached to another computer**.
- 5** Click **Next**.
- 6** For Windows® 2000: Select **Connect to a printer on the Internet or on your intranet** and then enter the following in the URL field: `http://printer_ip_address:631/ipp` (Where `printer_ip_address` is the IP address or the print server name).

For Windows® XP: Select **Connect to a printer on the Internet or on a home or office network** and then enter the following in the URL field: `http://printer_ip_address:631/ipp` (Where `printer_ip_address` is the IP address or the print server name).

 **Note**

If you have edited the hosts file on your computer or are using Domain Name System, you can also enter the DNS name of the print server. As the print server supports TCP/IP and NetBIOS names, you can also enter the NetBIOS name of the print server. The NetBIOS name can be seen in the printer settings page. The NetBIOS name assigned is the first 15 characters of the node name and by default it will appear as BRN_##### where ##### is the last six digits of the Ethernet address.

7 When you click **Next**, Windows® 2000/XP will make a connection with the URL that you specified.

If the printer driver has already been installed:

If the appropriate printer driver is already installed on your PC, Windows® 2000/XP will automatically use that driver for use. In this case, you will simply be asked if you wish to make the driver the default driver, after which the Driver installation Wizard will complete. You are now ready to print.

If the printer driver has NOT been installed:

One of the benefits of the IPP printing protocol is that it establishes the model name of the printer when you communicate with it. After successful communication you will see the model name of the printer automatically. This means that you do not need to inform Windows® 2000 about the type of printer driver to be used.

8 Click **OK**. You will then see the printer selection screen in the **Add Printer Wizard**.

9 If your printer is not in the list of supported printers, click the **Have Disk** button. You will then be asked to insert the driver disk.

10 Click the **Browse** button and select the CD-ROM or network share that contains the appropriate Brother printer driver.

11 Now specify the model name of the printer.

12 If the printer driver that you are installing does not have a Digital Certificate you will see a warning message. Click **Yes** to continue with the installation. The **Add Printer Wizard** will then complete.

13 Click the **Finish** button and the printer is now configured and ready to print. To test the printer connection, print a test page.

Specifying a different URL

Please note that there are several possible entries that you can enter for the URL field.

`http://printer_ip_address:631/ipp`

This is the default URL and we recommend that you use this URL. Please note the **Get More Info** option will not display any printer data.

`http://printer_ip_address:631/ipp/port1`

This is for HP® Jetdirect® compatibility. Please note the **Get More Info** option will not display any printer data.

`http://printer_ip_address:631/`

If you forget the URL details, you can simply enter the above text and the printer will still receive and process data. please note the **Get More Info** option will not display any printer data.

If you are using the built in service names that the Brother print server supports, you can also use the following: (However, please note the **Get More Info** option will not display any printer data).

`http://printer_ip_address:631/brn_xxxxxx_p1`

`http://printer_ip_address:631/binary_p1`

`http://printer_ip_address:631/text_p1`

`http://printer_ip_address:631/pcl_p1`

Where `printer_ip_address` is the IP address or the print server name.

Other sources of information

See *Chapter 2* of this User's Guide to learn how to configure the IP address of the printer.

Overview

This chapter explains how to print from Macintosh® on a Network using the Simple Network Configuration capabilities on Mac OS® X 10.2.4 or greater. For more information on how to configure the laser driver on a Network for Mac OS® 9.1 to 9.2, see the Quick Setup Guide included with the printer.

For updated information on printing from a Macintosh® visit the Brother Solutions web site at: <http://solutions.brother.com>

Printing from a Macintosh® using the Simple Network Configuration capabilities of Mac OS® X

With the release of Mac OS® X 10.2, Apple® introduced Simple Network Configuration capabilities.

The Simple Network Configuration capabilities of Mac OS® X lets you create an instant network of computers and smart devices by connecting them to each other. The smart devices automatically configure themselves to be compatible with your network.

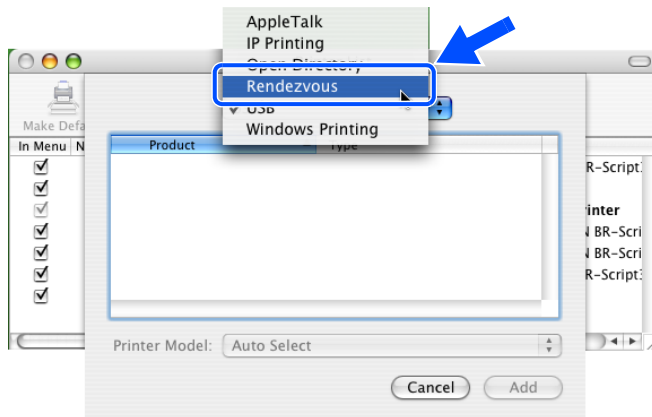
You do not need to manually configure any IP address or network strings within the printer as the printer will automatically configure itself.

Please note that you need to use Mac OS® X 10.2.4 or later version.

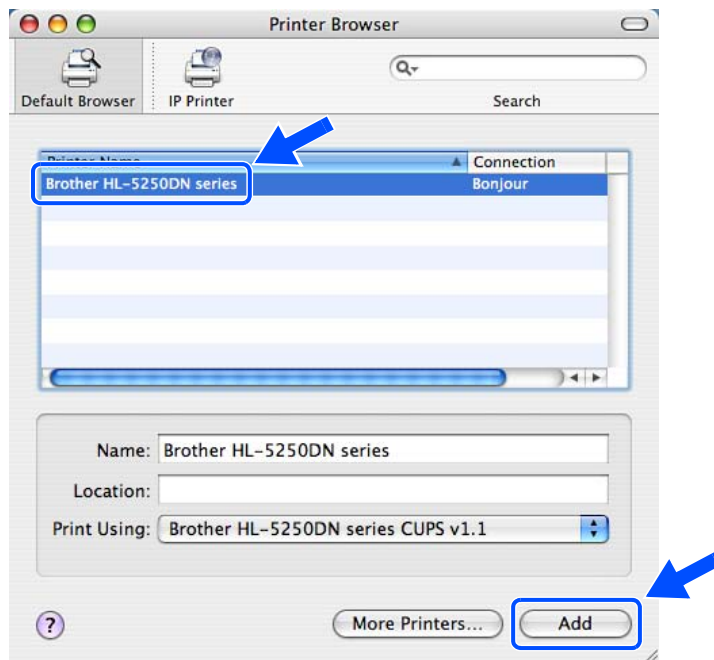
How to select the printer driver (Mac OS® X 10.2.4 or greater)

- 1** Turn the power of the printer ON.
- 2** From the **Go** menu, select **Applications**.
- 3** Open the **Utilities** folder.
- 4** Double click the **Printer Setup Utility** icon. (Mac OS® X 10.2.x users, click the **Print Center** icon.)
- 5** Click **Add**.
(For Mac OS® X 10.2.4 to 10.3) Go to Step 6.
(For Mac OS® X 10.4) Go to Step 7.

