



External 10/100BASE-TX Print Server

NC-2100p

USER'S GUIDE

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If for any reason you must ship your print server, carefully package the print server to avoid any damage during transit. It is recommended that you save and use the original packaging. The print server should also be adequately insured with the carrier.

WARNING

When shipping the print server, put it into the anti-static bag to avoid a damage.



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IMPORTANT NOTE: For technical and operational assistance, you must call.
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IMPORTANT INFORMATION: REGULATIONS

Federal Communications Commission (FCC) Declaration of Conformity (For U.S.A. only)

Responsible Party: Brother International Corporation
100 Somerset Corporate Boulevard
Bridgewater, NJ 09907-0911, USA
TEL: (908) 704-1700

declares, that the products

Product Name: External 10/100BASE-TX Print Server
Model Number: NC-2100p

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.

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

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

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 B digital apparatus complies with Canadian ICES-003.

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



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Manufacturer

Brother Industries Ltd.,
15-1, Naeshiro-cho, Mizuho-ku,
Nagoya 467-8561, Japan

Plant

TROY Group, Inc.
3 Bryan Drive,
Wheeling, WV 26003

Herewith declare that:

Products description : External 10/100BASE-TX Print Server
Product Name : NC-2100p

are in conformity with provisions of the Directives applied: the Electromagnetic Compatibility Directive 89/336/EEC (as amended by 91/263/EEC and 92/31/EEC and 93/68/EEC).

The AC adapter, as supplied with this system, conforms with IEC 60950 and follows the provisions of the Low Voltage Directive 73/23/EEC.

Standards applied :

Harmonized : EMC EN55022:1998 Class B
EN55024:1998

Year in which CE marking was first affixed : 2002

Issued by : Brother Industries, Ltd.

Date : 11 October, 2002

Place : Nagoya, Japan

Signature :



Koichi Asai
Manager
Quality Audit Group
Quality Management Dept.
Information & Document Company

CHAPTER ONE

Unix Printing

Printing from Unix/Linux using TCP/IP

Overview

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, Apple, and other computers can share the same Brother Print Server over an Ethernet network.



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.

Quick Tips:

1. The default IP address of Brother print servers is 192.0.0.192. To change it, use the BRAdmin Professional utility or let your DHCP server allocate an IP address to the printer.
2. [Refer to chapter 8 of this user guide to learn how to configure the IP address on your printer.](#)
3. The default password for Brother print servers is "access".
4. The default name is always BRO_XXXXXX (where XXXXXX is the last six digits of the Ethernet address of the print server).
5. When configuring the PRINTCAP file, pay particular attention to the service names, BINARY_P1 and TEXT_P1

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, BRAdmin Professional utility, etc.



For setting the IP address of the print server, refer to chapter 8 of this user guide.

General TCP/IP UNIX Host Configuration

The configuration process for most UNIX systems is described in the following steps. As this process varies, we recommend that you 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. 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  BRO_310107
```

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



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.

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 (a service name will be used in step 3):

```
BINARY_P1  Binary data
TEXT_P1    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).

3. 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.



This step applies to the majority of UNIX systems, including Linux, 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 should skip to section 3-a. SCO user's should also skip to section 3a (SCO uses the `printcap` file, but this file is automatically configured via the `rlpconf` command)

An example of a typical `printcap` file:

```
laser1|Printer on Floor 1:\
:lp=\
:rm=BRO_310107:\
:rp=TEXT_P1:\
:sd=/usr/spool/lpd/laser1:
```



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 `BRO_310107` and a service name (`rp`) of `TEXT_P1` 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`.



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.

4. 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.). On SCO systems, there is a printcap file, but it is automatically configured by the `rlpconf` command. Most of these 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). Refer to the appropriate section depending on your version of Unix.

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:

1. From the Linux Printer System Manager screen, click the "Add" button.
2. You will now be asked to specify which Printer type you are using, select the "Remote Unix (lpd) Queue" option and click "OK".
3. You must now specify the remote host name, remote queue name and the input filter to use.
4. 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.
5. 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".
6. 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.

Many Linux systems support Common Unix Printing System (CUPS). CUPS typically uses PPD files that are supplied with Brother's BR-Script (Brother's Postscript language emulation) ready machines. If you are using a Brother printer that does not include the BR-Script emulation you must use an alternative driver.

For more detailed information on Linux printing visit the Brother Solutions web site at: <http://solutions.brother.com>

HP/UX Configuration

In the case of HP/UX10.xx, the sam program is used to set up the remote printer. The steps are as follows:

1. Execute the sam program. From the list of options, select Printers and Plotters
2. Select LP Spooler
3. Select Printers and Plotters
4. Select Actions and then Add Remote Printer/Plotter
5. Enter any name as the Printer Name (this will be the name of the print queue)
6. Enter the IP address of the print server as the Remote System Name
7. Enter the desired print server service name as the Remote Printer Name
8. Check the box next to Remote Printer is on BSD system
9. You may accept the default values for the remaining items.
10. Click OK to configure the printer

You should now be able to print using the lp-d command with the printer name.

If you are using the HP distributed print service, the configuration procedure is slightly different because you are sending the print jobs to a file server, which in turn spools the job to the print server. You must therefore know the name of the file server (spooler host) in addition to the above information. You will add a physical and a remote printer and a remote printer, and then assign a logical printer to the remote printer (a unique name that does not match any other name). To print, use the lp -d command with the logical printer name.

Earlier versions of HP/UX use similar procedures to 10.xx users:

1. Enter sam and select Peripheral Devices and then Add Remote Printer (not Networked printer)
2. Enter the following remote printer settings (the other settings do not matter):
3. Line printer name (user-selectable)
4. Remote system name (the print server name; must match what is in hosts file or use print server IP address)
5. Remote printer queue (Printserver binary or text service name, e.g. BINARY_P1 or TEXT_P1).
6. 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 for AIX 4.0 and later:

1. Enter smit and select "devices"
2. Select "Printer/Plotter"
3. Select "Print Spooling"
4. Select "Add a Print Queue"
5. Select "Remote"
6. Enter the following Remote Printer Settings:

Name of queue (user selectable)

Host name of Remote Printer (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).

Type of print spooler. BSD (press the LIST button and choose BSD)

The procedure for pre-V4.0 systems is as follows.

