

brother[®]

Brother Laser Printer

HL-1270N

Network built in model

Network User's Guide

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

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Chapter 1

How to Configure TCP/IP printing for Unix Systems

Brother print servers are supplied with the Transmission Control Protocol/Internet Protocol (TCP/IP) protocol suite. Since virtually all UNIX host computers support TCP/IP, this capability allows a printer to be shared on a UNIX Ethernet network. As with all protocols, TCP/IP communications can proceed concurrently whilst other protocols are active, this means that UNIX, NetWare, Apple, and other computers can share the same Brother Print Server over an Ethernet network.

 **Note**

The Linux operating system uses the same setup procedures as standard Berkeley UNIX systems. Refer to this chapter for a typical GUI based Linux installation.

TCP/IP

Brother Print Servers appear to the network as a UNIX host computer with a unique IP address running the lpd, line printer daemon, protocol. As a result, any host computer that supports the Berkeley remote LPR command can spool jobs to Brother Print Servers without the need for any special software on the host computer. For special applications, raw TCP ports are also available.

The Brother print server is pre-configured to run on a TCP/IP network with a minimum of setup. The only mandatory configuration the print server is the allocation of an IP address, which can be either automatically assigned using DHCP, BOOTP etc., or manually assigned using the arp command, BRAdmin32, etc.

 **Note**

For setting the IP address of the print server, refer to the IP address section end half of this chapter.

TCP/IP UNIX Host Configuration

The configuration process for most UNIX systems is described in the following steps. Unfortunately, this process can vary, so refer to your system documentation (or man pages) for additional information.

1. Configure the `/etc/hosts` file on each UNIX host that needs to communicate with the print server or provide similar information to a nameserver on the network. Use your favorite editor to add an entry to the `/etc/hosts` file containing the IP address and node name of the device. For example:

```
192.189.207.3      BRN_310107
```

The actual format of the entry may vary depending on your system, so check your system documentation and also note the format of other entries in the `etc/hosts` file.

Note

- The node name in this file does not necessarily need to be the same as the one that is actually configured into the Brother print server (the name that appears on the printer configuration page), however, it is good practice to make the names the same. Some operating systems, such as HP/UX, do not accept the “_” character in the default name, for these systems you must use a different name).
- In any case, the node name in the `/etc/hosts` file must match the node name in the `/etc/printcap` file.

Note

Some systems such as HP/UX and AIX allow you to enter the IP address as the host name when setting up the print queue. If this is the case, you do not need to configure the hosts file.

2. Choose which print server service you want to use. There are several types of services available on Brother Print Servers. **Binary** services pass data through unmodified and are therefore required for PCL or PostScript rasterized graphics printouts. **Text** services add a carriage return at the end of each line for proper formatting of UNIX text files (which end in linefeed and do not have carriage returns). The text service can also be used for non-rasterized graphics, such as ASCII PostScript graphics or many types of PCL graphics.

Choose one of the available services (this service name will be used in step 3):

```
BINARY_P1      Binary data
TEXT_P1_TX     Text data (CR added)
```

You may set up multiple print queues on your UNIX host computer for the same print server, each one with a different service name (for example, one queue for binary graphics jobs and one for text jobs). Refer to Appendix B for additional information on using services.

3.

 **Note**

This step applies to the majority of UNIX systems, including Sun OS (but not Solaris 2.xx), Silicon Graphics (lpr/lpd option required), DEC ULTRIX, DEC OSF/1, and Digital UNIX. SCO UNIX users should follow these steps, but should also refer to the SCO UNIX Configuration section. Users of RS/6000 AIX, HP/UX, Sun Solaris 2.xx, and other systems that do not use the `printcap` file.

Configure the `/etc/printcap` file on each host computer to specify the local print queue, the print server name (also called remote machine or `rm`), and the print server service name (also called remote printer, remote queue, or `rp`), and the spool directory.

An example of a typical `printcap` file:

```
laser1|Printer on Floor 1:\
:lp=:\
:rm=BRN_310107:\
:rp=TEXT_P1_TX:\
:sd=/usr/spool/lpd/laser1:
```

 **Note**

Make sure this information is added to the end of the `printcap` file. Also make sure that the last character in the `printcap` file is a colon ":"

This will create a queue named `laser1` on the host computer that communicates to a Brother print server with a node name (**rm**) of `BRN_310107` and a service name (**rp**) of `TEXT_P1_TX` printing text files to a Brother printer through spool directory `/usr/spool/lpd/laser1`. If you are printing binary graphics files, you would use the service `BINARY_P1` instead of `TEXT_P1_TX`.

 **Note**

The **rm** and **rp** options are not available on some UNIX systems, so if necessary check your documentation (or man pages) to determine the equivalent options.

Users of Berkeley-compatible UNIX systems can use the `lpc` command to obtain the printer status:

```
%lpc status
laser1:
    queuing is enabled
    printing is enabled
    no entries
    no daemon present
```

Users of AT&T-compatible UNIX systems can generally use the `lpstat` or `rlpstat` commands to obtain similar status information. Because this procedure varies from system to system, refer to your system documentation for the exact usage.

3-a.

 **Note**

Skip this section if you have completed Step 3, unless you have an SCO UNIX system.

If you have an HP/UX system, IBM RS/6000 AIX computer, or Sun Solaris 2.xx, there is no printcap file. This is also true for some other AT&T-based UNIX systems, as well as many VMS-based TCP/IP software packages (for example, UCX, TGV Multinet, etc.). Such systems generally use a printer setup program to define the service name (remote printer), the print server name (remote machine) or IP address, and the local queue name (spool directory).

Linux Configuration

If you do not wish to use the command line interface to configure your Linux distribution, you may wish to use the Linux Printer System Manager application on your GUI. To do this, do the following:

From the Linux Printer System Manager screen, click the "Add" button.

You will now be asked to specify which Printer type you are using, select the "Remote Unix (lpd) Queue" option and click "OK".

You must now specify the remote host name, remote queue name and the input filter to use.

The "Remote Host" name is the IP address of the printer, or the name from the hosts file which corresponds to the IP address of the printer.

The "Remote Queue" name is the service name that the printer will use when processing the data. Generally we recommend that you use the name "BINARY_P1", however, if you are planning to send text documents that do not have a carriage return and a line feed, then use "TEXT_P1_TX".

Select the appropriate "Input Filter" from the list of available printers on your particular build of Linux.

In order to make your settings work, select the "Resart lpd" option. As soon as the lpd server restarts, you will be able to send printed documents from your server.

HP/UX Configuration

In the case of HP/UX, the **sam** program is used to set up the remote printer. The steps are as follows:

- Enter **sam** and select "Peripheral Devices" and then "Add Remote Printer" (not "Networked printer")
- Enter the following remote printer settings (the other settings do not matter):
- Line printer name (user-selectable)
- Remote system name (the print server name; must match what is in hosts file or use print server IP address)
- Remote printer queue (Printserver binary or text service name, e.g. BINARY_P1 or TEXT_P1_TX)
- Remote Printer is on a BSD System (Yes)

IBM RS/6000 AIX Configuration

The RS/6000 AIX operating system uses the **smit** program to set up the remote printer. The procedure is as follows:

- Enter **smit** and select "devices"
- Select "printer/plotter"
- Select "manage remote printer subsystem"
- Select "client services"
- Select "remote printer queues"
- Select "add a remote queue"
- Enter the following remote queue settings:
 - **Name of queue to add** (user selectable)
 - **Activate the queue** (Yes)
 - Destination host (print server name; must match name in `/etc/hosts` file or use the print server IP address)
 - Name of queue on remote printer (print server binary or text service name, eg. BINARY_P1 or TEXT_P1_TX)
 - Name of device to add (user selectable; for example lp0)

Sun Solaris 2.x Configuration

Sun Solaris 2.x uses the `lpsystem` and `lpadmin` programs for remote printer configuration:

```
lpsystem -t bsd queue
lpadmin -p queue -sprnservername!prnserversevice
accept queue
enable queue
```

- Where `queue` is the name of the local print queue.
- `prnservername` is the name of the print server (must match the entry in the `/etc/hosts` file).
- `prnserversevice` is the print server Binary or Text service.

If this is the first printer configured, you must also use the `lpsched` command prior to the `accept` command.

As an alternative, you may use **Printer Manager** in the **Admintool** utility under OpenWindows. Select **Edit**, **Add**, and **Add Access to Remote Printer**. Then enter the print server name in the format `printservername!printserversevice` as described above. Make sure that the Printer Server OS is set to BSD (the default setting), and click **Add**.

Note that we recommend that you use the `/etc/hosts` file for the printer name rather than NIS or other name services. Also note that due to a bug in the Sun `lpd` implementation on Solaris 2.4 and earlier releases, you may experience problems printing very long print jobs. If this is the case, a workaround is to use the raw TCP port software as described later in this chapter.

SCO UNIX Configuration

SCO UNIX requires TCP/IP V1.2 or later to work with Brother print servers. You must first configure the `/etc/hosts` and `/etc/printcap` files as described in step 2. Then run the `sysadmsh` program as follows:

- Select **Printers**.
- Select **Configure**.
- Select **Add**.
- Enter the name of the print queue you entered in the `/etc/printcap` file as the **Printer name**,
- Enter anything as the **Comment**, and **Class name**.
- For the **Use printer interface** select "Existing".

- Press the F3 key to get a list of available interface, and select the desired one as the **Name of interface** using the cursor keys ("Dumb" is a good choice).
- Select "Direct" as the **Connection**.
- Enter the desired **Device name** (`/dev/lp` generally works).
- Select "Hardwired" as the **Device**.
- Select "No" for the **Require banner** field.

Other Non-Standard Configurations

DEC TCP/IP Servers for VMS(UCX)

You need to run the `sys$system:ucx:$lprsetup` command, specify a printer name, and then enter the print server IP address as the remote system name. Specify one of the print server services (see beginning of this section for options) as the remote system printer name (accept the defaults for other questions).

TGV's Multinet

TGV's Multinet requires you to run the `MULTINET CONFIGURE /PRINTERS` command, then use the `ADD` command to add a printer, specifying the print server IP address, a protocol type of LPD, and one of the service options described at the beginning of this section as the remote print queue.

Wollongong's PATHWAY

First make sure that you have the Access option with lpd enabled. Then enter the print server name and IP address in the `TWG$TCP:[NETDIST.ETC]HOSTS` file, run the `LPGEN` program, and execute the command: `add queue/rmachine=prnservername/rprinter=prnservername/service, where queue is the name of the queue, prnservername is the print server name from the hosts file, and prnservername/service is the print server service name.`

Other Systems

Other systems use similar programs to set up Print servers. These programs will generally ask for the following information:

Requested information:	You should use:
remote printer	Binary or Text service name
remote host computer name	Any name (must match the name in the printcap file, if any) or in some cases, you may enter the print server IP address here
remote host IP address	IP address of print server.

Technical support specialists for these companies can usually answer configuration questions if you provide them with the equivalent UNIX configuration information (tell them that the print server looks like a remote UNIX host computer running the lpd line printer daemon).

If you have not created a spool directory for the Brother print server on your UNIX host computer, you will need to do so now (the printer setup utilities in HP/UX, AIX, Solaris 2.xx, and other systems will automatically create the spool directory). The lpd spool directory is usually located in the `/usr/spool` directory (check with your system manager to see if the location is different for your system). To create a new spool directory, use the `mkdir` command. For example, to create a spool directory for the queue `laser1`, you would enter:

```
mkdir /usr/spool/lpd/laser1
```

On some systems it is also necessary to start the daemon. This is done on Berkeley-compatible UNIX systems with the `lpc start` command as shown in the following example:

```
lpc start laser1
```

IP Address Configuration

The final step before printing is to program the IP address information into the print server. This can be done in any of the following ways:

- a) BRAdmin32 (for Windows 95/98/NT 4.0 using the IPX/SPX or TCP/IP protocol)
- b) DHCP, Reverse Arp (rarp), BOOTP
- c) The UNIX arp command.

The following step (e, f, g) is effective way, when you change IP address. But a valid IP address must already be programmed into the print server.

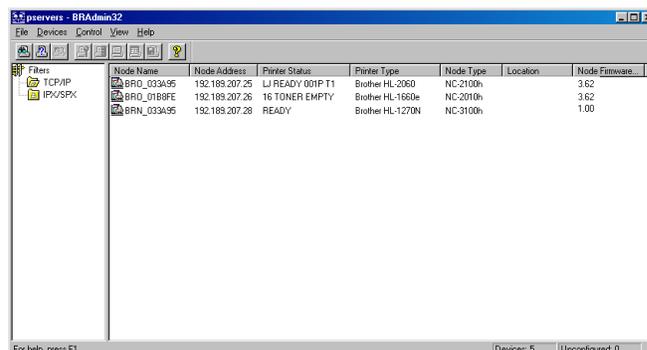
- d) TELNET
- e) HTTP (Web browser)
- f) Other SNMP based management utility

These configuration methods are described in the following paragraphs.

 **Note**
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 router (gateway).

Changing the IP Address using the BRAdmin32 application

Start the BRAdmin32 utility (from Windows 95/98 or NT4.0).



The BRAdmin32 utility can use the IPX/SPX or TCP/IP protocols to communicate with the Brother print server. As the default IP address of Brother print servers is 192.0.0.192, this means that the print server will probably be incompatible with the IP address numbering scheme on your network. If you are not using DHCP, BOOTP or RARP, you will probably want to change the IP address. There are two ways that you can do this from within BRAdmin32. 1) Use the IPX/SPX protocol, 2) use the TCP/IP protocol and let BRAdmin32 find the Brother Print server as an un-configured device.

USING IPX/SPX to change the IP address

If your PC has Netware Client software, do the following:

1. Select IPX/SPX filter in the left frame of the main window.
2. Check the print server name (the default node name will be BRN_XXXXXX, where "XXXXXX" is the last six digits of the Ethernet address (MAC address)).

If you cannot find your server name, select the "**Device**" menu and choose "**Search Active Devices**" (you can also press the F4 key) and try again.

Note

You can find the node name and MAC address by printing out the printer configuration page. Refer to the Quick Setup Guide for information on how to print the configuration page on your print server.

3. Select the print server that you wish to configure and double click it. You will be asked for a password. The default password is "access".
4. Select the TCP/IP tab and set the IP address, Subnet mask and Gateway as needed.
5. Click OK.

USING TCP/IP to change the IP address

If your PC has only the TCP/IP protocol, do the following:

1. Select TCP/IP filter in the left frame of the main window.
2. Select the "**Device**" menu and choose the "**Search Active Devices**".

Note

If the print server is set to its factory default settings, it will not appear in the BRAdmin32 screen, however, when you select the "Search Active Devices" option, it will be found as a un-configured device.

3. Select the “**Device**” menu and choose the “**Setup Unconfigured Device**”.
4. Select the MAC address of your print server and click the Configure button.

 **Note**

You can find the node name and MAC address by printing out the printer configuration page. Refer to the Quick Setup Guide for information on how to print the configuration page on your print server.

5. Input the IP address, Subnet mask and Gateway (If needed) of your print server.
6. Click OK then select Close.

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

Using DHCP to Configure the IP address

Dynamic Host Configuration Protocol (DHCP) is one of several automated mechanisms for IP address allocation. If you have DHCP Server in your network (typically a Unix, Windows NT or Novell Netware network) the print server will automatically obtains 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, 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 print front panel (for those printers that have a LCD panel, TELNET (using the SET IP METHOD command), Web browser or by using the BRAdmin32 application.

Using arp to Configure the Print Server IP Address

Arp is the simplest method of configuring the print server IP address. To use, arp, enter the following command at the UNIX system 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:

```
arp -s 192.189.207.2 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 can not 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 as described in Appendix A), the printer front panel (if you have an LCD panel) or factory reset the print server (which will then allow you to use the ARP command again).

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

Using RARP to Configure the IP Address

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.

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
```

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.

Changing the IP Address settings with the Remote Console

a If you are using the remote console, such as TELNET, you will be expected to enter the password of the print server. Press **RETURN** and enter the default password of “*access*” in response to the “#” prompt (it will not echo).