- 6 (For Mac OS® X 10.2.4 to 10.3)
Make the following selection.



- 7 Select **Brother HL-XXXX series** (where XXXX is your model name) and then click **Add**.



- 8 Click the printer, then click **Make Default** to set the printer as the default printer. The printer is now ready to print.

Changing the print server settings

Using a web browser to change the print server settings

From a Macintosh®, the easiest way to change the printer or print server parameters is to use a web browser.

Simply connect to the printer using the format: `http://ip_address` where `ip_address` is the address of the printer.

See *Using the HTTP (web browser) to change the print server settings* on page 2-6.

Using the BRAdmin Light utility (for Mac OS® X 10.2.4 or greater)

Brother BRAdmin Light utility is a Java application that is designed for Mac OS X 10.2.4 or greater environment. BRAdmin Light allows you to change network settings and update firmware on Brother network ready machine.

Note

- Please use the BRAdmin Light utility version that was supplied on the CD-ROM with your Brother product. You can also download the latest Brother BRAdmin Light utility version from <http://solutions.brother.com>. This utility is only available for Macintosh® users.
- Node name: Node name appears in current BRAdmin Light. The default Node name is "BRN_XXXXXX" ("XXXXXX" is the last six digits of Ethernet address.).
- The default password for Brother print servers is `access`.

- 1** Start the BRAdmin Light utility (from Mac OS® X 10.2.4 or greater), by double clicking the **Macintosh HD** icon on your desk top and clicking **Library / Printers / Brother / Utilities**. And then, double click the **BRAdminLight.jar** file.
- 2** Select the print server which you want to change the settings.
- 3** Select **Configure Print Server** from the **Control** menu.
- 4** Enter a password. The default Password is `access`. You can now change the print server settings.

Using the control panel to change the print server settings (for HL-5270DN)

You can configure and change the print server settings using the control panel NETWORK menu. See *Control panel setup* on page 7-1.

Other sources of information

- 1** Visit <http://solutions.brother.com> for more information on network printing.
- 2** See *Chapter 2* of this User's Guide to learn how to configure the IP address of the printer.

Overview

With the control panel you can do the following:

Change the print server settings

See *Changing the print server settings using the control panel NETWORK menu (for HL-5270DN)* on page 7-2.

Print the Printer Settings Page

See *Printing the Printer Settings Page* on page 7-6 for information on how to print the Printer Settings Page.

Restore the network settings to factory default

See *Restoring the network settings to factory default* on page 7-7 for information on how to restore the network settings to factory default.

Disable the APIPA protocol

See *Disabling the APIPA protocol* on page 7-8 for information on how to disable the APIPA protocol.

Changing the print server settings using the control panel NETWORK menu (for HL-5270DN)

Before using your Brother printer in a network environment you need to configure the correct TCP/IP settings. For more information, see *Changing the print server settings* on page 2-5.

In this section, you will learn how to configure the network settings using the control panel, located on the top of the printer.

The **NETWORK** menu selections of the control panel allow you to set up the Brother printer for your network configuration. Press any of the **Menu** buttons (+, -, **Set** or **Back**), and press the + or - button to move forward or backward through the menus until **NETWORK** is displayed. Press the **Set** button to move to the next menu level. Press the + or - button to proceed to the menu selection you wish to configure.

Please note that the printer is supplied with the BRAdmin Professional utility for Windows®, BRAdmin Light utility for Mac OS® X 10.2.4 or greater and HTTP protocol (web based management) for Windows® and Macintosh®, which also can be used to configure many aspects of the network. See *Changing the print server settings* on page 2-5 for Windows® and *Changing the print server settings* on page 6-3 for Macintosh®.

Control panel NETWORK menu and default factory settings

Level one	Level two	Level three	Options 1	Factory settings
NETWORK	TCP/IP	TCP/IP ENABLE	=ON / OFF	=ON
		IP ADDRESS=	[000-255].[000-255].[000-255]. [000-255]	000.000.000.000 ¹
		SUBNET MASK=	[000-255].[000-255].[000-255]. [000-255]	000.000.000.000 ¹
		GATEWAY=	[000-255].[000-255].[000-255]. [000-255]	000.000.000.000
		IP BOOT TRIES	=#	=3
		IP METHOD	=AUTO, STATIC, RARP, BOOTP, DHCP	=AUTO
		APIPA	=ON / OFF	=ON
		IPV6	=ON / OFF	=OFF
	NETBIOS/IP	=ON / OFF	-	=ON
	ENET	=AUTO, 100B-FD, 100B-HD, 10B-FD, 10B-HD	-	=AUTO
FACTORY RESET	-	-	-	

1. On connection to the network, if the machine's 'IP METHOD' is 'AUTO' the machine will attempt to automatically set the IP address and Subnet Mask from a boot server such as DHCP or BOOTP. If a boot server cannot be found an APIPA IP address will be allocated, such as 169.254.[001-254].[000-255]. If the 'IP METHOD' of the machine is set to 'STATIC' you will need to manually enter an IP address from the machine's control panel.

TCP/IP

This menu has eight sections: **TCP/IP ENABLE**, **IP ADDRESS**, **SUBNET MASK**, **GATEWAY**, **IP BOOT TRIES**, **IP METHOD**, **APIPA** and **IPV6**.

■ TCP/IP ENABLE

You can enable and disable the TCP/IP protocol.