1. Enter smit and select "devices"
2. Select "printer/plotter"
3. Select "manage remote printer subsystem"
4. Select "client services"
5. Select "remote printer queues"
6. Select "add a remote queue"
7. Enter the following remote queue settings:
8. Name of queue to add (user selectable)
9. Activate the queue (Yes)
10. Destination host (print server name; must match name in /etc/hosts file or use the print server IP address)
11. Name of queue on remote printer (print server binary or text service name, eg. BINARY_P1 or TEXT_P1).
12. 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 prnservername
lpadmin -p queue -s prnservername!prnserver-service
accept queue      (not required on newer Solaris systems)
enable queue      (not required on newer Solaris systems)
```

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 or IP address).
`prnserver-service` is the print server `BINARY_P1` or `TEXT_P1` 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 `prnservername!\prnserver-service` 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

To configure a printer in version Version 5.x of SCO Unix, use the SCOADMIN program.

1. Select Printers and then Print Manager
2. On the menu select Printer and then Add Remote followed by Unix...
3. Enter the IP address of the print server and type in the printer name to be used to spool to.
4. Deselect "Use External remote Printing Protocol..."
5. Edit the /etc/printcap file to include formfeed add the text rp=lpaf

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:

1. Select Printers.
2. Select Configure.
3. Select Add.
4. Enter the name of the print queue you entered in the /etc/printcap file as the Printer name,
5. Enter anything as the Comment, and Class name.
6. For the Use printer interface select "Existing".
7. 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).
8. Select "Direct" as the Connection.
9. Enter the desired Device name (/dev/lp generally works).
10. Select "Hardwired" as the Device.
11. Select "No" for the Require banner field.

IBM/AS400

To use a Brother print server with an IBM AS/400 running IBM's TCP/IP gateways services for OS/400 (the OS/400 system must be v3.1 or later)

Use the CFGTCP command at your OS/400 prompt to add the print server's TCP/IP address to the AS/400 host table.

Use the following one-line OS/400 command to create the LPD queue:

```
CRTOUTQ OUTQ(<queuename> RMSTSYS
(*INTNETADR) RMTPRTO(<service>)
AUTOSTRWTR(1) CNNTYPE(*IP) DESTTYPE (*OTHER)
MFRTYPMDL (<driver>)
INTNETADR('<ipaddress>') TEXT
('<description>')
```

where <queuename> is the new AS/400 print queue name, <service> is the print server service name, BINARY_P1 or TEXT_P1, <driver> is the OS/400 printer driver name (*HP4 is recommended if in doubt), and <ipaddress> is the IP address of the print server. Note that the IP address and description must be enclosed in single quotes.

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
```

Other Sources of Information

1. Visit <http://solutions.brother.com> for more information on network printing.
2. Refer to chapter 8 of this user guide to learn how to configure the IP address of the printer.

CHAPTER TWO

TCP/IP Printing

Printing from Windows NT or Windows 2000/XP, LAN Server and Warp Server

Overview

Users of Windows NT can print directly to a network ready Brother printers using the TCP/IP protocol. Microsoft Windows NT users must install Microsoft's "TCP/IP printing" protocol. Windows 2000 and XP users are able to send print jobs directly to the printer without installing any additional software. 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.

Quick Tips:

1. The default IP address of Brother print servers is 192.0.0.192. To change it, use the BRAdmin Professional utility or let your DHCP server allocate an IP address to the printer. [For more information on configuring the IP address of the print server, refer to chapter 8 of this user guide.](#)
2. The default password for Brother print servers is "access".
3. Windows NT users must install the "Microsoft TCP/IP printing" protocol (available through the control panel applet)
4. Windows 2000 and XP users can print using TCP/IP using the standard Network Printing software built into any Windows 2000/XP installation.
5. The default name for Brother print servers is usually BRO_XXXXXX (where XXXXXX is the last six digits of the Ethernet address of the print server).

Windows NT 3.5x/NT 4.0/2000/XP (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). The default configuration of Windows 2000/XP automatically installs the TCP/IP protocol. Refer to the appropriate section in this chapter for more information.

Windows 2000/XP Printing (Printer Driver not yet installed)

By default, Windows 2000/XP systems install with all the necessary software required for you to be able to print. This chapter describes the two most commonly used configurations, Standard TCP/IP Port printing . If you have already installed the printer driver, jump to the printer driver already installed section.

Standard TCP/IP Port Printing

1. From the Printers Folder select "Add Printer", the "Add Printer Wizard" will now start. Click on "Next".
2. Now select the Local printer attached to this computer option and deselect the "Automatically detect and install my Plug and Play printer" option.
3. Click on "Next".
4. You must now select the correct Network printing port.
5. When you have done that click "Next".
6. The "Add Standard TCP/IP Port Wizard" will now appear. Click the "Next" button.
7. Enter the IP address, or name of the printer you wish to configure. The Wizard will automatically enter the Port name information for you.
8. Click the "Next" button.
9. Windows 2000/XP will now contact the printer that you specified. If you did not specify the correct IP address or name then you will receive an error message.
10. Click the "Finish" button to complete the Wizard.
11. Now that you have configured the port, you must specify which printer driver you wish to use. Select the appropriate driver from the list of supported printers. If you are using a driver supplied with the printer on CD-ROM/Floppy then select the "Have Disk" option to browse to the CD-ROM/Floppy disk. You can also click the "Windows Update" button to connect directly to Microsoft's support Web site to download printer drivers.
12. When the driver is installed, click the Next button.
13. Specify a name and click the "Next" button.
14. Now specify if you wish to share the printer, enter the share name and click "Next".
15. Continue through the Wizard clicking the "Finish" button when complete.

Windows 2000/XP Printing (Printer Driver already installed)

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

1. Select the printer driver you wish to configure
2. Select File and then chose Properties
3. Click the Ports tab of the driver and click “Add Port”
4. Select the port that you wish to use, typically this would be “Standard TCP/IP Port”, then click the “New Port...” button.
5. The standard TCP/IP Port Wizard will start. Follow steps 6-10 of the “Standard TCP/IP Port Printing” section.

Windows NT 4.0 Printing

If you did not install the TCP/IP protocol during the installation of your Windows NT 4.0 system (either workstation or server) follow these steps. If you have already installed the TCP/IP protocol and Printing protocol proceed to next section.

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

Windows NT 4.0 Printing (Installing the Brother Peer to Peer Software)

1. Start the CD-ROM.
2. Select the desired Language and then select Install Software. Then select the Network Print Software installation program.
3. Click on Next in response to the Welcome message.
4. Select the Brother Peer to Peer Print (LPR) button.
5. Select the desired directory to install the Brother Peer to Peer Print (LPR) files and click on Next. The installation program will create the directory for you if it does not already exist on your disk.
6. Enter 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.
7. You must now enter the actual IP address of the print server in the 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 the printer configuration page. By default the NetBIOS name will appear as BRO_XXXXXX where XXXXXX is the last six digits of the Ethernet address.
8. Click the OK button. When prompted you must reboot your computer.