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

c 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 manager for the IP address to use). For example:

```
Local> SET IP ADDRESS 192.189.207.3
```

d 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 manager 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:

255.255.255.0 for class C networks

255.255.0.0 for class B networks

255.0.0.0 for class A networks

e The leftmost group of digits in your IP address can identify the type of network you have. The value of this group ranges from 192 through 255 for Class C networks (e.g., 192.189.207.3), 128 through 191 for Class B networks (e.g., 128.10.1.30), and 1 through 127 for Class A networks (e.g., 13.27.7.1).

f 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 192.189.207.1
```

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

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

Before attempting to print

It is **very** important to verify the connection between the host and the print server by using the `ping` command with the IP address you have set. For example:

```
ping 192.189.207.3
```

You should get a reply back from the print server. If you get an error message, or no response, then there is no connection. You will not be able to print if you cannot ping the print server. If this is the case, verify that you have set up the host and print server correctly and that the physical connections (e.g., the transceivers and cabling) are good. Refer to the Troubleshooting chapter for additional information.

To print to the print server from UNIX, use the standard `lpr` command with the `-P` option to specify the queue name. For example, to print the file `TEST` on the queue `laser1`, you would type:

```
lpr -Plaser1 TEST
```

Some AT&T-based UNIX systems, such as SCO and HP/UX, use the standard `lp` command instead of `lpr`. In these cases, use the `-d` option instead of `-P` to specify the queue name as shown in the following example:

```
lp -dlaser1 TEST
```

 **Note**

- Please note that Unix systems are case sensitive. If you do not correctly enter the parameters in the correct case, then your document may not print, or it may print incorrectly.
- If you want to utilize printing options such as landscape mode, language switching, etc., refer to Appendix B for information on using servers.

For non-UNIX systems such as VMS, the TCP/IP printing process is normally transparent, so you use the same commands or procedures as you would for a local printer.

IP Security

Brother print servers provide a means of allowing only host computers with authorized IP addresses to access the print server. This is very useful for applications where general access to the printer is not allowed. The console command `SET IP ACCESS ENABLED ipaddress` enters a host computer IP address into the access table of the print server (where `ipaddress` is the IP address of the host computer; refer to Appendix A for information on using the print server console). To remove an IP address, use the command `SET IP ACCESS DISABLED ipaddress`. To re-enable general access, use the command `SET IP ACCESS ALL`.

Raw TCP ports

The Brother range of print servers provide a raw TCP port capability that can be used by any application that can open and send data to a TCP port. The port number is 9100 (238C hex). The ports pass data through unmodified, so there is no TELNET interpretation provided. When using the raw TCP ports, make sure that TELNET interpretation is disabled in your software or else you may get distorted printouts.

If you need a different TCP port number or if you want additional TCP ports, you may define a TCP port number on any service by using the console command:

```
SET SERVICE servicename TCP nn
```

where `servicename` is the name of the service, and `nn` is the desired port number (must be greater than 1023). Refer to Appendix A for information on using the console.

Chapter 2

How to Configure TCP/IP printing for Windows NT, LAN Server and OS/2 Warp Server

Users of Windows NT can print directly to a network ready Brother using the TCP/IP protocol. Microsoft Windows NT 3.5x and NT 4.0 users must install Microsoft's "TCP/IP printing" protocol.

Brother's Print Server also support transparent printing from IBM LAN Server and OS/2 Warp Server file servers, as well as from OS/2 Warp Connect workstations using the TCP/IP protocol. TCP/IP is included as standard with OS/2 Warp Server and with LAN Server V4.0, and is optional on LAN Server V3.x systems. It is also included as standard with OS/2 Warp Connect, and is an optional component of earlier versions of OS/2.

Windows NT(TCP/IP) Configuration

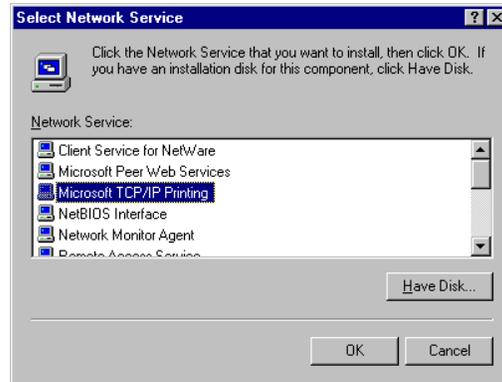
If you have not already done so, install the TCP/IP protocol onto your Windows NT system. This is done via the Network icon in the Control Panel window of the Windows NT system (the Control Panel is in the Main window on NT 3.5x systems, or use the Start button on NT 4.0 to access the Settings/Control Panel menu).

NT 3.5x systems:

- a Go into the Control Panel and run the Network applet.
- b Select **Add Software** and **TCP/IP Protocol and related components**.
- c Select the **TCP/IP Network Printing Support** check box. And then click on the Continue button. (This option will be unavailable if the TCP/IP Network Printing Support protocol is already installed.
- d Insert the requested disk(s) to copy the required files. Your NT server will need to be re-booted when the files are copied over.

NT 4.0 systems:

- a Running the **Network** applet, click on the **Protocols** tab.
- b Select Add, and double click on TCP/IP protocol.
- c Insert the requested disk(s), or CD-ROM, to copy the required files.
- d Click on the **Services** tab, click on **Add** and double click on **Microsoft TCP/IP Printing**.



- e Again insert the requested disk (s) or CD-ROM.
- f Click on the **Protocols** tab when then copying is finished.
- g Double click on the **TCP/IP Protocol** option and add the host IP address, subnet mask, and gateway address. Consult your system manager for these addresses.
- h Click **OK** twice to exit (your NT server will need to be re-booted).

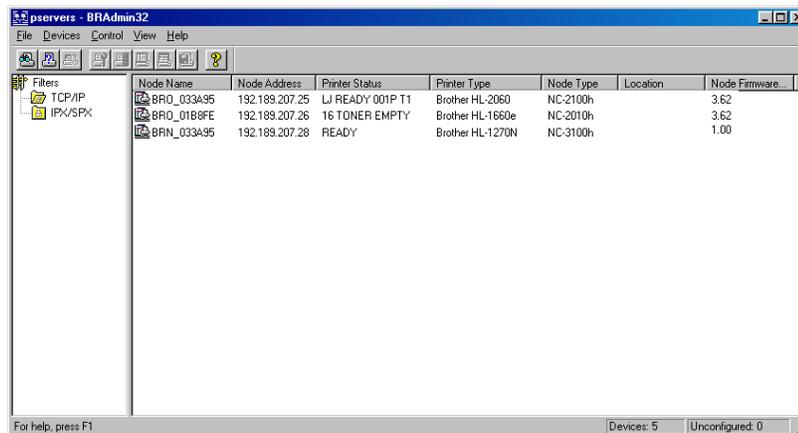
Configuring an IP address for the Print Server

You must now set an IP address into the Brother Print Server. There are several ways of doing this:

If your printer has an LCD panel you can use the front panel buttons to change the IP address, subnet mask and gateway addresses. Refer to Quick Setup Guide for instructions on how to do this. You can also use the BRAdmin32 Windows utility to change the IP address. The print server also understand automatic IP address allocation methods such as DHCP, BOOTP and RARP.

Changing the IP Address using the BRAdmin32 application

Start the BRAdmin32 utility (from Windows 95/98 or NT4.0)



The BRAdmin32 utility can use the IPX/SPX or TCP/IP protocols to communicate with the Brother Print Server. As the default IP address of Brother print servers is 192.0.0.192, the print server will probably be incompatible with the IP address numbering scheme on your network. If you are not using DHCP, BOOTP or RARP, you will probably want to change the IP address. There are two ways that you can do this from within BRAdmin32. 1) Use the IPX/SPX protocol, 2) use the TCP/IP protocol and let BRAdmin32 find the Brother Print Server as an un-configured device.

<USING IPX/SPX to change the IP address>

If your PC has Netware Client Software, do the following:

1. Select IPX/SPX filter in the left frame of the main window.
2. Check the print server name (the default node name will be BRN_XXXXXX, where "XXXXXX" is the last six digits of the Ethernet address (MAC address)).

If you cannot find your print server, select the "**Device**" menu and choose "**Search Active Devices**" (you can also press the F4 key) and try again.

Note

You can find the node name and MAC address by printing out the printer configuration page. Refer to the Quick Setup Guide for information on how to print the configuration page on your print server.

3. Select the print server that you wish to configure and double click it. You will be asked for a password. The default password is "access"
4. Select the TCP/IP tab and set the IP address, Subnet mask and Gateway as needed.
5. Click **OK**.

<USING TCP/IP to change the IP address>

If your PC has only the TCP/IP protocol, do the following:

1. Select TCP/IP filter in the left frame of the main window.
2. Select the "**Device**" menu and choose the "**Search Active Devices**".

Note

If the print server is set to its factory default settings, it will not appear in the BRAdmin32 screen, however, when you select the "Search Active Devices" option, it will be found as a un-configured device.

3. Select the "**Device**" menu and choose the "**Setup Unconfigured Device**".
4. Select the MAC address of your print server and click Configure button.

 **Note**

You can find the MAC address by printing out the printer configuration page. Refer to the Quick Setup Guide for information on how to print the configuration page on your print server.

5. Input the IP address, Subnet mask and Gateway (If needed) of your print server.
6. Click **OK** then select **Close**.

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

Changing the IP Address using the ARP command

If your printer does not have a LCD panel and you cannot use the BRAdmin32 utility, you can use the “arp -s” command from the DOS prompt:

```
arp -s 192.189.207.77 00-80-77-31-01-07
```

Substitute the IP address of the Brother Print Server that you wish to use and replace '00-80-77-31-01-07' with the actual Ethernet hardware address (MAC Address) of the Brother Print Server.

 **Note**

You can find the MAC address by printing out the printer configuration page. Refer to the Quick Setup Guide for information on how to print the configuration page on your print server.

If you get the message "The arp entry addition failed:", try pinging a known device on the network using the command “ping ipaddress”, where “ipaddress” is the IP address of that device.

Note

- You must be on the same Ethernet segment (that is, there cannot be a router between the print server and the Windows NT system) to use the `arp -s` command.
- If there is a router, you may use BOOTP or other methods described in How to configure TCP/IP printing for UNIX system to enter the IP address.
- If your Administrator has configured the system to deliver IP address 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 can not 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 as described in Appendix A), or factory reset the print server (which will then allow you to use the ARP command again).

Verify that you can communicate with the Brother Print Server by using the `ping` command with the IP address or name (if you have edited your HOSTS file or are using Domain Name System). For example:

```
ping 192.189.207.77      or
ping <name>
```

Again, substitute your actual name or IP address. You should get a response back from the Brother print server if the IP address has been set and the print server is alive on the network. If you do not, print the configuration page and verify that the IP address has changed.

Windows NT Print Queue Configuration

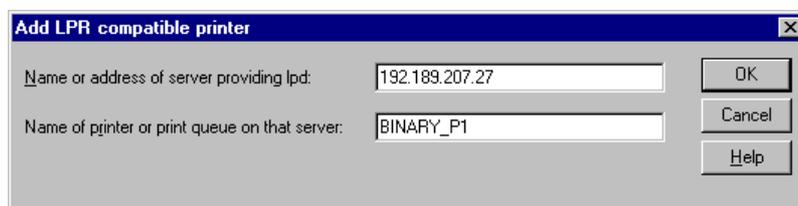
Windows NT 4.0 Print Queue Configuration (Printer Driver already installed)

 **Note**

If you have Windows NT 3.5 or 3.51, skip to the Windows NT 3.5x section.

If you have already installed the appropriate Brother printer driver do the following:

1. Click on Start then select Settings/Printers to display the currently installed printer drivers.
2. Double click the printer driver you wish to configure and select **Printer** menu and then choose **Properties**.
3. Select the Ports tab and click on Add Port.
4. Select **LPR Port** (LPR Port will not be displayed unless you install the "Microsoft TCP/IP Printing" protocol as described earlier) from the list of available ports and click on **New Port**.
5. Type in the IP address that you assigned to the print server in the **Name or address of server providing lpd:** box. If you have edited your HOSTS file or are using Domain Name System, you can enter the name associated with the print server, instead of an IP address. 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 your print configuration sheet. From default the NetBIOS name will appear as "BRN_XXXXXX" where XXXXXX is the last six digits of the Ethernet address.
6. Type in the print server service name in the **Name of printer or print queue on that server:** box. If you do not know which service name to use, enter BINARY_P1 and then click on **OK**:



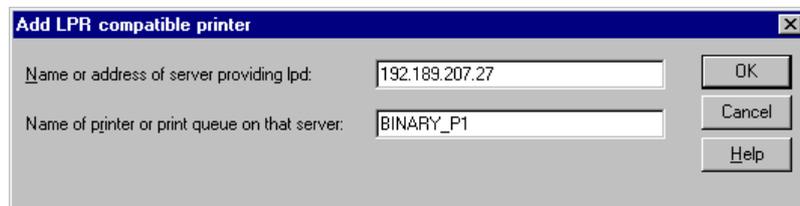
7. Click on the Close button.
8. You should now see that the printer driver is configured to print to the IP address (or name) that you specified.
9. If you wish to share the printer, click on the Share tab and share the driver.

Windows NT 4.0 Print Queue Configuration (Printer Driver not installed)

Note

If you have Windows NT 3.5 or 3.51, skip to the next section.

1. Go to the Start button, choose **Settings**, and then select **Printers**. Double click the Add Printer icon to get the **Add Printer Wizard**. Click. Select **My Computer (Not Network Printer)** and click on **Next**.
2. Select **Add Port**, select **LPR Port** (LPR Port will not be displayed unless you install the "Microsoft TCP/IP Printing" protocol as described earlier) from the list of available ports and click on **New Port**.
3. Type in the IP address that you wish to assign to the print server in the **Name or address of server providing lpd:** box. If you have edited your HOSTS file are using Domain Name System, enter the name associated with the print server, instead of an IP address. 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 your print configuration sheet. From default the NetBIOS name will appear as "BRN_XXXXXX" where XXXXXX is the last six digits of the Ethernet address.
4. Type in the print server service name in the **Name of printer or print queue on that server:** box. If you do not know which service name to use, enter BINARY_P1 and then click on **OK**:



Note

Refer to How to configure TCP/IP printing for UNIX system for more information on Service Names.

5. Click on **Close**. The new print server IP address should be listed and highlighted as an available port. Click on **Next**.
6. Select the desired printer model. If the correct model is not displayed, click on the "**Have Disk**" option and insert the appropriate driver diskettes.
7. If the driver already exists, select **Keep Existing Driver** (if it does not, this step will be skipped), and then click on **Next**.

8. If desired, change the name of the printer then click on **Next**.
9. If desired, make the printer shared (so other users can access it), and select the operating system(s) that these other computers will be running. Click on **Next**.
10. Select **Yes** when you are asked "Would you like to print a test page?" Click on **Finish** to complete the installation. You may now print to the printer as if it were a local printer.

Windows NT 3.5x Print Queue Configuration

If you have Windows NT 3.5 or 3.51, use the following procedure to configure the print server.

1. Go to the **Main** window and select the **Print Manager** icon.
2. Select **Printer** menu.
3. Select **Create Printer**.
4. Enter any name for the **Printer Name**.
5. Select **Driver**. Choose the appropriate driver.
6. Select **Description**. Enter anything for the description.
7. Select **Print to** and then select **Other**.
8. Select **LPR Port**.
9. Type in the IP address that you assigned to the print server in the **Name or address of host server providing lpd:** box. If you have edited your HOSTS file or are using Domain Name System, enter the name associated with the print server, instead of an IP address.
10. Type in the print server service name in the **Name of printer on that Machine**. If you do not know which service name to use, enter `BINARY_P1` and then click on **OK**.

 **Note**

Refer to How to configure TCP/IP printing for Unix system for more information on Service Names.

11. Share the printer if necessary.

LAN Server, OS/2 Warp Server Configuration

Brother Print Servers will work with IBM LAN Server, OS/2 Warp Server networks that have IBM TCP/IP V2.0 or later installed on the file server (TCP/IP is supplied as standard with LAN Server V4.0 and later as well as Warp Server). Use the following procedure to configure the print server on an LAN Server or OS/2 Warp Server file server, or on a OS/2 Warp Connect workstation:

Server Configuration

Make sure that **TCP/IP** software is installed on your OS/2 file server. If you have not already done so, open the TCP/IP folder on the desktop, and double click on the **TCP/IP Configuration** icon to add the IP address to the OS/2 file server (consult your system manager for this address).

Programming an IP address for the print server

1. If you have the computer on where the BRAdmin32 for Windows 95/98/NT4.0 workstation, it is easiest to use the BRAdmin32 to configure the IP address for the print server, otherwise go to step2.
2. At the OS/2 prompt, use the "arp -s" command from the DOS prompt to enter the IP address into the Brother Print Server as shown in the following example. If your printer does have an LCD display, use the front panel buttons to configure the IP address as described in the Quick Setup Guide.