■ IP ADDRESS=

This field displays the current IP address of the printer. If you have selected a **IP METHOD** of **STATIC**, enter the IP address that you wish to assign to the printer (check with your network administrator for the IP address to use). If you have selected a method other than **STATIC**, the printer will attempt to determine its IP address using the DHCP or BOOTP protocols. The default IP address of your printer will probably be incompatible with the IP address numbering scheme of your network. We recommend that you contact your network administrator for an IP address for the network the unit will be connected on.

■ SUBNET MASK=

This field displays the current subnet mask used by the printer. If you are not using DHCP or BOOTP to obtain the subnet mask, enter the desired subnet mask. Check with your network administrator for the subnet mask to use.

■ GATEWAY=

This field displays the current gateway or router address used by the printer. If you are not using DHCP or BOOTP to obtain the gateway or router address, enter the address you wish to assign. If you do not have a gateway or router, leave this field blank. Check with your network administrator if you are unsure.

■ IP BOOT TRIES

This field displays how many times the printer attempt to scan the network to obtain the IP address through the **IP METHOD** you have set (see *IP METHOD* on page 7-3). The default setting is 3.

■ IP METHOD

This field displays methods to obtain the IP address using TCP/IP protocols.

- **AUTO:**

In this mode, the printer will scan the network for a DHCP server, if it can find one, and if the DHCP server is configured to allocate an IP address to the printer, then the IP address supplied by the DHCP server will be used. If no DHCP server is available, then the printer will scan for a BOOTP server. If a BOOTP server is available, and it is configured correctly, the printer will take its IP address from the BOOTP server. If a BOOTP server is not available, the printer will scan for a RARP server. If a RARP server also does not answer, the IP address is scanned through APIPA facility, see *Using APIPA to configure the IP address* on page A-3. After it is initially powered ON, it may take a few minutes for the printer to scan the network for a server.

- **STATIC**

In this mode the 's IP address must be manually assigned. Once entered the IP address is locked to the assigned address.

- RARP

The Brother print server IP address can be configured using the Reverse ARP (RARP) facility on your host computer. This is done by editing the `/etc/ethers` file (if this file does not exist, you can create it) with an entry similar to the following:

```
00:80:77:31:01:07    BRN_310107
```

Where the first entry is the Ethernet address of the print server and the second entry is the name of the print server (the name must be the same as the one you put in the `/etc/hosts` file).

If the `rarp` daemon is not already running, start it (depending on the system the command can be `rarpd`, `rarpd -a`, `in.rarpd -a` or something else; type `man rarpd` or refer to your system documentation for additional information). To verify that the `rarp` daemon is running on a Berkeley UNIX® based system, type the following command:

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

For AT&T UNIX® based systems, type:

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

The Brother print server will get the IP address from the `rarp` daemon when it is powered on.

- BOOTP

BOOTP is an alternative to `rarp` that has the advantage of allowing configuration of the subnet mask and gateway. In order to use BOOTP to configure the IP address make sure that BOOTP is installed and running on your host computer (it should appear in the `/etc/services` file on your host as a real service; type `man bootpd` or refer to your system documentation for information). BOOTP is usually started up via the `/etc/inetd.conf` file, so you may need to enable it by removing the “#” in front of the `bootp` entry in that file. For example, a typical `bootp` entry in the `/etc/inetd.conf` file would be:

```
#bootp dgram udp wait /usr/etc/bootpd bootpd -i
```

**Note**

Depending on the system, this entry might be called “bootps” instead of “bootp”.

In order to enable BOOTP, simply use an editor to delete the “#” (if there is no “#”, then BOOTP is already enabled). Then edit the BOOTP configuration file (usually /etc/bootptab) and enter the name, network type (1 for Ethernet), Ethernet address and the IP address, subnet mask and gateway of the print server. Unfortunately, the exact format for doing this is not standardized, so you will need to refer to your system documentation to determine how to enter this information (many UNIX® systems also have template examples in the bootptab file that you can use for reference). Some examples of typical /etc/bootptab entries include:

```
BRN_310107 1 00:80:77:31:01:07 192.189.207.3
```

and:

```
BRN_310107:ht=ethernet:ha=008077310107:\  
ip=192.189.207.3:
```

Certain BOOTP host software implementations will not respond to BOOTP requests if you have not included a download filename in the configuration file; if this is the case, simply create a null file on the host and specify the name of this file and its path in the configuration file.

As with rarp, the print server will load its IP address from the BOOTP server when the printer is powered on.

- DHCP

Dynamic Host Configuration Protocol (DHCP) is one of several automated mechanisms for IP address allocation. If you have a DHCP server in your network (typically a UNIX®, Windows® 2000/XP network) the print server will automatically obtain its IP address from a DHCP server and register its name with any RFC 1001 and 1002 compliant dynamic name services.



Note

If you do not want your print server configured via DHCP, BOOTP or RARP, you must set the **IP METHOD** to **STATIC**, this will prevent the print server from trying to obtain an IP address from any of these systems.

■ APIPA

The setting of **ON** will cause the print server to automatically allocate a Link-Local IP address in the range (169.254.1.0 - 169.254.254.255) when the print server cannot obtain an IP address through the **IP METHOD** you have set (see *IP METHOD* on page 7-3). Selecting **OFF** means the IP address doesn't change when the print server cannot obtain an IP address through the **IP METHOD** you have set.

By default, the APIPA protocol is enabled. If you wish to disable the APIPA protocol, see *Disabling the APIPA protocol* on page 7-8.

■ IPV6

This printer is compatible with the IPv6, the next generation internet protocol. If you want to use the IPv6 protocol, visit <http://solutions.brother.com> for more information.

NETBIOS/IP

You can enable and disable the NetBIOS facility to obtain the IP address.

ENET

Ethernet link mode. **AUTO** allows the print server to operate in 100BASE-TX full or half duplex, or in 10BASE-T full or half duplex mode by auto negotiation.

100BASE-TX Full Duplex (**100B-FD**) or Half Duplex (**100B-HD**) and 10BASE-T Full Duplex (**10B-FD**) or Half Duplex (**10B-HD**) fix the print server link mode. This change is valid after the print server has been reset. The default setting is **AUTO**.