Windows NT 4.0 Printing (Associating to the Printer)

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

1. To do this, go to the Start button, select Settings and then Printers.
2. Double click the Add Printer icon to get the Add Printer Wizard.
3. Select My Computer (not Network Printer) and click on Next.
4. Select the Brother LPR Port (the port name you assigned in step 6 of the “Installing Brother Peer to Peer Software” section in this chapter) and click on Next.
5. Select the desired printer model. If the correct model is not displayed, click on the Have Disk option and insert the CD-ROM supplied with your printer.
6. If the driver already exists, select Keep Existing Driver (if it does not exist, this step will be skipped), and the click on Next.
7. If desired, change the name of the printer then click Next.
8. If desired, make the printer shared (so other user can access it), and select the operating system(s) that these other computers will be running. Click on Next.
9. Select Yes when you 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 4.0 Printing Adding a Second Brother LPR Port

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

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

Windows NT 3.5x Printing

9. Go into the Control Panel and run the Network applet.
10. Select Add Software and TCP/IP Protocol and related components.
11. 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.)
12. 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.

Windows NT 3.5x Printing (Printer Driver not yet installed)

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.



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).

Refer to chapter 8 for information on how to assign an IP address to the printer.

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).
3. Type in any name for the printer.
4. 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.
5. 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.



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, 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.

Open the LAN Services folder and execute the LAN Requester program:

1. Select Definitions
2. Select Aliases
3. Select Printers
4. 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

5. Exit the LAN Requester program.
6. 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:
7. COPY C:\CONFIG.SYS \\servername\alias
8. 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.
9. 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:
10. NET USE LPT1: \\servername\alias
11. This will make the printer appear to the software as a printer that is directly connected to the parallel port of the workstation.

Other Sources of Information

1. Visit <http://solutions.brother.com> for more information on network printing.
2. Refer to chapter 8 of this user guide to learn how to configure the IP address of the printer.

CHAPTER THREE

Peer to Peer Printing

How to Print in a Windows 95/98/Me Peer to Peer network

Overview

Microsoft's Windows 95/98/Me operating systems features built-in networking capabilities. These capabilities allow a Windows PC to be configured as a client workstation in a file server based network environment.

For smaller networks, Windows 95/98/Me 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.

Quick Tips:

1. The default IP address of Brother print servers is 192.0.0.192. To change it, use the BRAdmin Professional utility or let your DHCP server allocate an IP address to the printer.
2. [Refer to chapter 8 of this user guide to learn how to configure the IP address on your printer.](#)
3. The default password for Brother print servers is "access".
4. Brother printers are also compatible with HP JetDirect software, this means that you can use HP utilities to manage and to print to your Brother printer.

TCP/IP Printing

Our Peer to Peer printing software requires the TCP/IP protocol to be installed on your Windows peer-to-peer computers and an IP Address had to be defined for the print server. Refer to your Windows documentation for more information on how to configure the TCP/IP protocol on your Windows PC.

If you haven't already done so, configure the IP address of the printer, [for more information on IP address configuration, refer to chapter 8 of this user guide.](#)

Installing the Brother Peer to Peer Software

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 appropriate menu to start the Brother Print Software installation program.
3. Push the Next button in response to the Welcome message.
4. Select the Brother Peer to Peer Print (LPR) button
5. 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.
6. 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.
7. 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 "BRO_XXXXXX" where XXXXXX is the last six digits of the Ethernet address.



Windows 95/98/Me store the hosts file in the default Windows directory. By default, the Windows 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.

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

Associating to the printer

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

1. To do this, go the Start button, select 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 are 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 from the Menu bar, and then choose Properties. Click on the Details tab and push the Add Port button. In the Add Port dialog, select the Other radio button and then highlight "Brother LPR port". Click OK and enter the port name. The default port name is BLP1. If you have already used this name, you will get an error message if you try to use it again, in which case use BLP2, etc... Once you have specified the Port name, click the OK button. You will then see the Port Properties Dialog.

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

Other Sources of Information

1. Visit <http://solutions.brother.com> for more information on network printing.
2. Refer to chapter 8 of this user guide to learn how to configure the IP address of the printer.

CHAPTER FOUR

NetBIOS Peer to Peer Printing

How to Printing using NetBIOS on Windows 95/98/Me/NT/2000/XP, LAN Server and OS/2 Warp Server

Overview

Brother's Print Server range supports SMB (Server Message Block) over the TCP/IP protocol via the NetBIOS interface. This means that just like regular Windows PC's, Brother printers can appear in your network neighborhood. The main advantage of NetBIOS printing is that you are able to print from legacy DOS applications that are running on PC's that are connected to Microsoft networks.

Quick Tips:

1. The default IP address of Brother print servers is 192.0.0.192. To change it, use the BRAdmin Professional utility or let your DHCP server allocate an IP address to the printer
2. [Refer to chapter 8 of this user guide to learn how to configure the IP address on your printer.](#)
3. The default password for Brother print servers is "access".
4. The default domain name of the print server is WORKGROUP, to change it use your web browser or the BRAdmin Professional utility.
5. The default name for Brother print servers is usually BRO_XXXXXX (where XXXXXX is the last six digits of the Ethernet address of the print server).

Print Server Configuration

In order for this function to work, you must correctly change the DOMAIN name or WORKGROUP name to match that of your network. Once this is done, the print server will appear automatically in your network neighborhood and you will be able to send print documents to it without having to install additional software. However, in some instances you may find that your Windows 95/98/Me and Windows NT4.0/2000/XP 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.

When you install Windows 95/98/Me you are asked which workgroup you belong to, the default workgroup name for Windows 95/98/Me is "WORKGROUP", however you could change this to anything you want. With Windows NT, Microsoft introduced 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 BRAdmin Professional utility (This utility uses the TCP/IP protocol.)
- 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 BRAdmin Professional utility.
- TELNET, again your computer and printer must have a valid IP address.
-



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 a web browser

If you are unable to use a BRAdmin Professional utility or a web browser, you can use TELNET.

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

Now enter the command:

```
SET NETBIOS DOMAIN domainname  
EXIT
```

Where domainname is the name of the domain or workgroup that you are on. If you are not sure what your domain name or workgroup name is look in the Identification tab in your Windows 95/98/Me/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/Me, NT4.0/2000/XP

This software requires the TCP/IP transport protocols to be installed on your Windows 95/98/Me, NT4.0/2000 computer. To install those protocols refer to your Windows documentation.

If you are using the TCP/IP protocol, the proper IP address should be defined on both the Brother print server and your client PC.

Installing the Brother NetBIOS Port Monitor

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.
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. Whichever 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, and then the server is listed. If the print server does not automatically appear in your browse list, then you must ensure that the domain name is configured correctly. Otherwise you must enter the name manually. The name should be compliant with UNC (Universal Name Convention). For example "\\nodeName\ServiceName".