```
arp -s 192.189.207.77 00:80:77:31:01:07 temp
```

Substitute the IP address of the Brother Print Server that you wish to use and replace '00:80:77:31:01:07' with the actual Ethernet address (MAC Address) of the Brother Print Server. Note that you should use colons rather than hyphens to separate the bytes of the hardware address.

Note

You can find the MAC address by printing out the printer configuration page. Refer to the Quick Setup Guide for information on how to print the configuration page on your print server.

If you get the message "The arp entry addition failed:", try pinging a known device on the network using the command "ping ipaddress", where "ipaddress" is the IP address of that device.

 **Note**

- You must be on the same Ethernet segment (that is, there cannot be a router between the print server and the Windows NT system) to use the `arp -s` command.
- If there is a router, you may use BOOTP or other methods described in How to configure TCP/IP printing for UNIX system 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 can not 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 as described in Appendix A), or factory reset the print server (which will then allow you to use the ARP command again).

3. Verify that you can communicate with the Brother Print Server by using the ping command with the IP address or name (if you have edited your HOSTS file or are using Domain Name System). For example:

```
ping 192.189.207.77  
ping <name>
```

Again, substitute your actual name or IP address. You should get a response back from the Brother Print Server if the IP address has been set and the print server is alive on the network. If you do not, print the configuration page and verify that the IP address has changed.

Configuration of an OS/2 Server

1. From the OS/2 desktop open the **Templates** folder. Use the right mouse button to drag the Printer icon (not the **Network Printer** icon) onto the desktop.
2. The **Create a Printer** window should be open (if it is not, double click on the printer icon).
 - Type in any name for the printer.
 - Select the default printer driver. If the desired printer driver is not listed, click on the **Install new Printer Driver** button and add the driver.
 - Choose the output port. IBM TCP/IP automatically creates 8 named pipes called `\PIPE\LPD0` through to `\PIPE\LPD7`. Pick an unused port and double click on it.

Note

Early versions of Warp Server have a bug in which the named pipes do not appear (the problem does not affect Warp Connect or LAN Server). This problem is fixed via a patch available from IBM.

You will get the **Settings** window. Enter the following:

LPD server	The Brother Print Server name (from the HOSTS file) or its IP address.
LPD printer	For most applications, use the Brother Print Server 'binary' service BINARY_P1 . However, if you are printing text files from the DOS or OS/2 command prompt, you should use the text service TEXT_P1_TX, which will add carriage returns for proper formatting of the data (but will potentially distort graphics printouts).
Host name	The IP name of the OS/2 file server
User	The IP address of the OS/2 file server

You may leave the other entries blank. Click on the OK button. The pipe should be highlighted; if not click on it.

Click on the **Create** button to create the printer.

3. Open the **LAN Services** folder and execute the **LAN Requester** program:

- Select **Definitions**
- Select **Aliases**
- Select **Printers**
- Select **Create**. Enter the following:

Alias	Should be same as the printer name previously defined
Description	Anything you want
Server name	Name of OS/2 server
Spooler queue	Name of printer as defined previously
Maximum number of users	Leave blank unless you want to limit the number of users

- Exit the **LAN Requester** program.

4. You should now be able to print. To test the queue, type the following from either the OS/2 command prompt or from a DOS workstation:

```
COPY C:\CONFIG.SYS \\servername\alias
```

Where `servername` is the name of the file server and `alias` is the alias name that you specified during this configuration process. This should print the `CONFIG.SYS` file on the printer. Note that if you selected a binary service as the LPD printer name, the lines will be staggered; don't worry about this because normal DOS, Windows, and OS/2 applications will print OK.

5. The Brother Print Server will appear as a standard OS/2 printer to application programs. To make the print server operate transparently with DOS programs, execute the following command on each workstation:

```
NET USE LPT1: \\servername\alias
```

This will make the printer appear to the software as a printer that is directly connected to the parallel port of the workstation.

Chapter 3

How to Configure Peer-to-Peer Printing for Windows 95/98

Microsoft's Windows 95/98 operating system features built-in networking capabilities. These capabilities allow a Windows 95/98 PC to be configured as a client workstation in a NetWare and Windows NT, environment.

For smaller networks, Windows 95/98 also allows the PC to operate in a peer-to-peer mode. In this mode, the PC can share resources with other PCs on the network without the need for a central file server.

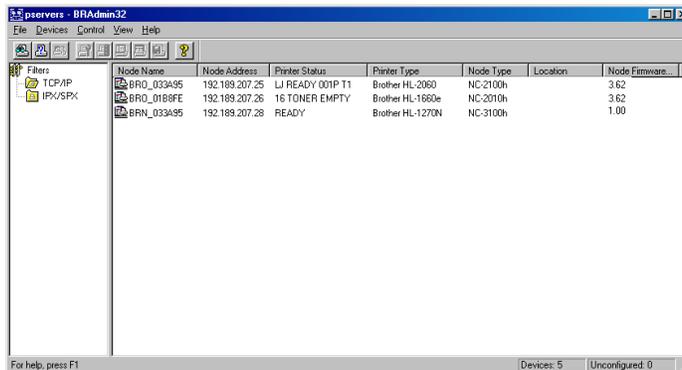
There are two methods of printing to a Ethernet print server in a Windows 95/98 peer to peer network. One method uses the Brother LPR Port driver as described below. As the Brother print server is also compatible with HP's JetAdmin software, this compatibility allows you to use HP's peer to peer printing software. We recommend to use the Brother LPR software if you are using the TCP/IP protocol on your PC's.

LPR method (TCP/IP)

This software requires the TCP/IP protocol to be installed on your Windows 95/98 peer-to-peer computers and an IP Address had to be defined for the print server. To install the TCP/IP protocol refer to your Windows 95/98 documentation.

Changing the IP Address using the BRAdmin32 application

Start the BRAdmin32 utility (from Windows 95/98)



The BRAdmin32 utility can use the IPX/SPX or TCP/IP protocols to communicate with the Brother Network printer. As the default IP address of Brother print servers is 192.0.0.192, this means that the print server will probably be incompatible with the IP address numbering scheme on your network. If you are not using DHCP, BOOTP or RARP, you will probably want to change the IP address of the print server. There are two ways that you can do this from within BRAdmin32. 1) Use the IPX/SPX protocol, 2) use the TCP/IP protocol and let BRAdmin32 find the Brother Print server as an un-configured device.

<USING IPX/SPX to change the IP address>

If your PC has Netware client software.

1. Select IPX/SPX filter in the left frame of the main window.
2. Check the print server name (the default node name will be BRN_XXXXXX, where "XXXXXX" is the six digits of the Ethernet address (MAC address))
3. If you cannot find your server name, select the "Device" menu and choose "Search Active Devices" (you can also press the F4 key) and try again.

Note

You can find the node name and MAC address by printing out the printer configuration page. Refer to the Quick Setup Guide for information on how to print the configuration page on your print server.

4. Select the print server that you wish to configure and double click it. You will be asked for a password. The default password is "access".
5. Select the TCP/IP tab and set the IP address, Subnet mask and Gateway as needed.
6. Click **OK**.

<USING TCP/IP to change the IP address>

If your PC is using the TCP/IP protocol, do the following:

1. Select TCP/IP filter in the left frame of the main window.
2. Select the “**Device**” menu and choose the “**Search Active Devices**”.

Note

If the print server is set to its factory default settings, it will not appear in the BRAdmin32 screen, however, when you select the “Search Active Devices” option, it will be found as a un-configured device.

3. Select the “**Device**” menu and choose the “**Setup Unconfigured Device**”.
4. Select the MAC address of your print server and click Configure button.

Note

You can find the node name and MAC address by printing out the printer configuration page. Refer to the Quick Setup Guide for information on how to print the configuration page on your print server.

5. Input the IP address, Subnet mask and Gateway (If needed) of your print server.
6. Click **OK** then select **Close**.

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

Installing the Brother Peer to Peer Software

Setup from the floppy disk

1. Make a backup copy of Brother Network Print Software disk and use this backup disk for the installation process. Store the original diskette in a safe place.
2. Insert the backup installation diskette into the PC. From the Windows 95/98 Start button, select Run. Then enter A:SETUP and press Enter to start the Brother Network Direct Print installation program.

Setup from the CD-ROM

1. Start the CD-ROM installation menu program according to the Quick Setup Guide.
2. Select the proper Model and Software Installation menu. Then select the Network Print Software menu to start the Brother Print Software installation program.

Common

1. Push the **Next** button in response to the Welcome message.
2. Select the **Brother Peer to Peer Print (LPR)** button
3. Select the desired directory to install the Brother Network Direct Print files and push **Next**. The installation program will create the directory for you if it does not already exist on your disk.
4. 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.
5. You must now enter the actual IP address of the print server in the “**Printer name or IP address**” field. If you have edited the `hosts` file on your computer or are using Domain Name System, you can also enter the 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 your print configuration sheet. From default the NetBIOS name will appear as “BRN_XXXXXX” where XXXXXX is the last six digits of the Ethernet address.

Note

- Windows 95/98 store the hosts file in the default Windows directory.
- By default, the Windows 95/98 hosts file is called `hosts.sam`. If you wish to use the hosts file you must rename the file to `hosts` with no extension, the `.sam` extension stands for sample.

6. Click the **OK** button. When prompted you must re-boot your computer.

Associating to the printer

1. You must now create a printer on your Windows 95/98 system using the standard Windows 95/98 printer setup procedure. To do this, go the **Start** button, select **Setting** and then **Printers**.
2. Select **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 is connected to your computer, and then push **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 press **Next**.
7. Select the Brother LPR port (port name you assigned in step 4 of the Installing **the Brother Peer to Peer Print (LPR) Software section**) and press **Next**.
8. Enter any desired name for the Brother printer and press **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 Brother Network Direct Print software.

Adding a Second Brother LPR Port

You do not re-run the install program to add a new Brother LPR port. Instead, press the **Start** button, select **Settings**, and open the Printers windows. Click on the icon of the printer that you wish to configure, select **File** form the Menu bar, and then choose **Properties**. Click on the **Details** tab and push the **Add Port** button. In the Add Port dialog, select the **Other** radio button and then 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.

HP's JetAdmin compatible method (TCP/IP or IPX/SPX)

To use a peer-to-peer print queue from a Windows 95/98 workstation, first make sure that the following items are configured in the Network Control Panel:

- TCP/IP Protocol or the IPX/SPX compatible protocol.
- HP JetAdmin (the latest version can be downloaded from the HP Web site).

1. Go to the **Start** button and choose **Settings** then select **Printers**.
2. Click on the **Add Printer** icon.
3. Click on **Next**.
4. Select **Local printer** and click on **Next** again.

 **Note**

The initial release of Windows 95/98 does not support printing from DOS applications (this is a Microsoft/HP limitation).

5. Select the correct printer model (click **Have Disk** if your printer is not listed), and click on **Next**.
6. If the driver already exists, select **Keep Existing Driver** (if it does not, this step will be skipped), and then click on **Next**.
7. If desired, change the name of the printer and/or make it the default and then click on **Next**.
8. Select **Yes** when you are asked, "Would you like to print a test page?" Click on **Finish** to complete the installation.
9. Confirm the printer is created in the printer group. Then open the property dialog of the printer.
10. Select the detail tab and click the Add Port Button.
11. Click "Other" and select the HP JetDirect Port and click OK.
12. The HP JetDirect Port Wizard will now start. Use either the "Easy Setup" or "Custom Setup" to specify the IP address or IPX/SPX address.

Chapter 4

How to Configure Peer-to-Peer (NetBIOS) printing for Windows 95/98/NT, LAN Server and OS/2 Warp Server

Introduction

Brother's Print Server range supports SMB (Server Message Block) over the TCP/IP protocol via the NetBIOS interface. This allows direct printing on Microsoft-compatible networks. Because Brother print servers support the SMB protocol over TCP/IP, Brother print server will appear in your network neighborhood.

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 and Windows NT4.0 systems may receive "Printer is busy" error messages when more than one person attempts to access the print. In this instance Brother have 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.

 **Note**

Your computer and print server must have a valid IP address. As for the configuration of TCP/IP network, refer to the chapter "How to Configure TCP/IP printing for Windows NT, LAN Server and OS/2 Warp Server" and "How to Configure Peer-to-Peer Printing for Windows 95/98" chapters of this user guide.

Print Server Configuration

The key to getting this function to work is to ensure that the Brother print server is configured for your network domain name or workgroup name. When you install Windows 95/98 you are asked which workgroup you belong to, the default workgroup name for Windows 95/98 is "WORKGROUP", however you could change this to anything you want. With Windows NT, Microsoft introduce the concept of "Domains". A domain offers centralized security management where as 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 four 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).

- Use BRAdmin32 for Windows 95/98, NT 4.0 (This utility can use the TCP/IP protocol or Netware IPX protocol - no file server necessary.)
- Use a Web browser, (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 BRAdmin32.
- TELNET, again your computer and printer must have a valid IP address.
- Use BRCONFIG for DOS (this utility requires a Netware file server and the IPX protocol).

 **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 TELNET or BRCONFIG or a web browser

If you are unable to use a BRAdmin32 utility or a web browser, you can use TELNET or the BRCONFIG Remote console program (BRCONFIG requires the IPX/SPX protocol to be installed on your PC).

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/NT 4.0 network applet.

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 print server configuration screen, enter you workgroup/domain name into the "Domain Name" text box. Make sure you submit the changes.

NetBIOS Port Monitor for Windows 95/98, NT4.0

This software requires the TCP/IP transport protocols to be installed on your Windows 95/98, NT4.0 computer. To install those protocols refer to your Windows 95/98, NT4.0 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.

Installing the Brother NetBIOS Port Monitor

Setup from the floppy disk

1. Make a backup copy of Brother Network Print Software disk and use this backup disk for the installation process. Store the original diskette in a safe place.
2. Insert the backup installation diskette into the PC. From the Windows 95/98/NT4.0 Start button, select Run. Then enter A:SETUP and press Enter to start the Brother Network Direct Print installation program.

Setup from the CD-ROM

1. Start the CD-ROM installation menu program according to the Quick Setup guide.
2. Select the proper Model and Software Installation menu. Then select the Network Print Software menu to start the Brother Network Print Software installation program.

Common (floppy disk and CD-ROM)

3. Push the Next button in response to the Welcome message.
4. Select **Brother Peer-to-Peer Print (NetBIOS)** installation
5. Select the desired directory to install the Brother Network Direct Print files and push **Next**.
6. Enter the Port name that you wish to use. The port name must start with "BNT". For example **BNT1**. Which ever name you choose, it must be unique. Then press "**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.

7. You must now enter the server name and port name for actual print server. You can use the Browse button for searching the print server, select the domain/workgroup name, 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 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 MAC address by printing out the printer configuration page. Refer to the Quick Setup Guide for information on how to print the configuration page on your print server.

8. Then press “**OK**”.
9. Click the **Finish** button. You must now restart your computer before you can continue.

Associating to the printer

1. You must now create a printer on your Windows 95/98 and NT4.0 system using the standard Windows printer setup procedure. To do this, go the **Start** button, select **Setting** and then **Printers**.

(Windows 95/98)

2. Select **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 is connected to your computer, and then push **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 press **Next**.
7. Select the **Brother NetBIOS Port** (Port name you assigned in step 6 of the Installing the Brother Peer-to-Peer Print (NetBIOS) section) and press **Next**.
8. Enter any desired name for the Brother printer and press **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 NT4.0)

2. Select **Add Printer** to begin the printer installation.
3. Click **Next** when you get the add **Printer Wizard** window.
4. Select **My Computer** when you are asked how the printers is connected to your computer, and then push **Next**.
5. Select the **Brother NetBIOS Port** (Port name you assigned in step 6 of the Installing the Brother Peer-to-Peer Print (NetBIOS) section) and press **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 press **Next**.
8. Enter any desired name for the Brother printer and press **Next**. For example, you could call the printer "Networked Brother Printer".
9. Select not Shared or Shared and Share Name and press **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 Network Direct Print Port

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

(Windows 95/98)

2. Click on the **Details** tab and push 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 NT4.0)

2. Click on the **Port** tab and push 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.

LAN Server/OS/2 Warp Server Configuration

As Brother print servers support the SMB protocol over TCP/IP via a NetBIOS interface, you can easily configure your printer to work with an IBM LAN Server and OS/2 Warp Server networks that have IBM TCP/IP V2.0 or later installed on the fileserver. Use the following procedure to configure the LAN Server, OS/2 Warp Server or OS/2 Warp connect workstation.

Server Configuration:

1. Open the Templates folder on the OS/2 desktop.
2. Using the right mouse button, drag the Printer template onto the desktop.
3. Type in any desired name for the printer from the Create a Printer window.
4. Choose an unused port (for example, LPT3) to connect to the printer.
5. Choose the appropriate printer driver from the list.
6. Click **Create** and then **OK**.
7. If desired, indicate whether you want to share the printer.

Workstation Configuration:

On each workstation that you wish to print from, execute the following step:

Go to the DOS or OS/2 command prompt and enter the command:

```
NET USE LPTx: \\NodeName\ServiceName
```

where "x" is the LPT port number (1 through 9), NodeName is the NetBIOS Name of the print server (BRN_XXXXXX by default, where "XXXXXX" is the last six digits of Ethernet address) and ServiceName is the service name of the Print Server (BINARY_P1 by default). For example:

```
NET USE LPT2: \\BRN_310107\BINARY_P1
```

Note

You can find the NetBIOS name and MAC address by printing out the printer configuration page. Refer to the Quick Setup Guide for information on how to print the configuration page on your print server.

Chapter 5

How to Configure Brother Internet Print for Windows 95/98/NT

BIP Internet Printing Installation

Brother's Brother Internet Print (BIP) software, for Windows 95/98/NT4.0, allows a PC user at one location, to send a print job to a Brother Printer at a remote location via the Internet. For example, a user on a PC in New York could print a document directly from his Microsoft Excel application program to a printer in Paris.

General Information

The BIP software is installed using a standard Windows 95/98/NT4.0 Installation Wizard. It creates a virtual port on the Windows 95/98/NT4.0 PC that operates in a similar way to the standard LPT1 printer port from the Application program point of view. The user can use the Windows 95/98/NT4.0 Print Manager to create a printer that uses this port along with a standard Windows 95/98/NT4.0-compatible printer driver (for example, the HL-series drivers). Any Windows 95/98/NT4.0 applications program can therefore print to this printer (and hence to the virtual port) without modification or operational procedure.

When a job is printed to the BIP virtual port, it is actually MIME-encoded (converted to a standard Internet E-mail message) and sent out to a Brother print server at the remote location using either the Winsock or Messaging API (MAPI) (MAPI is Windows 95/98 only). This means that BIP is compatible with most common E-mail software packages. The only requirement is that the E-mail server be capable of sending E-mail message over the Internet.

In more detail, the procedure works in the following way:

- If you are connected to a Local Area Network, the E-mail message is passed to the E-mail server, which in turn transmits the message out over the Internet using the SMTP protocol (Simple Mail Transport Protocol) to the remote print server.
- If you are connecting via a modem directly to an Internet Service Provider (ISP), the ISP handles the routing of the E-mail to the remote print server.

At the remote site, an E-mail server receives the E-mail message. The remote print server, which has its own E-mail address, uses the POP3 protocol (Post Office Protocol 3) to download the E-mail message from the server. It then decodes the attachment and prints it out on the printer.

 **Note**

If an E-mail is received that has not been configured to use the BIP virtual port driver, the printer will print the e-mail out as a text document.

What this Chapter Covers

This chapter covers the following topics:

- Enabling the BIP capability on a Brother print server at the remote site.
- Installation of the BIP software on a Windows 95/98/NT4.0 PC at the local site.

This chapter assumes that you have already installed a Brother print server at the remote site with valid IP address. It also assumes that you have the capability of configuring E-mail services on your PC and E-mail server, or that you have access to a network administrator who can perform these tasks for you.

Configuring the Brother Print Server

This step is to configure the remote print server for enabling BIP capability on the Brother print server at the remote site. The print server can be configured with BRAdmin32 configuration utility, by accessing the print server console through the TELNET utility or via a web browser. Refer to Appendix of the appropriate print server manual for information on how to use the TELNET to access the print server console.

Print Server Configuration Checklist

 **Note**

Before configuring the print server to receive BIP jobs, Be sure that the E-mail server at the remote site (the receiving end) is configured to handle the TCP/IP POP3, and SMTP protocols (SMTP is only required if the notification feature is enabled).

1. Configure the POP3 server on the E-mail server at the remote site with a mail account (Mailbox name) and password for the Brother print server (generally, the mail account name will be the first part of the Email address; for example, if you assign the Email address emailprinter@xyz.com, then the mail account name would be emailprinter).
2. Make sure that the print server is installed and running with TCP/IP enabled and has a valid IP address assigned to it.

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

Using BRAdmin32 to Configure the Print Server

Note

Skip this section if you wish to use the print server remote console or Web Browser to configure the print server.

Using the BrAdmin32 utility, you can configure the Brother print server using the TCP/IP protocol, or the IPX protocol.

The steps required to configure the print server to receive print jobs from a Windows 95/98/NT4.0. PC running the BIP software is as follows:

1. Start the BRAdmin32 program.
2. Select the node name of the desired Brother print server from the list and double clicking on it. (the default node name is BRN_XXXXXX, where "XXXXXX" is the last six digits of the Ethernet address (MAC address)). You will be prompted for a password, the default password is "access".

Note

You can find the node name and MAC address by printing out the printer configuration page. Refer to the Quick Setup Guide for information on how to print the configuration page on your print server.

3. Click on the **Internet** tab.
4. Enter the IP address of the POP3 server (consult your network administrator if you do not know this address).
5. Enter the mailbox name for the remote Brother print server. Usually this will be the first part of the E-mail address (for example, if the E-mail address of the print server is emailprinter@xyz, then the mailbox name would be emailprinter).
6. Enter the password for the mailbox, if any.

7. The print server is configured by default to poll the POP3 server every 30 seconds. You may change this value, if desired.
8. If you have enabled notification, enter the IP address of your SMTP server (consult your network administrator if you do not know this address).
9. Press the **OK** button and save the changes. Now exit BRAdmin32 utility. You have now configured the print server to receive print jobs.

Using a Web Browser to Configure the Print Server

1. Connect to the printer server IP address using your web browser.
2. When you reach the network configuration screen, you will be prompted for a password. The default password is “access”
3. Select the **Configure Internet** option and enter the information as described above. Refer to “Using BRAdmin32 to Configure the Print Server”
4. You should see a **Segmented Message Timeout** option. If a print job is separated into multiple E-mail messages using the Partial E-mail Print feature of the BIP, this value indicates how long the print server will wait for all of the segments of the message to arrive.

Using the Console to Configure the Print Server

 **Note**

Skip this section if you used BRAdmin32 or Web Browser to configure the remote print server.

As an alternative to BRAdmin32, you can use the print server remote console to configure the print server. The console can be accessed via the TELNET. Refer to Appendix if you do not know how to use the console. When you access the print server using these utilities, you will be asked for a password. The default password is “access”.

1. When you get the “Local>“ prompt after connecting to the console, enter the command:

```
SET POP3 ADDRESS ipaddress
```

where *ipaddress* is the IP address of your POP3 server (consult with your network administrator if you do not know this address).

2. Enter the command:

```
SET POP3 NAME mailboxname
SET POP3 PASSWORD emailpassword
```

where *mailboxname* is the name of the remote print server mailbox and *emailpassword* is the password associated with this mailbox. Usually the mailbox name is the same as the first part of the E-mail address that you defined previously (for example, usually if the E-mail address is *emailprinter@xyz.com*, then the mailbox name is *emailprinter*).

3. The print server is set by default to poll the POP3 server every 30 seconds. If you wish to change this value, enter the command:

```
SET POP3 POLLING rate
```

where *rate* is the polling rate in seconds.

Type EXIT to exit the console and save the changes. You have now completed configuring the print server.

Installing the BIP Software on a Windows 95/98/NT4.0

To install the BIP software on a Windows 95/98/NT4.0 PC, execute the following steps:

Note

- Be sure that PC is running an E-mail program (for example, Microsoft Exchange) that is capable of sending E-mail message using either MAPI or Winsock.
- Be sure that your E-mail server is capable of sending messages across the Internet.

Setup from the floppy disk

1. Make a backup copy of Brother Network Print Software disk and use this backup disk for the installation process. Store the original diskette in a safe place.
2. Insert the backup installation diskette into the PC. From the Windows 95/98 Start button, select Run. Then enter **A:SETUP** and press **Enter** to start the Brother Network Direct Print installation program.

Setup from the CD-ROM

1. Start the CD-ROM installation menu program according to the Quick Setup guide.
2. Select the proper Model and Software Installation menu. Then select the Network Print Software menu to start the Brother Network Print Software installation program.

Common (floppy disk and CD-ROM)

3. Push the **Next** button in response to the Welcome message.
4. Select the **Brother Internet Print** button.
5. Select the desired directory to install the BIP files and then push Next. The installation program will create the directory for you if it does not already exist.
6. Select either **WINSOCK** (the default) or **MAPI** (Windows 95/98 only) as the mail transport protocol and press **Next**. Most mail programs, include Microsoft Exchange which is included with Windows 95/98, use MAPI. The installation program will then begin installing the files.
7. You will then be asked for a port name. Enter the name of the port. The port name must begin with the BIP and end with a number, for example, BIP1.
8. You will then see a message about Partial E-mail Print. Partial E-mail Print is the ability of the Brother Internet Print software to break down E-mail Print jobs into smaller sections to prevent a mail file size limitation problem for mail server.
9. Press **OK** to continue.
10. You will then be asked to enter the port settings for the remote print server:

Enter any unique legal Internet E-mail address for the remote print server (for example **emailprinter@xyz.com**). Note that Internet E-mail addresses cannot have spaces in them.

If you are using WINSOCK, enter your E-mail address and the IP address of your SMTP E-mail server (consult your network administrator if you do not know this address). Also specify if you are going to use the Partial E-mail Print option and Notification type.

11. Press **OK** to continue. You will then be asked to re-start your computer.
12. One your computer has re-started you must create a printer on your Windows 95/98/NT4.0 system using the standard Windows 95/98/NT4.0 printer setup procedure. To do this, go the **Start** button, select **Settings** and then **Printers**.
13. Select **Add Printer** to begin the printer installation.
14. Click **Next** when you get the Add Printer Wizard window (Windows 95/98 only).
15. Select **Local Printer** (Windows 95/98), **My computer** (Windows NT4.0) when you are asked how the printers are connected to your computer and push **Next**.

<For Windows 95/98 users>

16. Select the desired model of the remote printer (for example, Brother HL-series). If necessary, click **Have Disk** to load the driver from the printer's installation diskette. Click **Next** when you are done.
17. 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 press **Next**.
18. Select the Brother Internet port (**BIP...**) and press **Next**.

<For Windows NT4.0 users>

16. Select the Brother Internet port (**BIP...**) and press **Next**.
17. Select the desired model of the remote printer (for example, Brother HL-series). If necessary, click **Have Disk** to load the driver from the printer's installation diskette. Click **Next** when you are done.
18. 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 press **Next**.
19. Enter any desired name for the BIP remote printer and press **Next**. Note that this name does not need to match the Port name that you assigned in step 7, or E-mail address that you assigned in step 10..
20. Select **No** when asked if you want to print a test page, unless you have already configured the remote print server to receive BIP print jobs.

You have now finished installing the BIP software. **If you need to configure another remote print server , go to next section, Adding a Second Brother Internet Port.**

Adding a Second Brother Internet Port

You should not re-run the install program to add a new Brother Internet Port. Instead, press the **Start** button, select **Settings**, and open the **Printers** windows. Click on the icon of a printer that is using BIP, select **File** from the menu bar, and then choose **Properties**. Click on the **Details (Ports on Windows NT)** tab and push the **Add Port** button.

In the Add Port dialog, select the **Other** radio button (Windows 95/98 only) and then **“Brother Internet Port”**. Click **OK (New Port on Windows NT)** and it will give you the Port Name. Any unique name can be given here as long as it starts with **“BIP”** and another port does not already exist with the same name.

Chapter 6

How to Configure Novell Netware printing using IPX/SPX

Brother Print Servers allow NetWare client PCs to print jobs on the same printer as TCP/IP and AppleTalk users. All NetWare jobs are spooled through the Novell server and delivered to the printer when it is available.

General Information

In order to use a Brother print server on a NetWare network, one or more file servers must be configured with a print queue that the print server can service. Users send their print requests to the file server's print queue, and the jobs are then spooled (either directly, or in the case of remote printer mode, via an intermediate print server) to the appropriate Brother print server.

The system administrator can create both Bindery and NDS based queues in a single environment without having to switch between applications. The BRAdmin32 application has been designed to run on Windows 95/98 and NT 4.0.

 **Note**

You must install the Novell Netware Client 32 if you wish to create queue information on your Netware servers by BRAdmin32.

If you can't use BRAdmin32 in your environment, you can create the queue using the traditional Netware PCONSOLE utility, but you will then also need to use the Brother BRCONFIG utility, TELNET or a WWW browser to configure the print server as described later in this chapter.

 **Note**

Brother print servers can service up to 16 file servers and 32 queues.

Creating a Print Queue Using BRAdmin32

Brother's BRAdmin32 utility are Windows-based applications that provide similar functionality to the Netware PCONSOLE utility (or the NWADMIN utility in Netware 4.1x or later). To use the BRAdmin32 programs to configure a Brother print server under NetWare, make sure that you are logged in as SUPERVISOR (NetWare 2.xx or 3.xx) or ADMIN (NetWare 4.1x or later) and perform the following steps:

Configuring the Brother Print Server (Queue Server Mode in Bindery emulation mode) using BRAdmin32

1. Make sure that you logged in as SUPERVISOR (Netware 2.xx or 3.xx) or ADMIN (Netware 4.xx or later).
2. Start BRAdmin32.
3. One or more print server will appear in the list (the default node names are BRN_XXXXXX, where "XXXXXX" is the last six digits of the Ethernet address (MAC address)).

 **Note**

You can find the node name and MAC address by printing out the printer configuration page. Refer to the Quick Setup Guide for information on how to print the configuration page on your print server.

4. Select the print server that you wish to configure and double click it. *You will be asked for a password. The default password is "access".*
5. Select the Netware tab.

 **Note**

If necessary change the "Print Server Name", the default Netware print server name will be BRN_XXXXXX_P1 where XXXXXX is the Ethernet address of the print server. Be careful! Changing the name may impact the configuration of other protocols because the print server service names will be altered.

- a If it is not already selected, select **Queue Server** mode.
- b Click the **Change Bindery Queues** button.
- c Select the Netware server which you wish to configure.
- d Select the **New Queue** button and type in the queue name which you wish to create.
- e Once you have done that highlight the queue name you created and then click on the **Add** button.
- f Click on **Close** and then **OK**.

Now exit the BRAdmin32 application.

Configuring the Brother Print Server (Queue Server Mode in NDS mode) using BRAdmin32

1. Make sure that you logged in as ADMIN in NDS mode.
2. Start the BRAdmin32 program.
3. One or more print server services will appear in the list of printers (the default node names are BRN_XXXXXX, where "XXXXXX" is the last six digits of the Ethernet address (MAC address)).

 **Note**

You can find the node name and MAC address by printing out the printer configuration page. Refer to the Quick Setup Guide for information on how to print the configuration page on your print server.

4. Select the printer that you wish to configure and double click it. *You will be asked for a password. The default password is "access".*
5. Select the Netware tab.

 **Note**

If necessary change the "Print Server Name", the default Netware print server name will be BRN_XXXXXX_P1 where XXXXXX is the Ethernet address (MAC address) of the print server. Be careful! Changing the name may impact the configuration of other protocols because the print server service names will be altered.

- a If it is not already selected, select **Queue Server** mode.
- b Select the correct NDS tree and NDS context (you can manually enter this information, or by clicking on the down arrow by the side of NDS tree and the Change button by the side of NDS Context, you can let BRAdmin32 display your choices automatically. Once you have specified this information, click on the **Change NDS queues** button.
- c In the Netware Print Queues screen select the appropriate TREE and Context and then Click the **New Queue** button.
- d Enter the queue name and specify the volume name. If you do not know the volume name, select the **Browse** button to browse the Netware volumes. When the information is entered correctly, select the OK button.
- e Your queue name will appear in the TREE and Context that you specified. Select the queue and click on Add. The queue name will then be transferred to the Service Print Queues Window. You will be able to see the TREE and Context information along with the queue name information in this Window.
- f Click on the **Close** button. Your Brother print server will now log into the appropriate Netware server.

Now exit the BRAdmin32 application.

Configuring the Brother Print Server (Queue Server Mode in NDS mode) using Novell NWADMIN and BRAdmin32

1. Make sure that you are logged in as ADMIN in NDS mode on the NetWare 4.1x (or later) file server and start the NWADMIN application.
2. Select desired Context that will contain the Printer and then click on **Object** from the menu bar and then **Create**. When you get the **New Object** menu, select **Printer** and then **OK**.
3. Enter the name of the printer and select **Create**.
4. Select the desired Context that will contain the default print queue, and then click on **Object** and **Create** to get **New Object** menu.
5. Select **Print Queue** and then **OK**. Make sure that **Directory Service Queue** is selected and then type in a name for the default print queue.
6. Click on the button to select the print queue volume. Change the directory context if necessary, then select the desired volume (from **Available Objects**) and click **OK**. Click **Create** to create the print queue.
7. Change context if required and then double click the name of the printer you created in step 3.
8. Click **Assignments** and then **Add..**
9. Change context if necessary and select the print queue you created in step 5.
10. Click **Configuration** and set the **Printer type** to **Other/Unknown**. Click **OK** and then **OK** again.
11. Change the context if required, select **Object** from the menu bar and then **Create**. When you get the **New Object** menu, select **Print Server** and then **OK**.
12. Enter the name of the print server and select **Create**.

Note

Enter the Netware print server name of the print server exactly as it appeared in the Netware tab of the BRAdmin32 application (this will generally be the BRN_XXXXXX_P1 default service name, unless you changed the name).

You can find the current service name and MAC address by printing out the printer configuration page. Refer to the Quick Setup Guide for information on how to print the configuration page on your print server.

Important:

Do not assign a password to the print server or it will not log in.

13. Double click on the name of your print server. Click on **Assignments** and then **Add...**
14. If necessary, change the directory context. Select the printer you created in step 3 and click **OK** and then **OK** again.
15. Exit NWADMIN.
16. Start the appropriate BRAdmin32 application, and select the correct print server from the list (by default, the node name is BRN_XXXXXX, where “XXXXXX” is the last six digits of the Ethernet address (MAC address)).
17. Double click the appropriate Brother print server. You will be prompted for a password, the default password is “access”. Now select the **NetWare** tab.
18. Select **Queue Server** as the operating mode.

 **Note**

The same service assigned by Netware server name cannot be used for both queue server mode and remote printer mode.

 **Note**

If you want to enable queue server capabilities on services other than the default NetWare services, you must define new services that are enabled for NetWare and for the desired port. Refer to Appendix in this manual for information on how to do this.

19. Enter the NDS tree name (note that a print server can service both NDS and bindery queues).
20. Type in the name of the context where the print server resides.
21. Exit the BRAdmin32 application making sure that you save the changes that you have made.

Configuring the Brother Print Server (Remote Server Mode in NDS mode) using Novell NWAdmin and BRAdmin32

To configure a Brother print server for remote printer mode with NWADMIN (NetWare Administrator utility) and BRAdmin32, you will need to perform the following steps:

1. Make sure that the PSERVER NLM (NetWare Loadable Module) is loaded on your file server and that you are logged in as ADMIN in NDS mode on the NetWare 4.1x file server.
2. Start NWADMIN by double clicking on the icon. Select the desired Context that will contain the new printer.
3. Select **Object** from the menu bar and then **Create**. When you get the **New Object** menu, select **Printer** and then **OK**.
4. Enter the name of the printer and select **Create**.
5. Double click on the print server name of your PSERVER NLM. Click on **Assignments** and then **Add**.
6. If necessary, change the directory context. Select the printer you created and click **OK**. Note the number of the printer, as you will use this later, then click **OK**.
7. Select the desired Context that will contain the default print queue, and then click on **Object** and **Create** to get **New Object** menu.
8. Select **Print Queue** and then **OK**. Make sure that **Directory Service Queue** is selected, and then type in a name for the default print queue.
9. Click on the button to select the print queue volume. Change the directory context if necessary, then select the desired volume (**Objects**) and click **OK**. Click **Create** to create the print queue.
10. Change context if required and then double click the name of the printer you created previously.
11. Click **Assignments** and then **Add**.
12. Change context if necessary and select the print queue you created. Click **OK** and then **OK** again, and then exit NWADMIN.
13. Start the appropriate BRAdmin32 application, and select the correct print server you wish to configure (by default, the node names will begin with BRN_XXXXXX_P1, BRN_XXXXXX).

 **Note**

You can find the Netware server name and MAC address by printing out the printer configuration page. Refer to the Quick Setup Guide for information on how to print the configuration page on your print server.

14. Double click the appropriate print server. You will be prompted for a password, the default password is “access”.
15. Now select the **NetWare** tab.
16. Select **Remote Printer** as the **Operating Mode**, select the name of your PSERVER NLM as the **Print Server Name** and select the number of the printer from step 6 as the **Printer Number**.

 **Note**

The same service assigned by Netware print server cannot be used for both queue server mode and remote printer mode. If you want to enable remote printer capabilities on a service other than the default NetWare service, you must define new services that are enabled for NetWare and for the desired port. Refer to Appendix B in this manual for information on how to do this.

17. Click **OK**. And exit BRAdmin32.

You must now unload the PSERVER NLM from your NetWare file server console and then reload it in order for the changes to take effect.

As an alternative to Brother’s BRAdmin32 application or the Novell NWADMIN application, you can use the standard Novell PCONSOLE utility in conjunction with Brother’s BRCONFIG program to set up your print queues. BRCONFIG program will be installed at the same time when you install the BRAdmin32 and you can find the BRCONFIG in the menu “Start/Program/Brother BRAdmin32 utilities”. Otherwise you can find it in the “Brother Print Server Configuration Utility” diskette. Note that if desired, you may use a WWW browser or TELNET utility - instead of the BRCONFIG utility).

Configuring the Brother Print Server (Queue Server Mode in Bindery emulation mode) using PCONSOLE and BRCONFIG

1. Login as Supervisor (NetWare 3.xx) or ADMIN (NetWare 4.1x or later; be sure to specify the /b option for bindery mode).
2. Execute the BRCONFIG from the Windows menu or insert the "Print Server Configuration Utility" diskette in drive A: and type the following at the DOS prompt:

```
A:BRCONFIG or A:BRCONFIG PrintServerName
```

Where PrintServerName is the Netware print service name of the Brother print server (the default name is BRN_XXXXXX_P1, where "XXXXXX" is the last six digits of the Ethernet address (MAC address)).

Note

You can find the Netware print service name and MAC address by printing out the printer configuration page. Refer to the Quick Setup Guide for information on how to print the configuration page on your print server.

3. If you did not specify the print server name in the BRCONFIG command, select the corresponding server name from the list of print servers.
4. When you get the message that the print server is connected, type the default password "access" in response to the "#" prompt (the password will not echo), and then press the **ENTER** key in response to the **Enter Username>** prompt.
5. When you get the **Local>** prompt, type:
 6. SET NETWARE SERVER servername ENABLED
 7. Where servername is the name of the file server on which the print queue will reside. If there is more than one file server that you wish to print from, repeat this command as many times as necessary.
 8. Type EXIT to exit the BRCONFIG remote console program and save the changes and start the Novell PCONSOLE utility.
 9. Select **Print Server Information** (NetWare 3.xx) or **Print Servers** (NetWare 4.1x; ignore the warning message) from the **Available Options** menu.
 10. You will be shown a list of current print servers. Press the **INSERT** key to create a new entry, type in the Netware print server name (BRN_XXXXXX_P1 by default, where "XXXXXX" is the last six digits of the Ethernet address) and press **ENTER**. Return to the main **Available Options** menu by pressing **ESCAPE**.
 11. Select the **Print Queue Information** (NetWare 3.xx) or **Print Queues** (NetWare 4.1x) menu option to see list of configured print queues.

12. Press **INSERT** to create a new queue on the file server, type the new queue name and press **ENTER**. The name does not have to be related to the name of the print server resources, but should be short and convenient for users to remember.
13. Make sure that the new queue name is highlighted, and then press **ENTER** to configure the queue.
14. Select **Queue Servers** (in NetWare 4.1x, this item is called **Print Servers**) and press **ENTER** to specify which network print servers can print jobs from this print queue. The list will be empty, since none have been selected yet if this is a new queue.
15. Press **INSERT** to get a list of the queue server candidates and select the print server service name from step 11, Press **ENTER**.
16. Press **ESCAPE** several times until you return to the **Available Options** menu.
17. Force the print server to rescan file servers for print jobs. You may either turn the printer off and on again or you may down the print server in PCONSOLE as follows:
 - In the Available **Options** menu, highlight Print Server Information, and press **ENTER**.
 - Select the print server name (BRN_XXXXXX_P1) and press **ENTER**. If you have NetWare 4.1x, highlight **Information and Status** and press **ENTER**, and then skip to the next bullet.

If you have NetWare 3.xx or 2.xx:

- Highlight **Print Server Status/Control** and press **ENTER**.
- Highlight Server Info and press **ENTER**.
- Push **ENTER** and then select **Down** and press **ENTER** again. This will force the print server to rescan the available file servers for new queue entries.
- Alternatively, use the BRCONFIG or TELNET command `SET NETWARE RESCAN` to make the print server rescan for file servers.

Configuring the Brother Print Server (Queue Server Mode in NDS mode) using PCONSOLE and BRCONFIG

1. Make sure that you are logged in as ADMIN in NDS mode on the NetWare 4.1x file server.
2. Run the PCONSOLE utility from PC workstation.
3. Select **Print Servers** from the **Available Options** menu.
4. Press **INSERT** and enter the **Print Server Name**

Note

Enter the Netware print service name of the print server exactly as it appeared in the printer configuration page (the default name is BRN_XXXXXX_P1, where “XXXXXX” is the last six digits of the Ethernet address (MAC address), unless you changed the name to something else). You can find the Netware print service name and MAC address by printing out the printer configuration page. Refer to the Quick Setup Guide for information on how to print the configuration page on your print server.

Important:

Do not assign a password to the print server or it will not log in.

5. Return to the main **Available Options** menu by pressing **ESCAPE**.
6. Select **Print Queues**.
7. Press **INSERT** type in the desired print queue name (you will also be asked for a volume name. Press **INSERT** and select the appropriate volume), and press **ESCAPE** to return to the main menu.
8. Make sure that the new queue name is highlighted, and press **ENTER**.
9. Select **Print Servers** and press **ENTER** to specify which network print servers can print jobs from this print queue. The list will be empty, since none have been selected.
10. Press **INSERT** to get a list of the queue server candidates and select the Netware print server name from step 4, which will then be added to the list. Press **ENTER**.
11. Select **Printers** from the Available Options menu.
12. Press **INSERT** and enter a descriptive name for the printer.
13. Press **ESCAPE** and go back to the Available Options menu.
14. Select **Print Servers** and select the name of the printer server that you entered in Step 4.

15. Highlight the **Printers** option in the **Print Server Information** menu.
16. Press **INSERT** and select the name of the printers you entered in Step.
17. Press **ESCAPE** several times to return to DOS.
18. Execute the BRCONFIG from the Windows menu or insert the Brother Print Server Configuration Utility diskette in Drive A: of your PC and type: A : BRCONFIG .

Select the print server from the list of print servers. When you get the message that the print server is connected, press the **ENTER** key and type the default password of "access" in response to the "#" prompt (the password will not echo), and then press the **ENTER** key again in response to the ENTER Username> prompt. When you get the Local> prompt, type:

```
SET SERVICE service TREE tree
SET SERVICE service CONTEXT Context
```

- Where **tree** is the NDS tree name.
 - Where **context** is the name of context where the print server resides.
 - Service is the name of the service assigned by Netware print server name (where the default services are BRN_XXXXXX_P1 for the Brother printer, where "XXXXXX" is the last six digits of the Ethernet address (MAC address)).
 - You can also enter the TREE and CONTEXT name using your web browser by connecting to the Brother print server using the TCP/IP protocol and selecting the Netware protocol configuration.
19. Use the BRCONFIG command or TELNET command: SET NETWARE RESCAN to force the print server to rescan for file servers, or power cycle the printer.

 **Note**

The same services assigned by Netware print server names cannot be used for both queue server mode and remote printer mode.

 **Note**

The same service assigned by Netware print server cannot be used for both queue server mode and remote printer mode. If you want to enable remote printer capabilities on a service other than the default NetWare service, you must define new services that are enabled for NetWare and for the desired port. Refer to Appendix B in this manual for information on how to do this.

Configuring the Brother Print Server (Remote Printer Mode using PCONSOLE and BRCONFIG)

1. Make sure that the PSERVER NLM (NetWare Loadable Module) is loaded on your file server.
2. Log into the file server from your PC workstation as ADMIN if you are using NetWare 4.1x (if you want NDS support, do not login under bindery mode). If you are using NetWare 2.xx or 3.xx, login as SUPERVISOR.
3. Run the PCONSOLE utility from your PC workstation.
4. If you are creating a new print queue, select **Print Queue Information** (NetWare 3.xx) or **Print Queues** (NetWare 4.1x) from the **Available Options** menu.
5. Press **INSERT**, type in the desired print queue name (with NetWare 4.1x, you will also be asked for a volume name; press **INSERT** and select the appropriate volume), and press **ESCAPE** to return to the main menu.

The following steps apply to configuring a remote printer with NDS support on NetWare 4.1x systems:

6.
 - a. Select **Print Servers** from the PCONSOLE menu and then select the name of the PSERVER NLM on your host computer.
 - b. Select **Printers**.
 - c. Press **INSERT** to get **Object, Class** menu.
 - d. Press **INSERT** and enter the **Printer Name** (any unique name is OK).
 - e. Highlight the printer name and press **ENTER** twice to get **Printer Configuration Menu**.
 - f. PCONSOLE will assign a **Printer Number**. Remember this number, since it will be used later.
 - g. Highlight **Print Queues Assigned** and press **ENTER** and then **INSERT** to get a list of available queues.
 - h. Highlight the name of the print queue you wish to assign to the remote printer and press **ENTER**.
 - i. The other settings in the menu are not required. Push **ESCAPE** several times to exit PCONSOLE.
 - j. Skip to the **Assigning the remote printer name and number** sections below.

The following steps apply to configuring a remote printer on NetWare 3.xx systems:

6.
 - a Select **Print Server Information** from the PCONSOLE main menu and choose the name of the PSERVER NLM.
 - b Select **Print Server Configuration** and then **Printer Configuration**. Select any "Not Installed" printer and press **Enter**. Remember the number of this printer, since it will be used later in the configuration process.
 - c If desired, type in a new name for the printer.
 - d Go to **Type**, press **ENTER**, highlight **Remote Other/Unknown** and press **ENTER** again. The other settings in this menu are not required.
 - e Push **ESCAPE** and save the changes.
 - f Push **ESCAPE** and select **Queues Serviced by Printer**.
 - g Highlight the printer name that you just configured and press **ENTER**.
 - h Press **INSERT**, choose the desired print queue, and press **ENTER** (you can accept the default priority).
 - i Press **ESCAPE** several times to exit PCONSOLE.

Assigning the Remote printer name and number using BRCONFIG

7.
 - a Execute the BRCONFIG from the Windows menu or insert the Brother Print Server Software diskette in Drive A: of your PC and type:

```
A:BRCONFIG
```
 - b Select the Brother print server from the list of print servers. When you get the message that the print server is connected, press the **ENTER** key and type Where the default password "access" in response to the "#" prompt (the password will not echo) and then press the **ENTER** key again in response to the Enter Username> prompt. When you get the Local> prompt, type:

```
SET NETWARE NPRINT nlm number ON service  
SET NETWARE RESCAN  
EXIT
```

- Where nlm is the name of the PSERVER NLM on your file server
- Number is the printer number (must match the printer number you selected during the PCONSOLE configuration in the previous steps)
- Service is the name of the service assigned by Netware print server name (where the default services are BRN_XXXXXX_P1 for the Brother printer, where "XXXXXX" is the last six digits of the Ethernet address (MAC address)).

For example, to set up remote "Printer 3" for an Brother printer with the print server BRN_310107_P1 using the PSERVER NLM called BROTHER1PS, you would type:

```
SET NETWARE NPRINT BROTHER1PS 3 ON BRN_310107_P1
SET NETWARE RESCAN
EXIT
```

- You can also enter the remote printer name using your web browser by connecting to the Brother print server using the TCP/IP protocol and selecting the Netware protocol configuration.

 **Note**

The same services assigned by Netware print server name cannot be used for both queue server mode and remote printer mode.

You must now unload the PSERVER NLM from your NetWare file server console and then reload it in order for the changes to take effect.

Testing the Print Queue

You can test the queue by using the NetWare DOS nprint command:

```
C:> nprint c:\autoexec.bat q=queuename
```

where queuename is one of the print queues you created earlier in this chapter. The file will be spooled to the print server for printing and should print on the printer within a short period of time. If it does not, double check your configuration, and if necessary, refer to Troubleshooting information.

Configuring the Workstation (DOS-based NetWare drivers)

To configure the PC workstation so that DOS applications can print transparently to the Brother print server (you may use this procedure if you do not have Windows-specific NetWare drivers), use the DOS editor to add a command with following format to the AUTOEXEC.BAT file on your PC:

```
capture l=n q=queueName ti=timeout
```

- Where n is the number of the parallel port you wish to redirect.
- QueueName is the name of the queue you created (if you using NetWare 4.x in NDS mode, you may specify p=printerName instead of the queue, where printerName is the name of the NDS printer; be sure to enter the entire directory context of the printer).
- Timeout is the number of seconds after which the file server will send data to the printer after the application last writes to a file (use at least 5 seconds for DOS applications and at least 50 seconds for Windows applications, and you may need increase the values if you are unable to print).

For example, if your queue is called myqueue and you wish to use LPT1 with timeout of 5 seconds, you would enter:

```
capture l=1 q=myqueue ti=5
```

After the workstation is restarted, you will be able to print from applications programs as if the printer were directly connected to the LPT1 parallel port.

- If the printer does not correctly print your data, try adding the /Nt switch to your capture command. For example:

```
capture l=n q=queueName ti=timeout/Nt
```

Configuring the Workstation (Windows 3.1x)

To use a NetWare print queue from a Windows 3.xx workstation, first make sure that you have the appropriate NetWare Windows VLM drivers and utilities installed. Then execute the following steps:

1. Open the **Main** window of the Windows Program Manager and start the **Print Manager**.
2. Select **Options** (or **Printer**) from the menu bar and then **Network Connections**.
3. Select the desired port (for example, LPT1:) under **Ports:** and the desired print queue under **Resources**.

4. Click **Capture** and **Permanent**.
5. Close the window and select **Options** and then **Printer Setup**.
6. Choose the desired printer under **Installed Printers**. If the desired printer does not exist, select **Add>>** and select the printer from the **List of Printers**, and click on **Install** (normally you will need the printer driver diskette).
7. If the desired printer is not on the correct port, click on **Connect**, select the port, and click **OK**.
8. If desired, click **Set as Default Printer** to make the printer your default printer.
9. Exit the Print Manager.

Configuring the Workstation (Windows 95/98)

To use a NetWare print queue from Windows 95/98 workstation, first make sure that the appropriate NetWare drivers are installed. Then go to the **Start** button, choose **Settings**, and then select **Printers**. Double click on the Add Printer icon and then execute the following steps when you get to the Add Printer Wizard.

1. Click on **Next**, select **Network Printer** and click on **Next** again.
2. Select **Browse**, double click on the appropriate file server name, select the print queue, and click **OK**. Click on **Next**.
3. Select the desired printer (click **Have Disk** if your printer is not listed), and click on **Next**.
4. If the driver already exists, select **Keep Existing Driver** (if it does not, this step will be skipped), and then click on **Next**.
5. If desired, change the name of the printer and/or make it the default, and then click on **Next**.
6. Select **Yes** when you are asked "Would you like to print a test page?" Click on **Finish**.

Chapter 7

How to Configure Macintosh printing using Appletalk

Brother Print Server's support the AppleTalk protocol running over Ethernet (also known as EtherTalk). This allows Macintosh users to print at the same time as all other Ethernet network users.

AppleTalk

Our AppleTalk capabilities allow a Brother Printer to appear as a shareable printer node on an AppleTalk Phase 2 network. The print servers broadcast information to Macintoshes on the network and automatically appear in the Chooser program of each Macintosh. Brother Print Servers support ASCII and Binary printing.

Macintosh Configuration

Your Brother Print Server is compatible with Apple Laserwriter 8 drivers (earlier versions of the LaserWriter drivers may crash or cause PostScript errors on large networks). If you do not have these drivers you must install them. Consult your Macintosh documentation for instructions on how to do this.

Before you try to use the Brother Print Server, you must firstly enable the EtherTalk protocol from the Network Control Panel on the Macintosh. If the EtherTalk protocol is not selectable, or the Network Control Panel does not exist, you must use Apple's Network Installer software to add these capabilities.

Also you should install the configuration file of HL-1270N for Laserwiter 8 driver before print server configuration. To do that , load the CD-ROM bundled with HL-1270N into the Macintosh , then following folder will be open. Double click the “BR-Script PPD Installer” and follow the instruction.



Operation

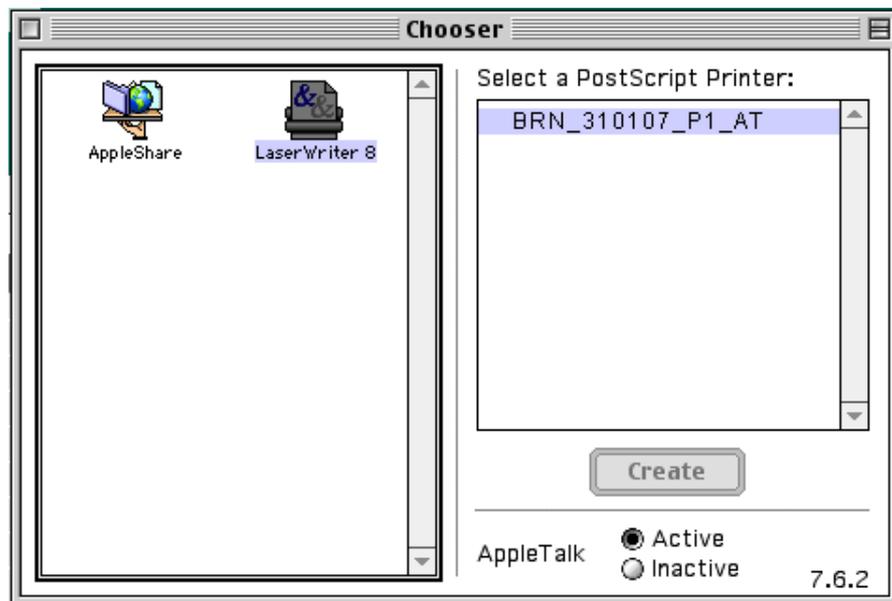
Once the print server is installed and the printer is powered on, the Brother print server Appletalk service name (default is BRN_XXXXXX_P1_AT, where "XXXXXX" is the last six digits of the Ethernet address (MAC address); for example, BRN_310107_P1_AT) should appear in the Chooser.

Note

You can find the service name and MAC address by printing out the printer configuration page. Refer to the Quick Setup Guide for information on how to print the configuration page on your print server.

How to Select the Print Server

1. Open the Chooser from the Apple Menu on the Macintosh, and then click on the Laserwriter icon (if necessary, select the appropriate AppleTalk zone from the Network Control Panel).



2. Click on the appropriate print server and close the Chooser program. You should now be able to print from the Macintosh.

 **Note**

If you cannot see the print server, first make sure that your cabling is correct and that you have enabled EtherTalk from your Macintosh Network Control Panel. You may also need to force the print server into the correct AppleTalk zone using the `SET APPLETALK ZONE` command described in Appendix A. You can also configure zone information using BRAdmin32 from a PC, or by using a web browser.

Changing the Configuration

You may use Web Browser, TELNET, or Brother's BRAdmin32 applications to change the Print server AppleTalk name and default zone name. You can also disable AppleTalk broadcasts. The procedure and commands are described in Appendix A. Note that name can also be changed by using the (Apple LaserWriter Utility) Apple Printer Utility.

Chapter 8

How to Configure DLC/LLC printing for Windows NT

DLC is a simple protocol that is included in Windows NT as standard. It can be used on other operating systems (such as Windows 3.x) with the addition of vendor supplied software that supports the Hewlett-Packard JetDirect card. If you are going to use the TCP/IP protocol for printing, refer to the chapter "How to Configure TCP/IP printing for Windows NT, LAN Server and OS/2 Warp Server"

 **Note**

Because DLC is a non-routable protocol, there cannot be a router between the print server and the sending computer.

Configuring DLC on Windows NT

To use DLC on Windows NT, you must first install the DLC protocol.

1. Log into Windows NT with administrative privileges. Go to the NT Control Panel and double click on the **Network** icon.
2. On Windows NT 3.5x systems, select **Add Software**. On Windows NT 4.0 systems, click on the **Protocol** tab, and click **Add**.
3. Select **DLC Protocol** and then **OK**. You will be asked for the location of the files, for Intel based computers, the necessary files are stored in the `i386` directory of the Windows NT CD-ROM. If you have a non-Intel platform, specify the correct directory on your Windows NT CD-ROM. Click **Continue** (for 3.5x systems) or **Close** (for 4.0 systems).
4. Reboot your system to make the change take effect.

Windows NT 4.0 Printer Setup

1. Log into Windows NT with administrative privileges. From the **Start** menu, select **Settings** and then **Printers**.
2. Select **Add Printer** (If you have already installed a Brother printer driver, double click the printer driver that you wish to configure and then select **Printers/Properties**, select the **Ports** tab and continue from Step 4 (ignoring steps 9-13) about installing the correct driver).
3. Select **My Computer** and then click **Next**.
4. Select **Add a Port**.
5. Select **Hewlett-Packard Network Port** and then click **New Port**.
6. A list of available print server MAC addresses (Ethernet addresses) appears in the larger box under **Card Address**. Select the address of the desired print server (you can see the Ethernet address on the printer configuration page):

 **Note**

You can find the node name and MAC address by printing out the printer configuration page. Refer to the Quick Setup Guide for information on how to print the configuration page on your print server.

7. The selected print server address will then appear in the smaller box under **Card Address**.
8. Type in any desired name for the port (the name must not be the name of an existing port or DOS device, such as LPT1) and click **OK** then on the **Printer Ports** screen, click **Close**.
9. The name you selected in the above step will appear as a checked port in the list of available ports. Click **Next**.
10. Select the correct driver click **Next**.
11. Give a name to the printer. If desired, select the printer as the default.
12. Select **Shared** or **Not Shared**. If shared, specify the share name and operating systems that will be printing to it.
13. Select whether or not you want a test page, and then select **Finish**.

Windows NT 3.5x Printer Setup

1. From the Windows NT **Main** group, double click on the **Print Manager** icon.
2. Select **Printer** from the menu bar and click on **Create Printer**.
3. Enter any desired name for the printer in the **Printer Name** box.
4. Select the printer model in the **Driver** menu.
5. Choose **Other** (or **Network Printer** for V3.1 systems) from the **Print to** menu.
6. Click on **Hewlett-Packard Network Port**.
7. Type in your desired name for the port (this name must not be an existing port or DOS device, such as LPT1).

The MAC addresses (Ethernet addresses) of available print servers will appear in the **Card Address** menu. Select the desired address (You can see the Ethernet address on the printer configuration page)

 **Note**

You can find the node name and MAC address by printing out the printer configuration page. Refer to the Quick Setup Guide for information on how to print the configuration page on your print server.

9. Click **OK**.
10. If you want to share the printer, click **Share the Printer on the Network**.
11. Click **OK**.
12. If necessary, select the appropriate printer options and then click **OK**.

Configuring DLC on Other Systems

To use DLC on other network systems, you will generally need vendor supplied software. Typically such software will support the Brother print servers. Follow the vendor's instructions to install the DLC protocol on your system.

Once the protocol is installed, create a network port in the same way that you did for Windows NT in the previous sections. The MAC address (Ethernet address) of the print server should automatically appear during the configuration process.

The final step is to create a printer using the normal operating system printer setup method. The only difference is that instead of connecting the printer to the LPT1 parallel port, you point it to the network port you just created.

 **Note**

Brother does not recommend using the DLC protocol with Windows for Workgroup 3.11 in a peer-to-peer configuration if the printer will be heavily used. This is because jobs may be rejected due to print spooler timeouts. The best solution in these situations is to set up one PC as a server for handling network print jobs. All of the other PCs send their print jobs to the server PC using NetBEUI or TCP/IP, and the server PC then uses DLC to send the print jobs to the Brother print server.

Chapter 9

How to use the Web based management function

Overview

A standard World Wide Web Browser (we recommend Netscape Navigator version 3.0 or later/Microsoft Internet Explorer version 3.02a or later) can be used to manage your printer using the HTTP (Hyper Text Transfer Protocol). It is possible to get the following information from the printer using a web browser and to configure Network and printer settings.

1. Printer status information
2. Take control of the printer front panel
3. Software Version information of the printer and network card
4. Consumable lists, Frequency asked question, etc

You must use the TCP/IP protocol on your network and have a valid IP address programmed into the print server and computer.

How to connect to your printer using a Browser

Type “`http://printers IP Address /`” into your browser (you can also use the NetBIOS name of the print server, if you are in Microsoft Windows domain/Workgroup environment).

Web Function Page

Once you are connected to the printer, you will see a screen similar to the one below.



- **Refresh**
The refresh button reloads the page.
- **Automatic Refresh**
The Automatic Refresh button reloads the page every 15 seconds.
- **View Configuration**
The configuration button lets you see printer information such as toner status, current page count, etc...

- Control panel



The control panel allows you to see the current printer status and also allows you to interact with the printer as if you were standing at the printer and pressing the buttons on the front panel.

- **Printer settings**
This section allows you to change printer settings such as default font, etc.
- **On Line support**
Use this section for on-line product support (you must have a Internet connection to use this section).
- **Administrator settings**
Special section for Administrators. Used to change Network settings or password information or to change front panel message information.
- **Find device**
This button is used to find other Brother network connected printers.

Chapter 10

TROUBLESHOOTING

Overview

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

1. Installation Problems
2. Intermittent Problems
3. Protocol-Specific Troubleshooting

For more information go to <http://www.brother.com/>

Installation problems

If you cannot print over the network, check the following:

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

Verify that the printer and the configuration are good by printing the **configuration** page. Refer to the Quick Setup Guide for information on how to print the **configuration** page on your print server. If the test fails, check:

- a. If the Alarm LED on the printer front panel is ON or blinking and all of the LEDs on the back panel - near the UTP (Ethernet) connector - are OFF, or the Orange (F) LED is blinking, then the network firmware settings may be corrupted.
 - b. In this event, try to restore the factory default settings of the print server by pressing the **TEST** switch on the back panel of the printer for longer than 5 seconds. Once you have done that, switch the printer off and then on again, and try to print out the **configuration page**.
2. If the configuration page prints but you cannot print documents, try the following

 **Note**

If none of the following steps are successful, there is almost certainly a hardware or network problem!

- a. If you are using TCP/IP:
Try pinging the print server from the host operating system 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)). If a successful response is received, then proceed to the *UNIX, TCP/IP Windows NT/LAN Server, Windows98/95 Peer to Peer (LPR), Internet Printing or Web Browser troubleshooting section*. Otherwise, proceed to step 3, and then go to TCP/IP Troubleshooting section.
 - b. If you are using Novell system:
Verify that the print server can be seen on the network. To do this, login as the SUPERVISOR (not as someone with supervisor privileges) or ADMIN (for Netware 4 or later servers), go into PCONSOLE, select PRINT SERVER INFORMATION, and select the name of the print server (make sure that you have entered the print server name). If you can see Print Server Status and Control in the menu, then the Brother print server is visible to the network, proceed to the Novel NetWare Installation Troubleshooting Section. Otherwise, go to step 3.
 - c. If you are running AppleTalk for Macintosh:
Make sure that you can see the print server name under the LaserWriter 8 icon in the Chooser. If it is visible, then the connection is good, so proceed to the *AppleTalk for Macintosh* Section. Otherwise, go to step 3.
3. If you cannot make any of the connections in step 2, check the following:
- a. Make sure the printer is powered on and on-line.
 - b. Verify that the cabling, network connection, and (if applicable) transceiver are good. If possible, try the print server on a different connection on the network, and/or try a different transceiver. Also, print out a **configuration page in the Network STATISTICS information** to see if bytes are being transmitted and received.
 - c. Check to see if there is any LED activity.

The print server has three LEDs. These can be used to diagnose problems.

- L-LED (green): Link activity
This LED is on if there is a valid connection to the network (either 10BaseT or 100BaseTX). It is off if no network is detected.
 - F-LED (orange): Fast Ethernet
This LED will be on if the print server is connected to a 100BaseTX Fast Ethernet network. It is off if the print server is connected to a 10BaseT network.
 - A-LED (green): Transmission Activity
This LED will blink synchronized to the transmission or receive status.
4. If you are using a repeater or hub, make sure that SQE (heartbeat) is turned off at the hub. Also, if you have a hub or multi-port repeater, verify that the hub or repeater port is good by trying the print server on a different port.

5. If you have a bridge or router located between the print server and host computer, make sure that the device is set up to allow the print server to send and receive data from the host. For example, a bridge can be set up to only allow certain types of Ethernet addresses to pass through (a process known as filtering); therefore, such a bridge must be configured to allow Brother print server addresses. Likewise, a router can be set up to pass only certain protocols, so be sure that the desired protocol can be passed through to the print server.
6. If the job exits the queue but does not print, make sure that you are not trying to print a text job to a PostScript printer. If you have a printer that is capable of automatic language switching, make sure that the printer is not forced into PostScript mode.

Intermittent Problems

If the print server and printer start up OK, but you intermittently have problems printing, check the following:

1. If you can print small jobs but large graphics jobs are distorted or incomplete, make sure that you have adequate memory in your printer and the latest printer driver installed on your computer. The latest Brother printer drivers can be downloaded from www.brother.com.
2. Check the individual protocol troubleshooting sections in this chapter for additional causes of intermittent printer problems.

TCP/IP Troubleshooting

If you are using TCP/IP and cannot print to the print server and you have checked the hardware and network as described in the previous steps, then check the following:

 **Note**

It is always a good idea to try following in order to eliminate the possibility of setup errors.

- Turning off the printer and then again,
 - Deleting and recreating the print server and creating a new print queue in order to eliminate the possibility of setup errors.
-
1. The problem may be the result of mismatched or duplicate IP address. Verify that the IP address is correctly loaded into the print server (via the configuration page. Make sure that no other nodes on the network have this address (**DUPLICATE IP ADDRESS ARE THE BIGGEST CAUSE OF TCP/IP PRINTING PROBLEMS**)).
 2. If you used BRCONFIG to enter the IP address, make sure that you exited the remote console properly with a CTRL-D or EXIT and that you turned the printer off and then again (it may take up to two minutes for the IP address to take effect).
 3. Make sure that the TCP/IP protocol of the print server is enabled.
 4. If you used rarp, make sure that you started the rarp daemon on any workstation using the rarpd, rarpd-a, or equivalent command. Verify that the `/etc/ethers` file contains the correct Ethernet address and that the print server name matches the name in the `/etc/hosts` file.
 5. If you used bootp, make sure that you started the bootp daemon on any UNIX workstation and bootp is enabled (i.e., the “#” is removed from the bootp entry) in the `/etc/bootptab` file is correctly configured.
 6. Also verify that host computer and the print server are either on the same subnet, otherwise that the router is properly configured to pass data between the two devices.

UNIX Troubleshooting

1. Make sure that the `/etc/printcap` file (if applicable) is typed in correctly. In particular, look for missing ":" and "\" characters, because a small error *anywhere* in the file can have *major* consequences. Also check the `/usr/spool` directory to make sure that you have created a valid spool directory.
2. If you are using a Linux operating system, the X-Window Print tool program that is included with Linux may not properly configure the `etc/printcap` file for `lpd` operation, then you might also edit the `etc/printcap` file and change the following line in the entry for the printer.