Note

If you incorrectly set this value, you may not be able to communicate with your print server.

Printing the Printer Settings Page



Note

Node name: Node name appears in the Printer Settings Page. The default Node name is "BRN_XXXXXX" ("XXXXXX" is the last six digits of Ethernet address.).

The Printer Settings Page prints a report listing all the current printer settings including the network print server settings. You can print the Printer Settings Page using the printer control panel.

How to print the Printer Settings Page

(For HL-5250DN)

- 1 Make sure that the front cover is closed and the power cord is plugged in.
- 2 Turn on the printer and wait until the printer is in the Ready state.
- 3 Press the **Go** button three times. The printer will print the current printer settings.

(For HL-5270DN)

- 1 Make sure that the front cover is closed and the power cord is plugged in.
- 2 Turn on the printer and wait until the printer is in the Ready state.

- 3 Press any of the **Menu** buttons (+, -, **Set** or **Back**) to take the printer off line.
- 4 Press + or - until INFORMATION appears on the LCD display.
- 5 Press **Set**, and then press **Set** again to print the Printer Settings Page.

Restoring the network settings to factory default

If you wish to reset the print server back to its default factory settings (resetting all information such as the password and IP address information), please follow these steps:

(For HL-5250DN)

- 1 Turn off the printer.
- 2 Make sure that the front cover is closed and power cord is plugged in.
- 3 Hold down the **Go** button as you turn on the power switch. Keep the **Go** button pressed down until the **Toner**, **Drum** and **Paper** LEDs light up. Release the **Go** button. Make sure that the **Toner**, **Drum** and **Paper** LEDs are off.
- 4 Press the **Go** button six times and then release the **Go** button. Make sure that all the LEDs light up to indicate the print server has been reset to its default factory settings.

(For HL-5270DN)

- 1 Press the + or - button to choose NETWORK. Press **Set**.
- 2 Press the + or - button to choose FACTORY RESET. Press **Set**.
- 3 Press **Set** again.



Note

You can reset the print server back to its default factory settings using the BRAdmin Professional utility for Windows®, BRAdmin Light utility for Macintosh® or a web browser. For more information, see *Changing the print server settings* on page 2-5 for Windows® and *Changing the print server settings* on page 6-3 for Macintosh®.

Disabling the APIPA protocol

If the APIPA protocol is enabled, the print server will automatically allocate a Link-Local IP address in the range (169.254.1.0 - 169.254.254.255) when the print server cannot obtain an IP address through the **IP METHOD** you have set.

By default, the APIPA protocol is enabled. You can disable the APIPA protocol using the BRAdmin Professional utility and a web browser. For more information, see *Changing the print server settings* on page 2-5.

You can also disable the APIPA protocol using the control panel on the top of the printer. Please follow these steps:

(For HL-5250DN)

For HL-5250DN, the print server is automatically reset back to its default factory settings when you disable the APIPA protocol.

- 1 Turn off the printer.
- 2 Make sure that the front cover is closed and power cord is plugged in.
- 3 Hold down the **Go** button as you turn on the power switch. Keep the **Go** button pressed down until the **Toner**, **Drum** and **Paper** LEDs light up. Release the **Go** button. Make sure that the **Toner**, **Drum** and **Paper** LEDs are off.
- 4 Press the **Go** button seven times and then release the **Go** button. Make sure that all the LEDs light up to indicate the print server has been reset to its default factory settings.

(For HL-5270DN)

- 1 Make sure that the front cover is closed and the power cord is plugged in.
- 2 Turn on the printer and wait until the printer is in the Ready state.
- 3 Press any of the **Menu** buttons (+, -, **Set** or **Back**) to take the printer off line.
- 4 Press + or - until **NETWORK** appears on the LCD display.
- 5 Press **Set** to proceed to the next menu level, and then press + or - until **APIPA** appears.
- 6 Press **Set** to proceed to the next menu level, and then press + or - to select **OFF**. The APIPA protocol has been set to be disabled.



Note

For more information on APIPA, see *Chapter 1* or *Chapter 2*, or visit <http://solutions.brother.com>.

Overview

This chapter describes procedures for troubleshooting problems you may encounter with a Brother print server, it is divided into the following sections:

- General problems
- Network print software installation problems
- Printing problems
- Protocol-specific troubleshooting

General problems

CD-ROM is inserted, but does not start automatically

If your computer does not support Autorun, the menu will not start automatically after inserting the CD-ROM. In this case, execute **Start.exe** in the root directory of the CD-ROM.

How to reset the Brother print server to factory default

You can reset the print server back to its default factory settings (resetting all information such as the password and IP address information). See *Restoring the network settings to factory default* on page 7-7.

Installation problems

The Brother print server is not found during setup of the network print software installation or from the printer driver of the Brother printer in Windows®.

The Brother print server is not found using the Simple Network Configuration capabilities of Mac OS® X.

Make sure you have completed the IP address setting of the Brother print server according to *Chapter 2* of this User's Guide before installing the network print software or printer driver. Check the following:

- 1 Make sure that the printer is powered on, is on-line and ready to print.

- 2 Check to see if there is any LED activity. Brother print servers have two LEDs on the back panel of the machine. The upper green LED shows Link/Activity (Received/Transmit) status. The lower orange LED shows Speed status.
 - No light: If the upper LED is off, then the print server is not connected to the network.
 - The upper LED is green: The Link/Activity LED will be green if the print server is connected to a Ethernet network.
 - The lower LED is orange: The Speed LED will be orange if the print server is connected to a 100BASE-TX Fast Ethernet network.
 - The lower LED is off: The Speed LED will be off if the print server is connected to a 10BASE-T Ethernet network.
- 3 Print the Printer Settings Page and check if the settings such as IP address settings are correct for your network. The problem may be the result of mismatched or duplicate IP address. Verify that the IP address is correctly loaded into the print server. And make sure that no other nodes on the network have this IP address. For information on how to print the Printer Settings Page, see *Printing the Printer Settings Page* on page 7-6.
- 4 Verify that the print server is on your network as follows:

For Windows®

Try pinging the print server from the host operating system command prompt with the command:

```
ping ipaddress
```

Where `ipaddress` is the print server IP address (note that in some instances it can take up to two minutes for the print server to load its IP address after setting the IP address).