Where nodeName is the NetBIOS name of the Brother print server (the default name is BRO_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:

```
\\BRO_310107\BINARY_P1
```



You can find the NetBIOS name and MAC address by printing out the printer configuration page. To print the configuration page, use a fine ball point pen to hold down the Test button on the back of the print server for less than 5 seconds.

Refer to Appendix of this user guide how to print the configuration page.

Some models may be unable to print the configuration page. In that case, you can check the printer network configuration using BRAdmin Professional utility or Web Based Management.

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

Associating the printer

1. You must now create a printer on your Windows 95/98/Me and NT4.0/2000 system using the standard Windows printer setup procedure. To do this, go to the Start button, select Setting and then Printers.

Windows 95/98/Me

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 printer 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 NT4.0/2000/XP

2. Select Add Printer to begin the printer installation.
3. Click Next when you get the add Printer Wizard window.
4. Select Local printer (Windows 2000) or Local printer attached to this computer (XP) when you are asked how the printer 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 NetBIOS 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/Me

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 NT4.0/2000/XP

2. Click on the Port/s 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 (BRO_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: \\BRO_310107\BINARY_P1
```



You can find the NetBIOS name and MAC address by printing out the printer configuration page. To print the configuration page, use a fine ball point pen to hold down the Test button on the back of the print server for less than 5 seconds.

[Refer to Appendix of this user guide how to print the configuration page.](#)

Some models may be unable to print the configuration page. In that case, you can check the printer network configuration using BRAdmin Professional utility or Web Based Management.

Other Sources of Information

1. Visit <http://solutions.brother.com> for more information on network printing.
2. Refer chapter 8 of this user guide to learn how to configure the IP address of the printer.

CHAPTER FIVE

How to Configure Internet Printing for Windows 95/98/Me NT 4.0/Windows 2000/XP

Internet Printing Installation

Overview

Brother's Brother Internet Print (BIP) software, for Windows 95/98/Me/XP/NT4.0, 2000 allows a PC user at one location, to send a print job to a Brother Printer at a remote location via the Internet.

Quick Tips:

1. The default IP address of Brother print servers is 192.0.0.192. To change it, use the BRAdmin Professional utility or let your DHCP server allocate an IP address to the printer.
2. [Refer to chapter 8 of this user guide to learn how to configure the IP address on your printer.](#)
3. The default password for Brother print servers is "access".
4. Windows 2000/XP users can print using TCP/IP using the standard Network Printing software built into any Windows 2000/XP installation.
5. The default name for Brother print servers is usually BRO_XXXXXX (where XXXXXX is the last six digits of the Ethernet address of the print server).

Brother Internet Print General Information

The BIP software is installed using a standard Windows 95/98/Me/NT4.0/2000/XP Installation Wizard. It creates a virtual port on the Windows 95/98/Me/NT4.0/2000/XP 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/Me/NT4.0/2000/XP Print Manager to create a printer that uses this port along with a standard Windows 95/98/Me, NT4.0/2000/XP -compatible printer.

Any Windows 95/98/Me/NT4.0/2000/XP 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 Winsock. 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.



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.

Brother Internet Print Configuring the Brother Print Server

The print server can be configured with BRAdmin Professional utility, by using a web browser, or by using the TELNET command.

Print Server Configuration Checklist



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.

Brother Internet Print Using BRAdmin Professional utility to Configure the Print Server



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

Using the BRAdmin Professional utility, you can configure the Brother print server using the TCP/IP protocol.

The steps required to configure the print server to receive print jobs from a Windows 95/98/Me/NT4.0/2000/XP. PC running the BIP software is as follows:

1. Start the BRAdmin Professional utility 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 BRO_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".



You can find the node name and MAC address by printing out the printer configuration page. To print the configuration page, use a fine ball point pen to hold down the Test button on the back of the print server for less than 5 seconds.

[Refer to Appendix of this user guide how to print the configuration page.](#)

Some models may be unable to print the configuration page. In that case, you can check the printer network configuration using BRAdmin Professional utility or Web Based Management.

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 BRAdmin Professional utility. You have now configured the print server to receive print jobs.

Brother Internet Print 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 BRAdmin Professional utility 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.