```
if
:lp = /dev/null: \

then to
:lp = :\
```

3. If you are using a Berkeley-based UNIX, make sure that the daemon is started on Berkeley based systems with the command `lpc start printer`, where *printer* is the name of the local print queue.
4. If you are using an AT&T-based UNIX, make sure the printer is enabled (enable *printer*, where *printer* is the name of the local print queue).
5. Make sure that the `lpr/lpd` remote line printer service are running on the host computer (refer to your host computer documentation for information on how to do this).
6. If you are having trouble printing more than one job at a time, try increasing the IP timeout using the `SET IP TIMEOUT` command or using `BRAdmin32`.
7. If text or PCL jobs are run together, try setting the service (remote printer) with EOT set to string number 2 (<ESC>E). For example:

```
SET SERVICE BRN_XXXXXX_P1 EOT 2
```
8. If PostScript jobs fail to print or are run together, try setting the service (remote printer) with EOT set to string number 3 (control-D). For example:

```
SET SERVICE BRN_XXXXXX_P1 EOT 3
```
9. If the lines of a text file are staggered, make sure that you have specified a remote printer (`rp`) name of `TEXT` in your `/etc/printcap` file.
10. If you are using Sun Solaris V2.4 or earlier, there is a bug which causes long print jobs to fail when using a print server. If you are having trouble printing long jobs (over 1MB), add the line `mx#0` to your `etc/printcap` file entry.

Windows NT/LAN Server (TCP/IP) Troubleshooting

If you are having trouble printing with Windows NT or LAN Server, check the following:

1. Make sure that TCP/IP and TCP/IP print service are installed and running on the Windows NT system or the LAN Server file server.
2. If you are using DHCP and you have not created a reservation for the print server, make sure that you enter the NetBIOS name of the print server in the “Name or address of server providing lpd” box.

Windows 95/98 Peer to Peer Print (LPR) Troubleshooting

If you are having trouble printing on a Windows 95/98 (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 Peer-to-Peer chapters.

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 computers. Press the ALT and TAB keys to make it appear.

Windows 95/98 (or later) Peer-to-Peer (HP JetAdmin compatible method) Troubleshooting

If you are having trouble printing on a Windows 95/98 (or later) Peer-to-Peer network, check the following (HP JetAdmin compatible method):

1. If the print server does not show up under JetAdmin on a Windows 95/98 Peer-to-Peer network, try removing all of the Windows 95/98 network software from the Network Control panel and then reinstalling them as follows:
 - First install the **IPX/SPX-Compatible Protocol (or the TCP/IP protocol if you are using a later version of JetAdmin)**, the **Client for Microsoft Networks**, and the network adapter card driver.
 - Install the Latest HP JetAdmin software
 - Restart the system, and then add the **HP JetAdmin** service.

Windows 95/98/NT 4.0 Peer-to-Peer Print (NetBIOS) Troubleshooting

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

1. Make sure that the Brother NetBIOS Port driver is securely installed and configured according to the Windows 95/98/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/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.

Internet Print (TCP/IP) Troubleshooting

1. The first step in troubleshooting is to make sure that you have a valid E-mail connection on both the sending PC and the receiving print server. Try sending an E-mail message from the PC to a user at the remote site who can receive mail via the POP3 server. If this does not work, there may be an E-mail configuration problem on the PC, on the local E-mail server, or on the remote POP3 server. Double check to make sure that the E-mail parameters that you configured on the PC and on the remote print server match those that are configured on the E-mail servers.
2. If you can print small files OK but are having problems printing large files, the problem may be in the e-mail system! Some E-mail systems have difficulties printing large files. If the file does not reach its destination intact, then the problem is with the E-mail system.
3. You can also enable the partial e-mail print facility on your client PC, this will split the e-mail up into fragments which should then not overwhelm your e-mail server. To do this, select the property dialog of the Brother Internet Print Port.

Novell NetWare Troubleshooting

If you cannot print from NetWare and you have checked the hardware and network as described in the previous steps, first verify that the Brother print server is attached to the server queue by going to PCONSOLE, selecting PRINT QUEUE INFORMATION, and then CURRENTLY ATTACHED SERVERS. If the print server does not appear in the list of attached servers, then check the following:

 **Note**

It is always a good idea to try followings in order to eliminate the possibility of setup errors

- Turning off the printer and then on again to force to rescan the Netware queue.
- Deleting and recreating the print server and creating a new print queue in order to eliminate the possibility of setup errors.

1. If you changed the login password, you must change the password in *both* the Brother print server (using the `SET NETWARE PASSWORD` command if you are using the BRConfig software) or by using a web browser or the BRAdmin32 utility and in the file server (using the PCONSOLE Print Server Information Change Password command).
2. If you created the print queue using PCONSOLE and instead of BRAdmin32, make sure that you have enabled at least one NetWare file server using the `SET NETWARE SERVER servername ENABLED` command.
3. Have you exceeded your NetWare user limit?
4. Make sure that the print server name you used in PCONSOLE *exactly* matches the name that is configured in the print server, and make sure it is defined as a Queue Server for the print queue.
5. If you are running both 802.3 and Ethernet II frames on different file servers on your network, there is a possibility that the print server may not make a connection to the desired file server. Try forcing the frame type to the desired one using the `SET NETWARE FRAME` command from the print server remote console or using BRAdmin32.
6. If you are using DOS CAPTURE statement and losing portions of your print job, try setting the TIMEOUT parameter in your CAPTURE statement to a higher value (at least 50 seconds for Windows).

AppleTalk Troubleshooting

If you cannot print from an AppleTalk for Macintosh computer and you have checked the hardware and network as described in the previous steps, then check the following:

1. Make sure that you are running Phase 2 AppleTalk and that you have selected the correct network interface from the Network Control Panel on the Macintosh.
2. Make sure that the AppleTalk protocol of the print server is enabled.
3. If you have a large network, make sure that you have the Laser Writer V8.xx or equivalent driver, since earlier versions may cause PostScript errors. Also, verify that you get the correct printer information when you select **Printer Info** from the **Setup** button in the Chooser.
4. Make sure that you have selected the correct Printer Description File (PPD) from the Chooser (otherwise PostScript errors may result)
5. Verify that you have selected the correct AppleTalk zone. Because the print server gets its zone information from router broadcasts, it may not be in the zone you expect, and will therefore not show up in the Chooser. If this is the case, you may need to force the zone name with the `SET APPLETTALK ZONE` command described in Appendix A or using BRAdmin32.
6. Verify that the Laser Prep versions on all Macintosh computers that need to print to the print server are the same.

DLC/LLC Troubleshooting

If you are having trouble printing with DLC/LLC, check the following:

1. Make sure that the DLC/LLC protocol is enabled using either BRAdmin32, a web browser or TELNET.
2. Make sure that the MAC address of the Windows setting is as same as the print configuration page result.

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 Netscape Navigator version 3.0 or later/ Microsoft Internet Explorer version 3.02a or later.

APPENDIX

Appendix A

Command Summary

General Commands

You can change the configuration of your print server using any of the following methods.

- Brother BRAdmin32 utility for Windows 95/98 and NT 4.0
- HTTP (using a web browser)
- TELNET (command utility)
- Brother BRCONFIG NetWare Utility (command utility)

BRAdmin32 The Brother BRAdmin32 utility can use the TCP/IP or IPX/SPX protocol. This utility allows you to graphically manage aspects of the network and printer. It runs on Windows 95/98 and Windows NT 4.0

HTTP Use your favorite web browser to connect to the Brother print server. This will allow you to configure print server parameters. You must ensure that the print server has a valid IP address. Once you have done this type `http://ip_address/` in your web browser. If you can not connect to the print server check your web browser is configured correctly (check your proxy settings to ensure that your web browser can connect to the printer on your internal network). When ever you wish to change a print server parameter you will be asked for a password. The default password is "access"

TELNET To connect to the print server using TELNET on UNIX, Windows NT, or most other TCP/IP systems, 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 **RETURN** or **ENTER** to get the "#" prompt, enter the password "access" (the password will not appear on the screen), and type anything in response to the Enter Username> prompt. When you see the Local> prompt, you are ready to enter commands.

BRCONFIG Brother BRCONFIG utility runs on the DOS system prompt and is installed with BRAdmin32. To connect the print server using the Brother BRCONFIG NetWare utility, Choose the BRCONFIG utility from the Brother BRAdmin32 utilities menu or insert the Brother BRAdmin32 utility diskette into Drive A and type: A : BRCONFIG at the DOS system prompt. If you have only one print server, you will be immediately connected to that server. If you have more than one print server, you will be given a list of available print servers. Type the number of the print server to which you wish to connect. When you are connected, enter the password "access" (the password will not appear on the screen) at the "#" prompt, and type anything in response to the Enter Username> prompt. When you get the Local> prompt, you are ready to enter commands. To use BRCONFIG, a Novell Server (running the IPX protocol) is necessary and an active connection must be made to the server..

In some cases you may see a message like Console Connected or Remote Console Reserved when you connect to the print server. If this happens, press **RETURN** or **ENTER** to get the "#" prompt, enter the password "access" (the password will not appear on the screen), and type anything in response to the Enter Username> prompt. When you get the Local> prompt, you are ready to enter commands.

General Server Commands

CLear FATal
Deletes the fatal error log

CLear PORT *portname* JOB
Clears current entry in the print server's internal queue for the specified portname (P1 for the printer.)

EXIT/^D
Exits print server console

HELP
Provides information on available commands

INitialize
Resets print server

SET DEFAULT
Sets print server parameters to factory defaults

SET LOAD DISable
Disables firmware reload after exit

SET LOAD ENable
Enables firmware reload after exit

SET LOAD Host <name>
 Sets node name of boot host for (NetWare firmware load)

SET LOAD IP aa.bb.cc.dd
 Sets IP address of load host (TCP/IP firmware load)

SET LOAD Software <filename>
 Sets host filename of firmware to load

SET Password <password>
 Sets console password (default password is access)

SET PROtect <password>
 Set console protection password to prevent access to SET commands (use UNPROTECT command to access SET commands)

SET SERVER Name <name>
 Set server node name

SET SERVER DEscription
 Sets node description string displayed with SHOW SERVER command

CLear SERVER STRing *stringnumber*
 Removes a string number (refer to Appendix B)

SET SERVER STRing n "..."
 Defines server BOT/EOT string (see Appendix B)

SET SERVICE <servicename> <protocol> [EN|DIS]
 Enable or disables specified protocol on the specified service.

SET SERVICE <servicename> BOT nn
 Set service BOT string to nn (see Appendix B)

SET SERVICE <servicename> EOT nn
 Set service EOT string to nn (see Appendix B)

SET SERVICE <servicename> FILter nn
 Set service filter to nn (see Appendix B)

SET SERVICE <servicename> FMS <matchnumber>
 Set service with specified match string number (see Appendix B)

SET SERVICE <servicename> FRS <replacenumber>
 Set service with specified replacement string number (see Appendix B)

SET SERVICE <servicename> NAmE <newname>
 Changes service name

SET SERVICE <servicename> RECeive [EN|DIS]
Set receive only mode on specified service

SHoW FATAl
Show fatal error log

SHoW FREE
Shows memory available

SHoW LOAD
Shows firmware update parameters

SHoW PORT
Shows port parameters

SHoW PORT <name> STA
Shows current port status.

SHoW SERVER
Shows server parameters

SHoW SERVER Counters
Shows server statistics

SHoW SERVICE
Shows service Parameters

SHoW TESTpage
Prints test page

SHoW VERSION
Shows server firmware version

UNPROtect
Allows system manager to temporarily access SET commands when remote console is in protected mode (See SET PROTECTION command). The SET DEFAULT command can be used to permanently disable the protected mode.

Zero
Zeroes statistical counts

SHoW SERVER QUeue
Shows print server internal queue and printer front panel

SET ENET MODE [AUTO| FD100B| 100BAsE| FD10B| 10BAsE]
Set Ethernet speed

SHoW ENET MODE
Set Ethernet mode

TCP/IP Commands

SET IP Access [EN|DIS|ALL] aa.bb.cc.dd {Mask ee.ff.gg.hh}
Allows or prevents specified IP address from accessing print server

SET IP Address aa.bb.cc.dd
Sets IP address of print server

SET IP BOot n
Number of BOOTP/RARP tries

SET IP [EN|DIS]
Enables or Disables IP Processing

SET IP RArp nn
Sets procedure used by print server when obtaining its IP address. By default the IP address is set along with a default subnet mask and a router address that is the same as the address of the load host. By setting nn to 1, the subnet mask is not set. If nn is set to 2, the router address is not set. If nn is set to 3, neither the subnet mask nor the router address is set.

SET IP ROuter aa.bb.cc.dd
Sets default router address

SET IP SUBnet aa.bb.cc.dd
Sets subnet mask

SET IP TImeout n
Sets inactivity timeout (minutes)

SET SERVICE <servicename> IP [EN|DIS]
Enable or disables TCP/IP jobs on specified service

SET SERVICE <servicename> TCP nn
SET TCP port number (>1023) on service

SHow IP
Shows LPD/TCP/TELNET Parameters

SHow IP ACcess
Shows IP addresses that are allows to access print server

SET IP Method [AUTO|STATIC|DHCP|BOOTP]
Set method of getting IP address

NetWare Commands

`CLear NETWare Server server`
Removes the specified NetWare file server from Brother print servers access list.

`SET NETWare ADvertise n`
Sets advertising frequency of print server

`SET NETWare [EN|DIS]`
Enables/Disables Netware protocol on print server

`SET NETWare FRame [802.2|802.3|ETH|AL|AU|SNA]`
Sets Netware frame type to 802.2, 802.3, Ethernet II, ALL, AUTO, or SNAP

`SET NETWare Network n`
Set Netware internal network number

`SET NETWare NPrinter <pserver> n ON <servicename>`
Set NPrinter mode on service

`SET NETWare PASSword <psw>`
Sets print server login password for file server

`SET NETWare POLLing n`
Sets queue polling time in seconds

`SET NETWare QServer <fileserver> ON <servicename>`
Sets Queue Server mode on service

`CLear NETWare Qserver <fileserver> ON <service>`
Clear Netware Queue server mode on service

`SET NETWare REScan`
Rescans file servers for new queues

`SET NETWare SERver <name> [EN|DIS]`
Enables file server

`SET SERVICE <servicename> NETW [EN|DIS]`
Enables or disables NetWare jobs on specified service

`SHoW NETWare`
Shows NetWare parameters

`SHoW SERVICE NDS`
Show NDS parameters

`SET SERVICE <servicename> TREE <string>`
Sets NDS tree on service

`SET SERVICE <servicename> CONText <string>`
Sets NDS context on service

AppleTalk Commands

```
SET APpletalk [EN|DIS]
Enables or Disables Appletalk Processing

SET APpletalk ZOne "<name>"
Set Appletalk zone name

SET SERVICE <servicename> APP [EN|DIS]
Enables or disables AppleTalk jobs on specified service

SET SERVICE <servicename> RECEIVE [EN|DIS]
Enables or Disables bi-directional communications on service.