For Macintosh®

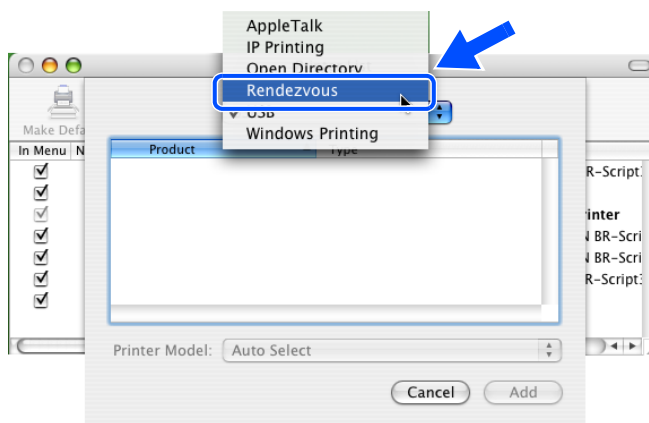
For Mac OS® 9.1 to 9.2

- (1) From the **Apple** menu, open the **Chooser**.
- (2) Click the **Brother Laser (IP)** icon, and make sure that your print server name appears in the right frame. If it is visible, then the connection is good. Otherwise, go to Step 5.

For Mac OS® X 10.2.4 or greater

- (1) From the **Go** menu, select **Applications**.
- (2) Open the **Utilities** folder.
- (3) Double click the **Printer Setup Utility** icon.

- (4) Click **Add**.
(For Mac OS® X 10.2.4 to 10.3) Go to (5).
(For Mac OS® X 10.4) Go to (6).
- (5) (For Mac OS® X 10.2.4 to 10.3)
Make the following selection.



- (6) Make sure that your print server appears. If it is visible, then the connection is good. Otherwise, go to Step 5.
- 5** If you have tried 1 to 4 above and it does not work, then reset the print server back to the default factory settings and try from the initial setup again. For information how to reset to the default factory settings, see *Restoring the network settings to factory default* on page 7-7.
- 6** (For Windows®) If the installation failed, the Firewall on your computer may be blocking the necessary network connection to the machine. In this case, you will need to disable the Firewall on your computer and re-install the drivers.

Windows XP SP2 users

- (1) Click the **Start** button, **Settings**, and then **Control Panel**.
- (2) Double click **Windows Firewall**.
- (3) Click the **General** tab. Verify that **Off (not recommended)** is selected.
- (4) Click **OK**.

Windows® XP SP1 users

- (1) Locate the “Windows” key on your keyboard. These are the keys with the Windows logo on it.



- (2) Press the “Windows” key plus the “E” key to open **My Computer**.
- (3) On the left, right click **My Network Places**, click **Properties**, then right click **Local Area Connection** and click **Properties**.
- (4) Click the **Advanced** tab. Under **Internet Connection Firewall**, verify that the box next to **Protect my computer...** is unchecked. If the box is selected, click the box to remove the check. Then, click **OK**.
- (5) Once your firewall is disabled, try reinstalling the Brother software package. For instructions on how to install from the CD-ROM, use the Quick Setup Guide we have provided with the machine.
- (6) If the installation completed successfully, the Firewall on your computer was rejecting the necessary network connection. In this case, you will need to disable the Firewall on your computer whenever you install the network drivers.



Note

After the Brother software package is installed, enable again your Firewall. For instructions on how to re-enable your Firewall software, refer to your User’s Guide or contact the Firewall software manufacturer.

Printing problems

Print job is not printed

Make sure the status and configuration of the print server. Check following:

- 1 Make sure that the printer is powered on, is on-line and ready to print.
- 2 Print the Printer Settings Page of the printer and check if the settings such as IP address settings are correct for your network. The problem may be the result of mismatched or duplicate IP address. Verify that the IP address is correctly loaded into the print server. And make sure that no other nodes on the network have this IP address.
- 3 Verify that the print server is on your network as follows:

For Windows®

- (1) Try pinging the print server from the host operating system command prompt with the command:

```
ping ipaddress
```

Where `ipaddress` is the print server IP address (note that in some instances it can take up to two minutes for the print server to load its IP address after setting the IP address).

- (2) If a successful response is received, then proceed to *Windows® 95/98/Me and Windows NT®4.0 Peer-to-Peer print (LPR) troubleshooting*, and *Windows® 2000/XP IPP troubleshooting*. Otherwise, proceed to Step 4.

For Macintosh®

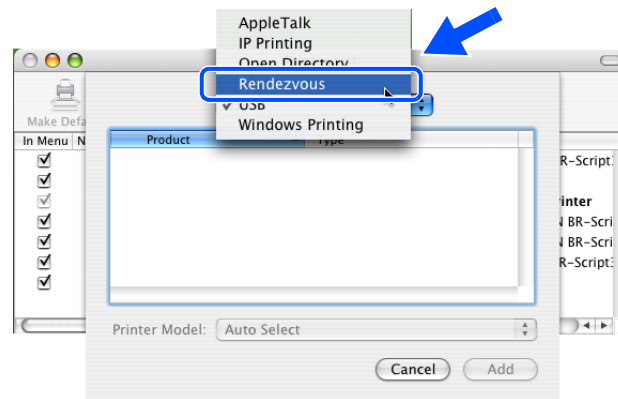
For Mac OS® 9.1 to 9.2

- (1) From the **Apple** menu, open the **Chooser**.
- (2) Click the **Brother Laser (IP)** icon, and make sure that your print server name appears in the right frame. If it is visible, then the connection is good. Otherwise, go to Step 4.

For Mac OS® X 10.2.4 or greater

- (1) From the **Go** menu, select **Applications**.
- (2) Open the **Utilities** folder.
- (3) Double-click the **Printer Setup Utility** icon.
- (4) Click **Add**.
(For Mac OS® X 10.2.4 to 10.3) Go to (5).
(For Mac OS® X 10.4) Go to (6).