Brother Internet Print Using TELNET to Configure the Print Server



Skip this section if you used BRAdmin Professional utility or a Web Browser to configure the remote print server.

As an alternative to BRAdmin Professional utility, you can use the print server remote console to configure the print server. The console can be accessed via TELNET. 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.

Brother Internet Print Installing the BIP software on Windows95/98/Me/NT4.0/2000/XP

To install the BIP software on a Windows 95/98/NT4.0/2000/XP PC, execute the following steps:



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

Setup from 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..
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. 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.
7. 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.
8. Press OK to continue.

9. 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.

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.

10. Press OK to continue. You will then be asked to re-start your computer.
11. Once your computer has re-started you must create a printer on your Windows 95/98/Me/NT4.0/2000/XP system using the standard Windows 95/98/Me/NT4.0/2000/XP printer setup procedure. To do this, go the Start button, select Settings and then Printers (Windows 95/98/Me/NT4.0/2000). To do this, go the Control Panel, select Printers and Other Hardware and then Printers and Faxes (or Add a printer) (Windows XP).
12. Select Add Printer to begin the printer installation.
13. Click Next when you get the Add Printer Wizard window (Windows 95/98/Me only).
14. Select Local Printer (Windows 95/98/Me/2000), My computer (Windows NT4.0) or Local printer attached to this computer (Windows XP) when you are asked how the printers are connected to your computer and push Next.

<For Windows 95/98/Me users>

15. 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.
16. 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.
17. Select the Brother Internet port (BIP...) and press Next.

<For Windows NT4.0/2000/XP users>

15. Select the Brother Internet port (BIP...) and press Next.
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. 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 6, or E-mail address that you assigned in step 9.
19. 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/Me 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.

Other Sources of Information

Refer to chapter 8 of this user guide to learn how to configure the IP address of the printer.

CHAPTER SIX

AppleTalk (EtherTalk) TCP/IP Printing

Printing From a Macintosh

Overview

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 using the AppleTalk (also referred to as EtherTalk) protocol.

With the release of System 8.6 or later, Apple introduced a TCP/IP printing capability. This allows Macintosh users to send print jobs using the TCP/IP protocol.



Quick Tips:

1. The default name that will appear in the Chooser of the Macintosh will be BRO_XXXXXX_P1_AT (where XXXXXX is the last 6 digits of the Ethernet address).
2. From a Macintosh network, the easiest way to change this name is to assign an IP address to the printer and then use a Web browser to change the name. Connect to the print using a web browser and then click on "Administrator Settings", "Network Board Settings" enter the password, then select "Configure AppleTalk", Click "BRO_XXXXXX_P1_AT", then on Service Name, enter the new name that you wish to appear in Chooser. Then click on "Submit".
3. System 8.6 or later supports TCP/IP printing.
4. The default password for Brother print servers is "access".
5. One way to print that details all network settings is to print a configuration page, use a fine ball point pen to hold down the Test button on the back of the print server for less than 5 seconds.

[Refer to Appendix of this user guide how to print the configuration page.](#)

Some models may be unable to print the configuration page. In that case, you can check the printer network configuration using the BRAdmin Professional utility or by connecting to the embedded web server within the NC-2100p print server.

6. The default IP address of Brother print servers is 192.0.0.192. To change it, use the BRAdmin Professional utility, or let your DHCP server allocate an IP address to the printer.

Macintosh Configuration (OS 8.6 – 9.2)

Your Brother Printer is compatible with the standard Apple LaserWriter 8 printer driver (earlier versions of the LaserWriter drivers may crash or cause PostScript errors on large networks). If you do not have the LaserWriter 8 driver 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 selected, or the Network Control Panel does not exist, you must use Apple's Network Installer software to add these capabilities.

The appropriate PPD file supplied with your printer must first be installed. Insert the supplied CD-ROM into the printer. Select the Start Here icon, select your language and follow the on screen instructions for Install Software.

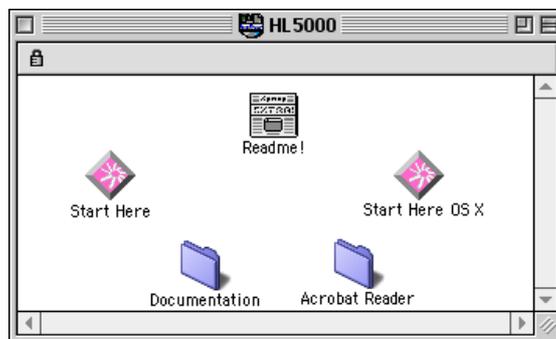


Figure 1 Typical Macintosh Installer

The above screenshot is from a Brother HL-5000 series printer driver. However, you will see a similar screen for all Brother printers that include a Macintosh printer driver. See the Quick Setup Guide supplied with your printer for instructions on how to install the Macintosh printer driver.

Operation

Once the print server is installed and the printer is powered on, the Brother print server AppleTalk service name (default is BRO_XXXXXX_P1_AT, where "XXXXXX" is the last six digits of the Ethernet address (MAC address) should appear in the Chooser.