SHoW APpletalk
Shows AppleTalk parameters
```

NetBIOS Commands

```
SET NETBios IP Enable/Disable
Set NETBIOS over TCP/IP Enable/Disable

SET NETBios IP Enable Enable/Disable
Set NETBIOS Domain/Workgroup name

SHoW NetBios
Show NETBIOS configuration
```

DLC commands

The following DLC/LLC configuration commands are available from the NC-series print server console:

```
SET DLC [EN|DIS]
Enable or Disables the DLC protocol
```

Internet Print Commands

SET POP3 Address aa.bb.cc.dd
Purpose: Sets POP3 Server IP address

SET POP3 Enable/Disable
Enables or disables POP3 protocol

SET POP3 Polling nn
Sets POP3 server polling frequency in seconds

SET POP3 Name <name>
Sets POP3 mailbox name for print server

SET POP3 Password <password>
Sets the POP3 Mailbox password

SET SMTP Address aa.bb.cc.dd
Sets the SMTP server IP address

SET SMTP ENable / DISable
Enable or disables SMTP capabilities

SHOW POP3
Shows POP3 parameter settings

SHOW SMTP
Shows SMTP parameter settings

Appendix B

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):

Service	Definition
BINARY_P1	TCP/IP binary service
TEXT_P1	TCP/IP text service (adds carriage return after each line feed)
POSTSCRIPT_P1	PostScript service (switches PJJ-compatible printer to PostScript mode)
PCL_P1	PCL service (switches PJJ-compatible printer to PCL mode)
BRN_XXXXXX_P1_AT	AppleTalk service
BRN_XXXXXX_P1	NetWare service and NetBIOS service (TCP/IP are enabled for backwards compatibility)

where "XXXXXX" is the last six digits of the Ethernet address (for example, BRN_009C53_P1). Note that any of the services, not just the user-defined ones, can be modified to meet a user's particular requirements.

Brother print servers provide the powerful capability to customize any of the services to meet specific user requirements through the use of setup and reset strings. Such strings are printer command sequences that are sent to the printer before or after the print job. For example, you could define one of the services to provide landscape mode printing by defining a setup string that contains the appropriate command to put the printer into landscape mode.

Brother print servers provide several predefined strings for popular PCL, PostScript, and PJJ (the Page Job Language used by Brother printers) commands. These include (do a `SHOW SERVER STRING` command in the remote console to see the available strings):

No.	String	Definition
0	(special)	Using this number causes printer not to be automatically reset at the end of each job.
1	NULL	Null string
2	\1BE	PCL reset (<ESC>E)
3	\04	PostScript reset (CTRL-D)
4	\1B%-12345X	PJL UEL
5	@PJL	Enter PJL mode
6	Enter Language=	PJL language switch
7	PCL\0A	PJL PCL command
8	Postscript\0A	PJL PostScript command
9	\FF\04\FF\05\FF\06\FF\07	Enter Language=PCL
10	\FF\04\FF\05\FF\06\FF\08	Enter Language=PostScript
11	\0C	Formfeed

To define a new string, use the command:

```
SET SERVER STRING number "string"
```

where *number* is the number of the string (12 through 31) and *string* is the desired string (must be enclosed in quotation marks).

A given string can include hexadecimal characters by preceding the value with a “\” character. The next two characters after the “\” will then be interpreted as the hexadecimal value of a character. For example, to specify <ESC>E as string number 12, you would enter:

```
SET SERVER STRING 12 "\1BE"
```

Please note that when you associate a string number with a service, the new string number completely replaces any previous string numbers. Also, if you are using one of the predefined PostScript or PCL services, the new string will nullify the language switching function of these services.

However, you can combine several string numbers together by preceding the string number with “\FF”. For example, if you defined string number 21 as "\1B" (<ESC>), and string number 22 as "&11O", you can create a new string number 23 that contains <ESC>&11O (the PCL landscape mode command) by entering:

```
SET SERVER STRING 23 "\FF\15\FF\16"
```

Note that the string numbers within the quotation marks are expressed in hexadecimal when used with this command.

To associate a string with the service, use the following commands:

```
SET SERVICE servicename BOT stringnumber
SET SERVICE servicename EOT stringnumber
```

where *servicename* is the name of the service and *stringnumber* is the number of the string as defined above. The first command (BOT) adds the specified string to the beginning of the job, while the second command (EOT) adds the specified string to the end of the job. A given service can have both a setup and reset string associated with it.

To clear a string number, type:

```
CLEAR SERVER STRING stringnumber
```

To clear a setup or reset string, set the string number to 1 (the null string):

```
SET SERVICE servicename BOT 1
SET SERVICE servicename EOT 1
```

You may enable or disable protocols that can access a given service with the following commands:

```
SET SERVICE name IP ENABLED
SET SERVICE name NETWARE ENABLED
SET SERVICE name APPLE ENABLED
SET SERVICE name NetBIOS ENABLED
SET SERVICE name DLC ENABLED
```

<u>filter no.</u>	<u>Description</u>
1	This filter adds a carriage return character every time a linefeed character is encountered in the data stream. It is useful for printing UNIX text files, because such files do not have carriage returns at the end at the end of lines.

<u>filter no.</u>	<u>Description</u>
2	This filter provides the ability to use the AppleTalk binary mode (this filter is automatically enabled when AppleTalk is enabled on the service).

<u>filter no.</u>	<u>Description</u>
3	This filter converts a text file to PostScript for use with PostScript-only printers.

The service TEXT_P1 is predefined with the text filter, while the service BRN_XXXXXX_P1_AT has the AppleTalk filter enabled. To use a filter with other services, use the following command:

```
SET SERVICE name FILTER fltrno ENABLED
```

where *name* is the name of the service and *fltrno* is the number of the filter (e.g., 1 for the text filter).

The default service names are rather long and difficult to remember. If you want to change a service name to something more meaningful, execute the following command from the print server remote console:

```
SET SERVICE oldname NAME newname ENABLED
```

To use services from TCP/IP, specify the service name as the remote printer or "rp" parameter in the printcap file or the printer setup program (e.g., SAM or SMIT). Remember that if you want to print text files to a UNIX service, you should enable the TEXT filter (filter number 1).

To use a service with NetWare, use PCONSOLE to specify the default NetWare service name as one of the print servers for the queue (this service is BRN_XXXXXX_P1 by default, where "XXXXXX" is the last six digits of the Ethernet address). If you want to use a different service, you must also specify this service as one of the print servers for the print queue.

Appendix C

Reloading the Print Server Firmware

General

The firmware on the print server is stored in flash memory. This means that you can upgrade the firmware by downloading the appropriate update file. To get the latest firmware update, access the Brother WWW server on www.brother.com.

 **Note**

We recommend that you factory reset the print server if you upgrade to a later version of software. Instructions on how to perform a factory reset can be found in the quick setup guide that accompanies the print server.

Reloading from BRAdmin32 on the Windows 95/98/NT4.0

The BRAdmin32 utility can be used to easily re-program your Brother print server.

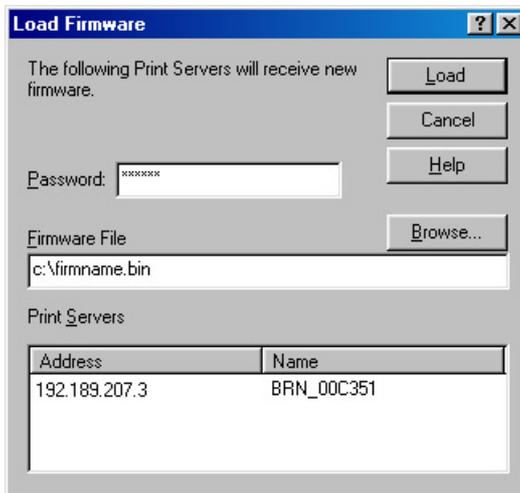
Start the BRAdmin32 software.

Highlight the appropriate print server. Then press select the Control menu and choose Load Firmware. You can select more than one print server by pressing CTRL+<select> or SHIFT+<select> on each additional print server.

There are three possible ways of sending the new software version to the print server. For which ever method you select, you must enter a password for the print server. The default password for the print server is “access”.

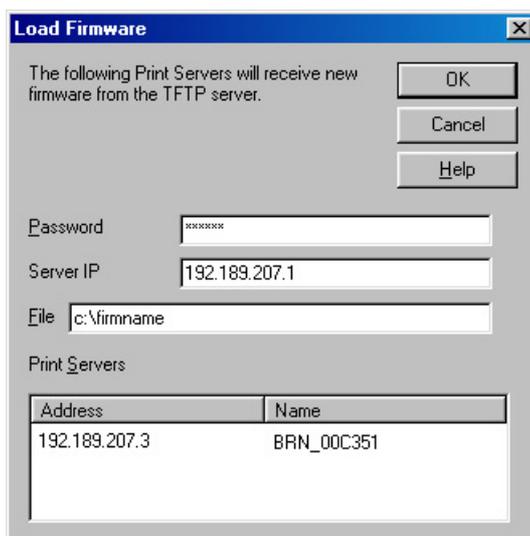
1. TFTP PUT from this host

Use this method if you have TCP/IP already installed on your PC. BRAdmin32 will use the TFTP protocol to send the new firmware data to the print server.



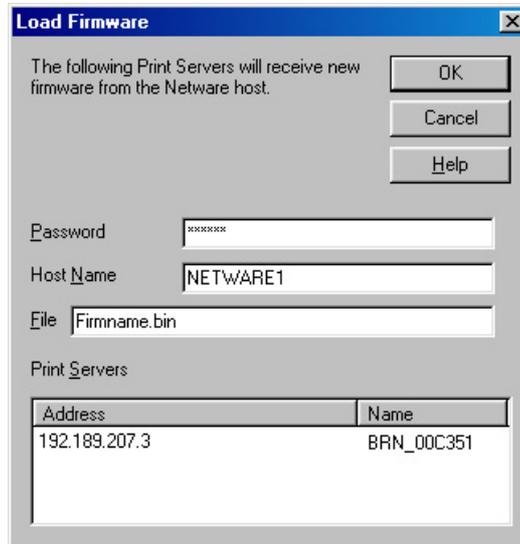
2. TFTP GET from a server

If you have a TFTP server installed in your network (many Unix systems provide TFTP support), you may wish to use this option. The new firmware file must be located in the TFTP BOOT directory on your TFTP server. In this case, your PC makes the print server read the firmware data from the assigned TFTP server. If you do not provide the correct file name, then the upgrade will fail. You must also ensure that the firmware file is set so that the print server can read the file. On Unix systems you can use the chmod command to specify file attributes. For example, **chmod filename 666** allows the filename to be accessed by anyone. Also make sure that the TFTP service is running on your Unix server.



3. Netware GET from a server

You must have a Netware server on your network (running IPX/SPX) and you must store the new firmware file in the SYS/Login directory of the server. In this case, your PC makes the print server read the firmware data from the assigned Netware server, the print server attaches to the Netware server and reads the firmware itself..



The Data LED on the printer front panel will blink during the load process and will either go out when the load has completed (on a 10Mbit network) or will stay lit when the printer is connected to a 100Mbit network.

If the Data LED does not stop blinking after about two minutes, or blink periodically, check to make sure that you correctly entered all parameters and that your network connections are good. Then power the print server/printer off and then on again, to retry the download.

Reloading without BRAdmin32

Reloading from a UNIX Host Computer using TFTP

To download the print server firmware from a UNIX host using tftp, first copy the load file e.g. `Firmware.bin` to that host. Make sure that tftp is started by checking the appropriate files on your system (generally speaking, tftp must be enabled in your `/etc/services` file and possibly in another configuration file, such as `/etc/inetd.conf`). Refer to your UNIX system documentation or man pages for additional information.

Now log into the print server remote console using, and execute the following commands:

```
SET LOAD IP unixhost-ipaddress
SET LOAD SOFTWARE "firmware.bin"
SET LOAD ENABLE
EXIT
```

where *unixhost-ip address* is the IP address of the UNIX load host and *pathname* is the full path name for the `Firmware.bin` file (e.g., `/tftpboot/Firmware.bin`). Note that some tftp implementations require that the load file be located in the `/tftpboot` directory. Be sure to put the path name in quotes and remember that UNIX names are case-sensitive. Also, make sure that your file protection allows general access to the boot directory.

To do this use the `chmod` command to specify file attributes. For example, **`chmod filename 666`** allows the filename to be accessed by anyone. Also make sure that the TFTP service is running on your Unix server.

When you type a CTRL-D or EXIT to exit the remote console, the file `Firmware.bin` will then be loaded into the print server. The Data LED on the printer front panel will blink during the load process and will go out when the process is complete.

If the Data LED does not stop blinking after about two minutes, or start to blink periodically, check to make sure that you correctly entered all parameters and that your network connections are good. Then power the print server/printer off and then on again, enter the `SET LOAD ENABLE` command, and then type EXIT to exit the remote console and retry the download.

Reloading from a UNIX Host Computer using BOOTP

To download the print server firmware from a UNIX host using BOOTP, first copy the load file e.g. `Firmname.bin` to that host. Make sure that BOOTP and tftp are started by checking the appropriate files on your system (generally speaking, BOOTP must be enabled in the `/etc/inetd.conf` file, while tftp must be enabled in your `/etc/services` file and possibly in another configuration file, such as the `/etc/inetd.conf` file). Refer to your UNIX system documentation or man pages for additional information. Configure your `/etc/bootptab` file to specify the Ethernet address of the print server and the name of the load file (`Firmname.bin`). Make sure that your file protection allows general access to the directory that contains the load file. The exact format of the file `/etc/bootptab` varies widely, so you will need to refer to your UNIX system documentation for details. A typical `/etc/bootptab` file entry might be:

```
xc2:ht=ethernet:ha=00401700c953:\
ip=192.189.207.3:bf=/usr/Firmname.bin:
```

Now log into the print server remote console using TELNET, and execute the following commands:

```
SET LOAD SOFTWARE "pathname"
SET LOAD ENABLE
EXIT
```

Be sure to put the path name in quotes and remember that UNIX names are case-sensitive. Also, make sure that your file protection allows general access to the boot directory.

When you type a CTRL-D or EXIT to exit the remote console, the file Firmname.bin will then be loaded into the print server. The Data LED on the printer front panel will blink during the load process and will go out when the process is complete.

If the Data LED does not stop blinking after about two minutes, or start to blink periodically, check to make sure that you correctly entered all parameters and that your network connections are good. Then power the print server/printer off and then on again, enter the SET LOAD ENABLE command, and then type EXIT to exit the remote console and retry the download.

Reloading from a NetWare Server

To download from a NetWare server, first copy the load file e.g. Firmname.bin into the \login directory on your SYS partition (SYS:\LOGIN). Using the \login directory will eliminate any potential file security problems.

Connect to the print server remote console using console (BRCONFIG or TELNET) and enter the following commands in response to Local > prompt.

```
SET LOAD HOST fileservname  
SET LOAD SOFTWARE Firmware.bin  
SET LOAD ENABLE
```

where fileservname is the name of the file server. When you type a CTRL-D to exit the remote console, the file Firmware.bin will then be loaded into the print server.

If the Data LED does not stop blinking after about two minutes check to make sure that you correctly entered all parameters and that your network connections are good. Then power the print server/printer off and then on again, enter the SET LOAD ENABLE command, and then type EXIT to exit the remote console and retry the download.

IMPORTANT INFORMATION: REGULATIONS

Federal Communications Commission Compliance Notice (For U.S.A. only)

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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

Important

Changes or modifications not expressly approved by Brother Industries, Ltd. could void the user's authority to operate the equipment.

Industry Canada Compliance Statement (For Canada only)

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

DECLARATION OF CONFORMITY (EUROPE)

We, Brother International Europe Ltd.,
Brother House 1 Tame Street, Guide Bridge,
Audenshaw, Manchester M34 5JE, UK.

declare that this product is in conformity with the following normative documents:

Safety: EN 60950,
EMC: EN 55022 Class A, EN 55024-1

following the provisions of the Low Voltage Directive 73/23/EEC and the Electromagnetic Compatibility Directive 89/336/EEC (as amended by 91/263/EEC and 92/31/EEC).

Issued by:

Brother International Europe Ltd.
European Technical Services Division

EMC Notice

Warning

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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