- (5) (For Mac OS® X 10.2.4 to 10.3)
Make the following selection.



- (6) Make sure that your print server appears. If it is visible, then the connection is good. Otherwise, go to Step 4.

- 4** If you have tried 1 to 4 above and it does not work, then reset the print server back to the default factory settings and try from the initial setup again. For information how to reset to the default factory settings, see *Restoring the network settings to factory default* on page 7-7

Error during printing

If you try to print while other users are printing large amounts of data (e.g. many pages or color pages with high resolution), the printer is unable to accept your print job until the ongoing printing is finished. If the waiting time of your print job exceeds a certain limit, a time out situation occurs, which causes the error message. In such situations, execute the print job again after the other jobs are completed.

Protocol-specific troubleshooting

Windows® 95/98/Me and Windows NT® 4.0 Peer-to-Peer print (LPR) troubleshooting

8

If you are having trouble printing on a Windows® 95/98/Me, Windows NT® 4.0 or later Peer-to-Peer network (LPR method), check the following:

- 1 Make sure that the Brother LPR Port driver is correctly installed and configured according to the Windows® 95/98/Me or Windows NT® 4.0 Peer-to-Peer chapters.
- 2 Try to turn the **Byte Count** on in the **Configure port** area of printer driver properties.

You may find that during the installation of BLP software, the screen that prompts you for a Port name is not displayed. This may happen on some Windows® 95/98/Me and Windows NT® 4.0 computers. Press the ALT and TAB keys to make it appear.

Windows® 95/98/Me and Windows NT® 4.0 Peer-to-Peer print (NetBIOS) troubleshooting

If you are having trouble printing on a Windows® 95/98/Me, Windows NT® 4.0 or later Peer-to-Peer network (NetBIOS), check the following:

- 1 Make sure that the Brother NetBIOS Port driver is correctly installed and configured according to the Windows® 95/98/Me or Windows NT® 4.0 Peer-to-Peer (NetBIOS) chapters. You may find that during the installation of the port driver, the screen that prompts you for a Port name is not displayed. This happens on some Windows® 95/98/Me and Windows NT® 4.0 computers. Press the ALT and TAB keys to make it appear.
- 2 Make sure that the print server is configured to be in the same workgroup or domain as the rest of your computers. It may take several minutes for the print server to appear in the network neighborhood.

Windows® 2000/XP IPP troubleshooting

I want to use a different Port number other than 631.

If you are using Port 631 for IPP printing, you may find that your firewall may not let the print data through. If this is the case, use a different port number (port 80), or configure your Firewall to allow Port 631 data through.

To send a print job using IPP to a printer using Port 80 (the standard HTTP port) enter the following when configuring your Windows® 2000/XP system.

```
http://ip_address/ipp
```

The Get More Info option in Windows® 2000 is not working

If you are using a URL of:

```
http://ip_address:631 or http://ip_address:631/ipp,
```

the **Get More Info** option in Windows® 2000 will not function. If you wish to use the **Get More Info** option, use the following URL:

```
http://ip_address
```

This will then force Windows® 2000/XP to use Port 80 to communicate with the Brother print server.

Web browser troubleshooting (TCP/IP)

- 1** If you can not connect to the print server using your web browser it may be worth checking the Proxy Settings of your browser. Look in the Exceptions setting and if necessary, type in the IP address of the print server. This will stop your PC from trying to connect to your ISP or proxy server every time you wish to look at the printer server.
- 2** Make sure that you are using the proper web browser, we recommend Microsoft Internet Explorer version 6.0 (or higher) or Netscape® version 7.1 (or higher).

Using services

A service is a resource that can be accessed by computers that wish to print to the Brother print server. The Brother print server provides the following predefined services (do a `SHOW SERVICE` command in the Brother print server remote console to see a list of available services): Enter `HELP` at the command prompt for a list of supported commands.

Service (Example)	Definition
BINARY_P1	TCP/IP binary, NetBIOS service
TEXT_P1	TCP/IP text service (adds carriage return after each line feed)
POSTSCRIPT_P1	PostScript® service (switches PJL-compatible printer to PostScript® mode)
PCL_P1	PCL® service (switches PJL-compatible printer to PCL® mode)
BRN_XXXXXX_P1_AT	LPD PostScript® service for Mac OS® 8.6 or later

Where `XXXXXX` is the last six digits of the Ethernet address (for example, `BRN_310107_P1`).

Other ways to set the IP address (for advanced users and administrators)

For information on how to configure your network printer using the BRAdmin Professional utility or a web browser, see *Setting the IP address and subnet mask* on page 2-3.

Using DHCP to configure the IP address

The Dynamic Host Configuration Protocol (DHCP) is one of several automated mechanisms for IP address allocation. If you have a DHCP server in your network, the print server will automatically obtain its IP address from DHCP server and register its name with any RFC 1001 and 1002-compliant dynamic name services.



Note

If you do not want your print server configured via DHCP, BOOTP or RARP, you must set the boot method to static so that the print server has a static IP address. This will prevent the print server from trying to obtain an IP address from any of these systems. To change the boot method, use the printer's control panel **NETWORK** menu (for HL-5270DN), the BRAdmin Professional utility or a web browser.

Using BOOTP to configure the IP address

BOOTP is an alternative to rarp that has the advantage of allowing configuration of the subnet mask and gateway. In order to use BOOTP to configure the IP address make sure that BOOTP is installed and running on your host computer (it should appear in the `/etc/services` file on your host as a real service; type `man bootpd` or refer to your system documentation for information). BOOTP is usually started up via the `/etc/inetd.conf` file, so you may need to enable it by removing the “#” in front of the bootp entry in that file. For example, a typical bootp entry in the `/etc/inetd.conf` file would be:

```
#bootp dgram udp wait /usr/etc/bootpd bootpd -i
```

Depending on the system, this entry might be called “bootps” instead of “bootp”.