You can find the service name and MAC address by printing out the printer configuration page. To print the configuration page, use a fine ball point pen to hold down the Test button on the back of the print server for less than 5 seconds.

[Refer to Appendix of this user guide how to print the configuration page.](#)

Some models may be unable to print the configuration page. In that case, you can check the printer network configuration using BRAdmin Professional utility or Web Based Management.

How to Select the Print Server (AppleTalk/EtherTalk)

Once the print server is connected on your network and the printer is powered on, the Brother print server's Apple Talk service name (default is BRO_XXXXXX_P1_AT, where XXXXXX is the last six digits of the Ethernet address (Mac address) should appear in the Chooser.



You can find the service name and MAC address by printing out the printer configuration page. [Refer to Appendix of this user guide how to print the configuration page.](#)

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).

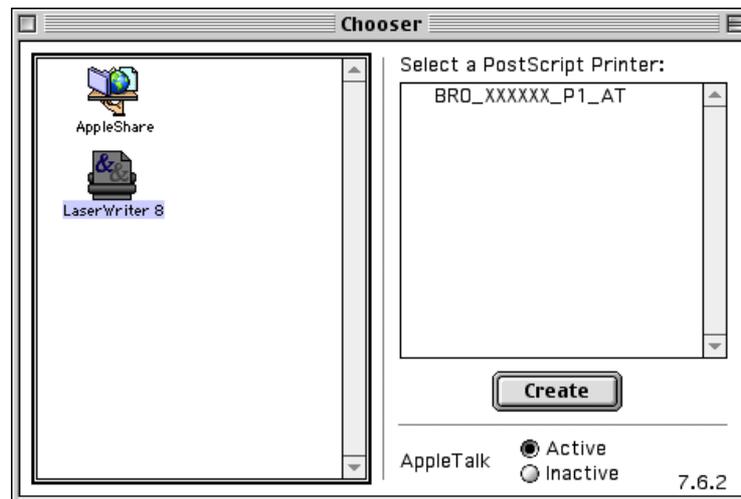


Figure 2 Macintosh Chooser

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



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 BRAdmin Professional utility or a web browser.

How to Select the Print Server (TCP/IP)

Apple has developed the "Desktop Printer" utility, this can be found from the Apple menu (this is only available from System 8.6 or later). When you run it you will see the following screen:

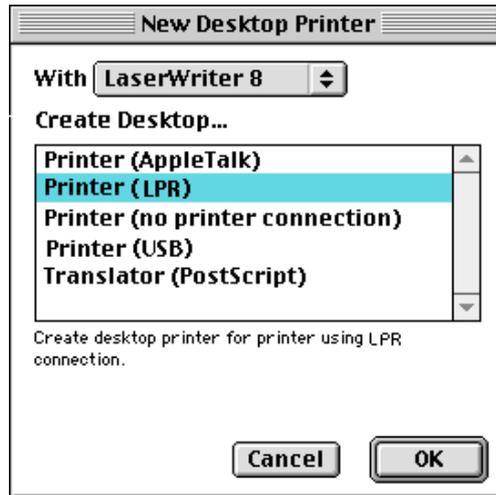


Figure 3 Selecting LPR Printing

1. Select the "Printer (LPR)" option and click "OK". You will then see the following:

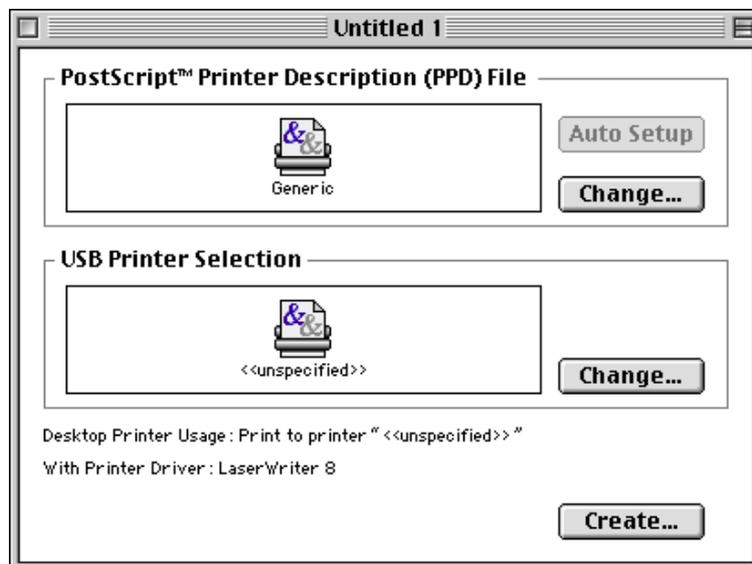


Figure 4 Selecting the PPD and LPR Configuration

2. At this point we must select the correct PPD file for the printer and also configure the correct LPR information. Click the "Change" button in the "PostScript Printer Description (PPD) File" section. Insert the CD-ROM that contains the PPD file for the printer and select the appropriate PPD file.
3. Now select the "Change" button below the "LPR Printer Selection" text.
4. You must then enter the IP address and service name of details of the printer. When specifying the "Queue", use the value "bro_XXXXXX_p1_at" where XXXXXX are the last 6 digits of the Ethernet address.

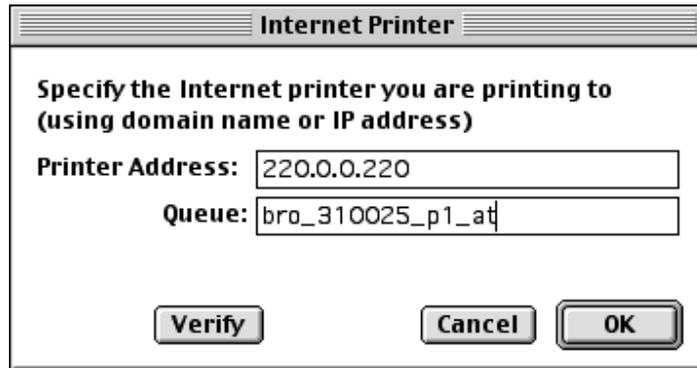


Figure 5 Entering the IP address and Queue

If you do not specify the correct value the printer may not print, or it may not print the data correctly. Please ensure that the value you enter here matches with the Service name of the printer.

1. Click "OK" to go back to the previous screen.
2. You are now ready to create the printer for use. To do that, click the "Create" button and you will see the following:

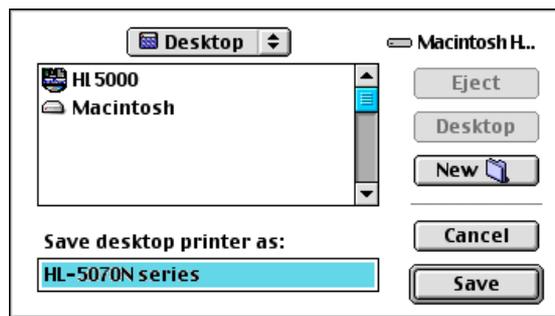


Figure 6 Saving the printer to the Desktop

3. Enter the name of the printer in the "Save desktop printer As:" option and click on "Save".
4. We must now make this our default printer by clicking the printer name once and then select "Printing" and "Set Default Printer".

Whenever you send a print job, the printer that you just created will be used.

Macintosh Configuration (OS X v. 10.1/10.2)

The appropriate PPD file supplied with your printer must be installed. Install the appropriate PPD file from the supplied CD-ROM from the printer.

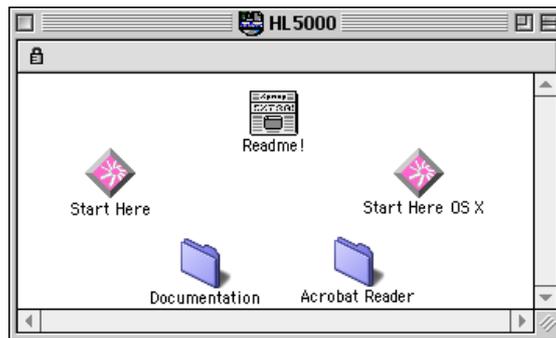


Figure 7 Typical Macintosh Installer

The above screenshot is from a Brother HL-5000 series printer driver. However, you will see a similar screen for all Brother printers that include a Macintosh printer driver. See the Quick Setup Guide supplied with your printer for instructions on how to install the Macintosh printer driver.

How to Select the Print Server (AppleTalk/EtherTalk)

After installing the PPD, use the following steps to select the printer driver:

1. Turn the power of the printer ON.
2. Open the Applications folder.
3. Open the Utilities folder.
4. Open the Print Center icon.
5. Click the Add Printer icon.
6. Select AppleTalk.
7. Select BRO_XXXXXX_P1_AT and click the Add button.

For AppleTalk connections, the printer's AppleTalk service name is BRO_XXXXXX_P1_AT, where XXXXXX is the last six digits of the Ethernet address.

To confirm the Ethernet address you can print a configuration page using a fine ball point pen to hold down the Test button on the back of the print server for less than 5 seconds. [Refer to Appendix of this user guide how to print the configuration page.](#)

8. From the Printer Model pull-down list select your model.
9. Click Add and the printer will be available from the Printer List.

How to Select the Print Server (TCP/IP)

After installing the PPD, use the following steps to select the printer driver:

1. Turn the power of the printer ON.
2. Open the Applications folder.
3. Open the Utilities folder.
4. Open the Print Center icon.
5. Click the Add Printer icon.
6. Select LPR Printers using IP.
7. Enter the TCP/IP address of the printer into the LPR Printer's Address box.

For AppleTalk connections, the printer's AppleTalk service name is BRO_XXXXXX_P1_AT, where XXXXXX is the last six digits of the Ethernet address.

Printing the configuration page will allow you to confirm the TCP/IP address. To print that details all network settings is to print a configuration page, use a fine ball point pen to hold down the Test button on the back of the print server for less than 5 seconds. [Refer to Appendix of this user guide how to print the configuration page.](#)

8. When specifying the "Queue", use the value BRO_XXXXXX_P1_AT where XXXXXX are the last six digits of the Ethernet address.