Note

In order to enable BOOTP, simply use an editor to delete the “#” (if there is no “#”, then BOOTP is already enabled). Then edit the BOOTP configuration file (usually `/etc/bootptab`) and enter the name, network type (1 for Ethernet), Ethernet address and the IP address, subnet mask and gateway of the print server. Unfortunately, the exact format for doing this is not standardized, so you will need to refer to your system documentation to determine how to enter this information (many UNIX® systems also have template examples in the `bootptab` file that you can use for reference). Some examples of typical `/etc/bootptab` entries include:

```
BRN_310107 1 00:80:77:31:01:07 192.168.1.2
```

and:

```
BRN_310107:ht=ethernet:ha=008077310107:\
ip=192.168.1.2:
```

Certain BOOTP host software implementations will not respond to BOOTP requests if you have not included a download filename in the configuration file; if this is the case, simply create a null file on the host and specify the name of this file and its path in the configuration file.

As with rarp, the print server will load its IP address from the BOOTP server when the printer is powered on.

Using RARP to configure the IP address

The Brother print server’s IP address can be configured using the Reverse ARP (RARP) facility on your host computer. This is done by editing the `/etc/ethers` file (if this file does not exist, you can create it) with an entry similar to the following:

```
00:80:77:31:01:07 BRN_310107
```

Where the first entry is the Ethernet address of the print server and the second entry is the name of the print server (the name must be the same as the one you put in the `/etc/hosts` file).

If the rarp daemon is not already running, start it (depending on the system the command can be `rarpd`, `rarpd -a`, `in.rarpd -a` or something else; type `man rarpd` or refer to your system documentation for additional information). To verify that the rarp daemon is running on a Berkeley UNIX®-based system, type the following command:

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

For AT&T UNIX®-based systems, type:

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

The Brother print server will get the IP address from the rarp daemon when the printer is powered on.

Using APIPA to configure the IP address

The Brother print server supports the Automatic Private IP Addressing (APIPA) protocol. With APIPA, DHCP clients automatically configure an IP address and subnet mask when a DHCP server is not available. The device chooses its own IP address in the range 169.254.1.0 through to 169.254.254.255. The subnet mask is automatically set to 255.255.0.0 and the gateway address is set to 0.0.0.0.

By default, the APIPA protocol is enabled. If you want to disable the APIPA protocol, you can disable it using printer control panel. For more information, see *Disabling the APIPA protocol* on page 7-8.

If the APIPA protocol is disabled, the IP address of a Brother print server is 192.0.0.192. However, you can easily change this IP address number to match with the IP address details of your network.

Using ARP to configure the IP address

If you are unable to use the BRAdmin application and your network does not use a DHCP server, you can also use the ARP command. The ARP command is available on Windows® systems that have TCP/IP installed as well as UNIX® systems. To use arp enter the following command at the command prompt:

```
arp -s ipaddress ethernetaddress
```

Where `ethernetaddress` is the Ethernet address (MAC address) of the print server and `ipaddress` is the IP address of the print server. For example:

Windows® systems

Windows® systems require the dash "-" character between each digit of the Ethernet address.

```
arp -s 192.168.1.2 00-80-77-31-01-07
```

UNIX®/Linux systems

Typically, UNIX® and Linux systems require the colon ":" character between each digit of the Ethernet address.

```
arp -s 192.168.1.2 00:80:77:31:01:07
```



Note

You must be on the same Ethernet segment (that is, there cannot be a router between the print server and operating system) to use the `arp -s` command.

If there is a router, you may use BOOTP or other methods described in this chapter to enter the IP address. If your Administrator has configured the system to deliver IP addresses using BOOTP, DHCP or RARP your Brother print server can receive an IP address from any one of these IP address allocation systems. In which case, you will not need to use the ARP command. The ARP command only works once. For security reasons, once you have successfully configured the IP address of a Brother print server using the ARP command, you cannot use the ARP command again to change the address. The print server will ignore any attempts to do this. If you wish to change the IP address again, use a web browser, TELNET (using the SET IP ADDRESS command) or factory reset the print server (which will then allow you to use the ARP command again).

To configure the print server and to verify the connection, enter the following command `ping ipaddress` where `ipaddress` is the IP address of the print server. For example, `ping 192.189.207.2`.

Using the TELNET console to configure the IP address

You can also use the TELNET command to change the IP address.

TELNET is an effective method to change the printer's IP address. But a valid IP address must already be programmed into the print server.

Type `TELNET ipaddress` at the command prompt of the system prompt, where `ipaddress` is the IP address of the print server. When you are connected, push the Return or Enter key to get the "#" prompt, enter the password `access` (the password will not appear on the screen).

You will be prompted for a user name. Enter anything in response to this prompt.

You will then get the `Local>` prompt. Type `SET IP ADDRESS ipaddress`, where `ipaddress` is the desired IP address you wish to assign to the print server (check with your network administrator for the IP address to use). For example:

```
Local> SET IP ADDRESS 192.168.1.3
```

You will now need to set the subnet mask by typing `SET IP SUBNET subnet mask`, where `subnet mask` is the desired subnet mask you wish to assign to the print server (check with your network administrator for the subnet mask to use). For example:

```
Local> SET IP SUBNET 255.255.255.0
```

If you do not have any subnets, use one of the following default subnet masks:

255.0.0.0 for class A networks

255.255.0.0 for class B networks

255.255.255.0 for class C networks

The leftmost group of digits in your IP address can identify the type of network you have. The value of this group ranges from 1 through 127 for Class A networks (e.g., 13.27.7.1), 128 through 191 for Class B networks (e.g., 128.10.1.30), and 192 through 255 for Class C networks (e.g., 192.168.1.4).

If you have a gateway (router), enter its address with the command `SET IP ROUTER routeraddress`, where `routeraddress` is the desired IP address of the gateway you wish to assign to the print server. For example:

```
Local> SET IP ROUTER 192.168.1.4
```

Type `SET IP METHOD STATIC` to set the method of IP access configuration to static.

To verify that you have entered the IP information correctly, type `SHOW IP`.

Type `EXIT` or `CTR-D` (i.e., hold down the control key and type "D") to end the remote console session.

Using the Brother Web BRAdmin server software for IIS* to configure the IP address

The Web BRAdmin server software is designed to manage all LAN/WAN Brother network connected devices. By installing the Web BRAdmin server software on a computer running IIS*, Administrators with a web browser can connect to the Web BRAdmin server, which then communicates with the device itself. Unlike the BRAdmin Professional utility - which is designed for Windows® systems only - the Web BRAdmin server software can be accessed from any client computer with a web browser that supports Java.

Please note this software is not included on the CD-ROM that was supplied with your Brother product.

Please visit <http://solutions.brother.com/webbradmin> to learn more about this software and to download it.

IIS* = Internet Information Server 4.0, 5.0 or 5.1

Print server specifications

Model name	NC-6400h	
Operating system support	Windows® 95/98/Me, Windows NT® 4.0, Windows® 2000/XP Mac OS® 9.1 to 9.2, Mac OS® X 10.2.4 or greater	
Protocol support	TCP/IP: IPv4	APR, RARP, BOOTP, DHCP, APIPA (Auto IP), WINS, NetBIOS name resolution, DNS Resolver, mDNS. LPR/LPD, Custom Raw Port/Port9100, SMB Print, IPP, FTP Server, Telnet, SNMP, HTTP, TFTP, SMTP Client
	TCP/IP: IPv6	NDP, DNS Resolver, mDNS, LPR/LPD, Custom Raw Port/Port9100, IPP, FTP Server, Telnet, SNMP, HTTP, TFTP, SMTP Client
Network type	10/100BASE-TX Ethernet network	
Network printing	Windows® 95/98/Me Peer-to-Peer printing Windows NT® 4.0 and Windows® 2000/XP TCP/IP printing Macintosh® printing	
Computer requirements (for drivers, BRAdmin Professional, Peer-to-Peer software, etc.)	CPU	Pentium 75MHz or higher for Windows® 95/98 Pentium 150MHz or higher for Windows® Me Pentium 133MHz or higher for Windows® 2000 Pentium 233MHz or higher for Windows® XP
	RAM	24MB or greater (32MB recommended) for Windows® 95/98 32MB or greater (64MB recommended) for Windows® Me 64MB or greater (128MB recommended) for Windows® 2000/XP
Macintosh connection	Computer	Ethernet ready Power Macintosh®
	RAM	32MB or more (64MB or more recommended) for Mac OS® 9.1 to 9.2 128MB or more (160MB or more recommended) for Mac OS® X 10.2.4 or greater
	Operating system	Mac OS® 9.1 to 9.2, Mac OS® X 10.2.4 or greater
Management utilities	BRAdmin Professional utility	Windows® 95/98/Me, Windows NT® 4.0, Windows® 2000/XP
	BRAdmin Light	Mac OS® X 10.2.4 or greater
	Web BRAdmin	Windows® 2000 Professional / Server / Advanced Server, Windows® XP Professional

Brother numbers (for USA and Canada)

IMPORTANT: For technical and operational help, you must call the country where you bought the printer. Calls must be made *from within* that country.

Register your product

By registering your product with Brother International Corporation, you will be recorded as the original owner of the product.

Your registration with Brother:

- may serve as a confirmation of the purchase date of your product should you lose your receipt;
- may support an insurance claim by you in the event of product loss covered by insurance; and,
- will help us notify you of enhancements to your product and special offers.

Please complete the Brother Warranty Registration or, for your convenience and most efficient way to register your new product, register on-line at

<http://www.brother.com/registration/>

Frequently asked questions (FAQs)

The Brother Solutions Center is our one-stop resource for all your Printer needs. You can download the latest software and utilities, read FAQs and troubleshooting tips to learn how to get the most from your Brother product.

<http://solutions.brother.com>

You can check here for the Brother driver updates.

Customer service

In USA: 1-800-276-7746
In Canada: 1-877-BROTHER

If you have comments or suggestions, please write us at:

In USA: Printer Customer Support
Brother International Corporation
15 Musick
Irvine, CA 92618

In Canada: Brother International Corporation (Canada), Ltd.
- Marketing Dept.
1, rue Hotel de Ville
Dollard-des-Ormeaux, PQ, Canada H9B 3H6

Service center locator (USA only)

For the location of a Brother authorized service center, call 1-800-284-4357.

Service center locations (Canada only)

For the location of a Brother authorized service center, call 1-877-BROTHER

Brother fax back system (USA only)

Brother has installed an easy to use fax back system so you can get instant answers to common technical questions and product information. This is available 24 hours a day, 7 days a week. You can use the system to send the information to any fax machine.

Call the number below and follow the recorded instructions to receive a fax about how to use the system and an index of fax back subjects.

In USA only: 1-800-521-2846

Internet Addresses

Brother Global Web Site: <http://www.brother.com>

For Frequently Asked Questions (FAQs), Product Support and Technical Questions, and Driver Updates and Utilities: <http://solutions.brother.com>

(In USA Only) For Brother Accessories & Supplies: <http://www.brothermall.com>

Brother numbers (for Europe and other countries)

IMPORTANT: For technical and operational help, you must call the country where you bought the printer. Calls must be made *from within* that country.

Register your product

By registering your Brother product, you will be recorded as the original owner of the product.

Your registration with Brother:

- may serve as a confirmation of the purchase date of your product should you lose your receipt;
- may support an insurance claim by you in the event of product loss covered by insurance; and,
- will help us to notify you of enhancements to your product and special offers.

Please complete the Brother Warranty Registration or, for your convenience and most efficient way to register your new product, register on-line at

<http://www.brother.com/registration/>

Frequently asked questions (FAQs)

The Brother Solutions Center is our one-stop resource for all your Printer needs. You can download the latest drivers, software and utilities, read FAQs and troubleshooting tips to learn how to get the most from your Brother product.

<http://solutions.brother.com>

You can check here for the Brother driver updates.

Customer service

Visit <http://www.brother.com> for contact information on your local Brother office.

Service center locations

For service centres in Europe, contact your local Brother Office. Address and telephone contact information for European offices can be found at <http://www.brother.com> and select your country.

Internet addresses

Brother Global Web Site: <http://www.brother.com>

For Frequently Asked Questions (FAQs), Product Support and Technical Questions, and Driver Updates and Utilities: <http://solutions.brother.com>

Important information: Regulations

Caution for LAN connection

Connect this product to a LAN connection that is not subjected to overvoltages.

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