9. From the Printer Model pull-down list select your model.
10. Click Add and the printer will be available from the Printer List

Changing the Configuration

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

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

PC users can also use the BRAdmin Professional utility to change printer and print server details.

Other Sources of Information

1. Visit <http://solutions.brother.com> for more information on network printing.
2. Refer to chapter 8 of this user guide to learn how to configure the IP address of the printer.
3. Refer to chapter 7 for more information on web-based management.

CHAPTER SEVEN

Web Based Management

How to use a Web Browser to manage your Device

Overview

A standard World Wide Web Browser (we recommend Netscape Navigator version 4.0 or later/Microsoft Internet Explorer version 5.0 or later) can be used to manage your printer using the HTTP (Hyper Text Transfer Protocol). You can get the following information from the printer using a web browser.

1. Supports several languages including English, French, German, Spanish and Dutch.
2. Printer status information
3. Software Version information of the printer and network card
4. Change network configuration details

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

Quick Tips:

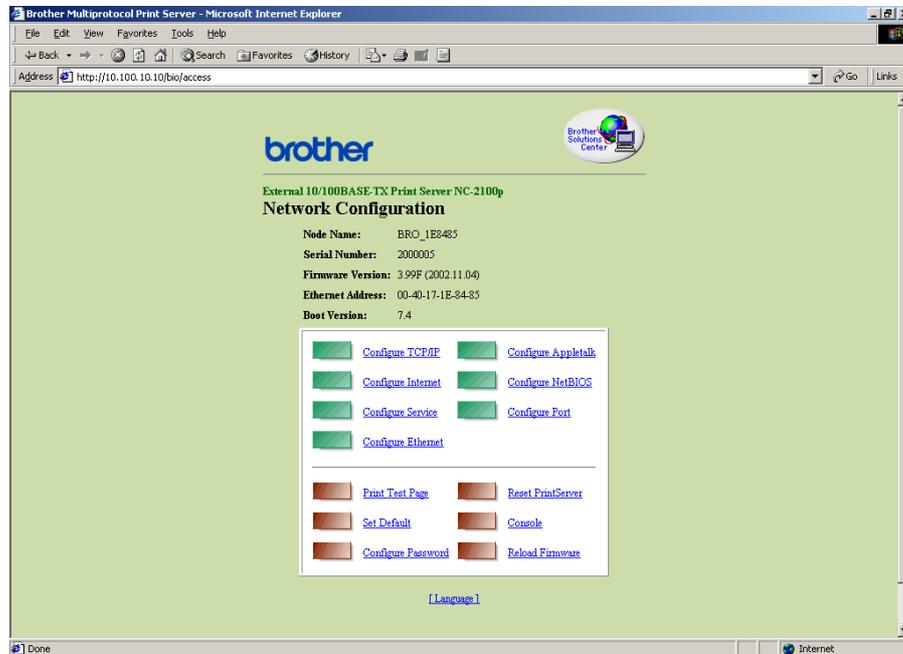
1. The default IP address of Brother print servers is 192.0.0.192. To change it, use the BRAdmin Professional utility, or let your DHCP server allocate an IP address to the printer.
2. [Refer to chapter 8 of this user guide to learn how to configure the IP address on your printer.](#)
3. The default password for Brother print servers is "access".
4. You can use a web browser on most computing platforms, for example, Macintosh and Unix users are also cable to connect to the printer and manage it.
5. You can also use the BRAdmin Professional utility to manage the printer and network configuration.

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). Enter the DNS name of the printer if connecting to a network that uses the DNS protocol.

Web Function Page

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



Click on the links to manage different aspects of the printer. For example, if you wish to change the IP address settings of the printer, click the "Configure TCP/IP" link.

Other Sources of Information

1. Visit <http://solutions.brother.com> for more information on network printing.
2. Refer to chapter 8 of this user guide to learn how to configure the IP address of the printer.

CHAPTER EIGHT

TCP/IP Configuration

Assigning TCP/IP Information

Overview

The TCP/IP protocol requires that each device on the network have its own unique IP address. Use the following information to learn about IP address configuration.

By default Brother print servers have a sample IP address of 192.0.0.192, however, you can easily change this IP address number to match with the IP address details of your network. This can be done in any of the following ways:

1. BRAdmin Professional utility (for Windows 95/98/Me/NT 4.0/2000/XP using the TCP/IP protocol)
2. DHCP, Reverse ARP (rarp) or BOOTP
3. The ARP command.

Other ways to CHANGE the IP address once it is already set:

1. TELNET
2. HTTP (Web browser)
3. Other SNMP based management utility

These configuration methods are described in the following paragraphs.



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 BRAdmin Professional utility

Start the BRAdmin Professional utility (from Windows 95/98/Me, NT4.0, Windows 2000/XP).

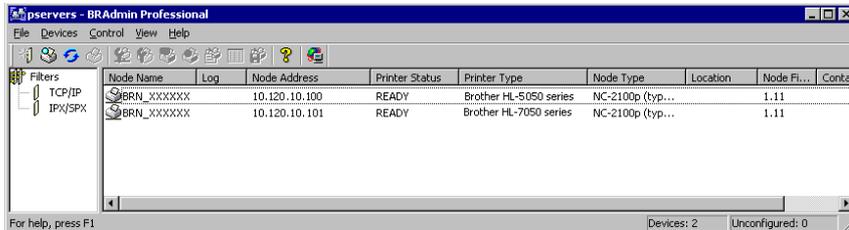


Figure 1 BRAdmin Professional

The BRAdmin Professional utility can use the TCP/IP protocol 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 want to change the IP address. There are two ways that you can do this from within BRAdmin Professional utility.

Use the TCP/IP protocol and let BRAdmin Professional utility find the Brother Print server as an un-configured device.

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



If the print server is set to its factory default settings, it will not appear in the BRAdmin Professional utility 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.

You can find the node name and MAC address by printing out the printer configuration page. To print the configuration page, use a fine ball point pen to hold down the Test button on the back of the print server for less than 5 seconds.

Some of the printer might be unable to print the configuration page. In that case, check the printer configuration by BRAdmin Professional utility or Web Based Management.

Refer to Appendix of this user guide how to print the configuration page.

5. Input the IP address, Subnet mask and Gateway (If needed) of your print server.
6. Click OK then select Close.
7. 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/2000) the print server will automatically obtain its IP address from DHCP server and register its name with any RFC 1001 and 1002-compliant dynamic name services.



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 TELNET (using the SET IP METHOD command), Web browser or by using the BRAdmin Professional utility.

Using ARP to Configure the Print Server IP Address

If you are unable to use the BRAdmin Professional utility and your network does not use a DHCP server, you can also use the ARP command. ARP is the simplest method of configuring the print server IP address. The ARP command is available on Windows systems that have TCP/IP installed as well as Unix systems. To use arp enter the following command the command prompt:

```
arp -s ipaddress ethernetaddress
```

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

Windows Systems

Windows Systems require the colon ":" character in-between each digit of the Ethernet address.

```
arp -s 192.189.207.2 00:40:17:31:01:07
```

Unix Systems

Typically, Unix systems require the hash "-" character in-between each digit of the Ethernet address.

```
arp -s 192.189.207.2 00-40-17-31-01-07
```



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) or factory reset the print server (which will then allow you to use the ARP command again).

To configure the print server and to verify the connection, enter the following command ping ipaddress where 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:

```
00:40:17:31:01:07    BRO_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
```



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:

```
BRO_310107 1 00:40:17:31:01:07 192.189.207.3
```

and:

```
BRO_310107:ht=ethernet:ha=004017310107:\
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 TELNET Console

You can also use the TELNET command to change the IP address. Using TELNET is effective way, when you change the IP address. But a valid IP address must already be programmed into the print server.

If you are using the 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).

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

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

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

You will now need to set the subnet mask by typing SET IP SUBNET subnet mask, where subnet mask is the desired subnet mask you wish to assign to the print server (check with your network 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

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).

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
```

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

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

Other Sources of Information

1. Visit <http://solutions.brother.com> for more information on network printing.

CHAPTER NINE

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

Installation problems

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

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

Verify that the printer and the configuration are good by printing the configuration page. To print the configuration page, use a fine ball point pen to hold down the Test button on the back of the print server for less than 5 seconds. [Refer to Appendix of this user guide how to print the configuration page.](#)

Some models may be unable to print the configuration page. In that case, you can check the printer network configuration using BRAdmin Professional utility or Web Based Management.

- a. If the yellow and green LED on the print server blink alternately 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 of the print server 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



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 command prompt with the command:

```
ping ipaddress
```

Where ipaddress is the print server IP address (note that in some instances it can take up to two minutes for the print server 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, Windows 98/95/Me Peer to Peer (LPR), Internet Printing or Web Browser troubleshooting section. Otherwise, proceed to step 3, and then go to TCP/IP Trouble shooting section.

b. **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 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

Orange LED: Power

This LED is on if the print server is turn on.

- Yellow LED : Link and activity
This LED is on if there is a valid connection to the network (either 10BASE-T or 100BASE-TX). Also this LED will blink synchronized to the transmission or receive status. It is off if no network is detected.
- Green LED: Speed
100BASE-TX – LED is on.
10BASE-TX- LED is off

4. If you are using a repeater or hub, make sure that SQE (heartbeat) is turned off at the hub (if applicable). 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 or on the other hub or multi-port repeater.
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 the printer prints unexpectedly or it prints garbage, check the following:
 1. Turn the printer power switch is off.
 2. Connect the AC cord
 3. Remove the AC cord from the AC outlet, and then connect it, again.
 4. Turn the printer power switch is on.

2. 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 <http://solutions.brother.com>.

3. 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:



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. Make sure that the TCP/IP protocol of the print server is enabled.
3. 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.
4. 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.
5. 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 BRAdmin Professional utility.
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 BRO_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 BRO_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.
11. If you cannot print from DEC TCP/IP Service for VMS (UCX), make sure that you have version 2.0B or later of this software, because earlier versions will not work with Brother print servers.

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/Me Peer to Peer Print (LPR) Troubleshooting

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

1. Make sure that the Brother LPR Port driver is correctly installed and configured according to the Windows 95/98/Me 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/Me computers. Press the ALT and TAB keys to make it appear.

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

If you are having trouble printing on a Windows 95/98/Me 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/Me Peer-to-Peer network, try removing all of the Windows 95/98/Me network software from the Network Control panel and then reinstalling them as follows:
 - First install the TCP/IP protocol, 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/Me/NT 4.0 Peer-to-Peer Print (NetBIOS) Troubleshooting

If you are having trouble printing on a Windows 95/98/Me/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/Me/NT 4.0 Peer-to-Peer (NetBIOS) chapters. You may find that during the installation of the port driver, the screen that prompts you for a Port name is not displayed. This happens on some Windows 95/98/Me/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.

Brother 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.

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 using BRAdmin Professional utility, a web browser or the SET APPLTALK ZONE command from TELNET. BRAdmin Professional utility.
6. Verify that the Laser Prep versions on all Macintosh computers that need to print to the print server are the same.

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



General Information

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

- Brother BRAdmin Professional utility for Windows 95 or later
- HTTP (using a web browser)
- HP's JetAdmin or WebJetAdmin Software
- TELNET (command utility)

BRAdmin Professional utility (Recommended)

The Brother BRAdmin Professional utility can use the TCP/IP protocol. This utility allows you to graphically manage aspects of the network and printer. It can also be used to upgrade the firmware of the print server.

HTTP (Recommended)

Use your favorite web browser to connect to the Brother print server. This will allow you to configure print server parameters.

JetAdmin or WebJetAdmin

Brother's print server range is HP JetAdmin and WebJetAdmin compatible.

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.

Enter HELP at the command prompt for a list of supported commands.

How to print the Configuration page

To print the configuration page, use a fine ball point pen to hold down the Test button on the back of the print server for less than 5 seconds.

Note: If you hold the Test button on the back of the print server for more than 5 seconds all network settings will be reset to default.

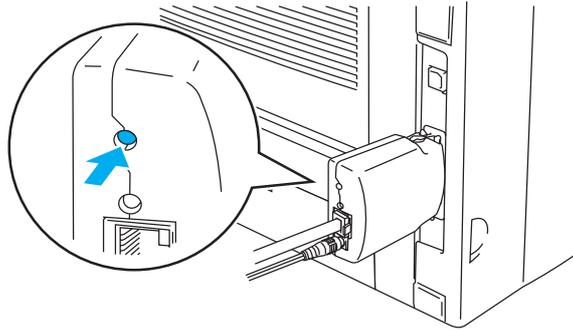


Figure 1 Test button

Some models may be unable to print the configuration page. In that case, you can check the printer network configuration using BRAdmin Professional utility or Web Based Management.

Appendix B

Using Services

General

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 PJL-compatible printer to PostScript mode)
PCL_P1	PCL service (switches PJL-compatible printer to PCL mode)
BRO_XXXXXX_P1_AT	AppleTalk and LPD service for Mac OS 8.6 or later

where "XXXXXX" is the last six digits of the Ethernet address (for example, BRO_310107_P1).

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 <http://solutions.brother.com>



Some software versions that we provide will automatically factory reset your print server parameters. We try to avoid doing this, however, if we add a significant new feature to our print server, it can result in the print server being factory reset.

Because of this, we **STRONGLY** recommend that you make a note of the current print server configuration before you upgrade. To do this, print the configuration page. Use a fine ball point pen to hold down the Test button on the back of the print server for less than 5 seconds.

There are three methods of upgrading the firmware in your Brother print server:

1. Use the BRAdmin Professional utility (**Recommended**)
2. Use the FTP protocol (**Recommended if running on Macintosh or Unix network**)
3. Use another system (such as a Unix system to send the new firmware file to the print server).



Reloading firmware using BRAdmin Professional utility

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

1. Start the BRAdmin Professional utility.
2. 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 whichever method you select, you must enter a password for the print server. The default password for the print server is "access".

3. TFTP PUT from this host
Use this method if you have TCP/IP already installed on your PC. BRAdmin Professional utility will use the TFTP protocol to send the new firmware data to the print server.
4. 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.

Reloading process

The Yellow and Green LED on the print server will blink simultaneously during the firmware file loading process and the printer will restart automatically after the programming has completed. **DON'T TURN OFF THE PRINTER DURING THESE PROCESSES.**

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