



Multi-Protocol 802.11b/g Wireless Print Server

NC-7100w

Network User's Guide

This product is approved for use in the country of purchase only. Do not use this product outside the country of purchase as it may violate the wireless telecommunications regulations of that country.

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

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

Some Brother printer models are network ready as standard. Other Brother printers can be upgraded with an optional Network Print Server.

Trademarks

Brother is a registered trademark of Brother Industries, Ltd.

Windows and Windows NT are registered trademarks of Microsoft Corporation in the US and other countries.

HP, HP-UX, JetDirect and JetAdmin are trademarks of Hewlett-Packard Company. DEC, DEC server, VMS, LAT, and ULTRIX are trademarks of Digital Equipment Corporation.

UNIX is a registered trademark of The Open Group.

Ethernet is trademark of Xerox Corporation.

Adobe PostScript is a registered trademark and PostScript3 is a trademark of Adobe Systems Incorporated.

NetWare is a trademark of Novell, Inc.

Apple, Macintosh, iMac, LaserWriter and AppleTalk are registered trademarks of Apple Computer, Inc.

IBM, LAN Server, and AIX are trademarks of International Business Machines Corporation.

LAN Manager, Windows, and MS-DOS are trademarks of Microsoft Corporation.

All other brand and product names mentioned in this user's guide are registered trademarks or trademarks of respective companies.

Compilation and Publication

Under the supervision of Brother Industries Ltd., this manual has been compiled and published, covering the latest product descriptions and specifications.

The contents of this manual and the specifications of this product are subject to change without notice.

Brother reserves the right to make changes without notice in the specifications and materials contained herein and shall not be responsible for any damages (including consequential) caused by reliance on the materials presented, including but not limited to typographical and other errors relating to the publication.

Shipment of the print server

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 damage.

IMPORTANT NOTE: For technical and operational assistance, you must call.
Calls must be made **from within** that country.

In USA 1-800-276-7746

In Canada 1-877-BROTHER
(514) 685-6464 (**In Montreal**)

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

In Europe European Technical Services
1 Tame Street
Audenshaw
Manchester, M34 5JE
UK

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

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

Brother fax-back system (USA)

Brother Customer Service has set up an easy-to-use fax-back system so you can get instant answers to common technical questions and information about all our products. This is available 24 hours a day, seven days a week. You can use the system to send the information to any fax machine.

Call the number below and follow the recorded instructions to receive a fax about how to use the system and an Index of the subjects you can get information about.

In USA only 1-800-521-2846

Dealers and service centers (USA)

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

Service centers (Canada)

For the address of service centers in Canada, call 1-877-BROTHER.

Internet addresses

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

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

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

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 08807-0911, USA
TEL: (908) 704-1700

declares, that the products

Product Name: Brother Network Card (BR-net)
Model Number: NC-7100w / NC-7100
(NC-7100 is a wireless LAN card which is installed in NC-7100w)

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.

Copyrights

©2004 Brother Industries Ltd. All rights reserved.

©1998-2004 TROY Group, Inc. All rights reserved.

©1983-2004 PACIFIC SOFTWARES INC. All rights reserved.

Atheros Copyright

This product includes object code that is Copyright ©2002-2004 Atheros Communications, Inc. All rights reserved.

Intel Copyright and License Information

This product includes object code from Intel's UPnP SDK.
The following is the copyright and licensing information for Intel UPnP SDK.

Copyright© 2004 Intel Corporation

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- * Redistributions of source code must retain the above copyright notice this list of conditions and the following disclaimer.
- * Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- * Neither name of Intel Corporation nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL INTEL OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.



“EC” Declaration of Conformity

Manufacturer

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

Herewith declare that:

Products description : Network Card
Product Name : NC-7100w

are in conformity with provisions of the Directives applied: Low Voltage Directive 73/23/EEC (as amended by 93/68/EEC) and the Electromagnetic Compatibility Directive 89/336/EEC (as amended by 91/263/EEC and 92/31/EEC and 93/68/EEC).

Standards applied:

Harmonized:	LVD	EN60950: 2000
	EMC	EN55022: 1998 Class B EN55024: 1998

Year in which CE marking was first affixed: 2004

Issued by: Brother Industries, Ltd.

Date: 6 February, 2004

Place: Nagoya, Japan

Signature:

Takashi Maeda
Regulations Manager
Quality Management Group
Quality Management Dept.
Information & Document Company



BROTHER INDUSTRIES, LTD.
15-1, Naeshiro-cho,
Mizuho-ku, Nagoya 467-8561,
Japan
Phone: +81 52 824 2337
Fax: +81 52 821 4460

DECLARATION of CONFORMITY

We, Brother Industries, Ltd. of the above address, hereby declare, at our sole responsibility, that the following product conforms to the Essential Requirements of the Radio and Telecommunications Terminal Equipment Directive 1999/5/EC in accordance with the tests conducted to the appropriate requirements of the relevant standards, as listed herewith.

Product: Wireless LAN Card

Model / Type Number: NC-7100

Directive and Standards used: Radio: EN300 328-1 V1.3.1 (2001-12)
EN300 328-2 V1.2.1 (2001-12)
EMC: EN301 489-1 V1.4.1 (2002-08)
EN301 489-17 V1.2.1 (2002-08)
LVD: EN60950: 2000

Year of affixing CE marking: 2004

Signature:

Name: Takashi Maeda

Position: Regulations Manager, Quality Management Group,
Quality Management Department,
Information & Document Company

Date: January 21, 2004

Hereby, Brother Industries, Ltd., declares that NC-7100w is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

Australia

This equipment complies with Australian EMC requirement.



Australian Company Number: ACN 001 393 835

New Zealand

This equipment complies New Zealand EMC requirement

New Zealand Company Number of the supplier: BINZ 13243

Table of Contents



IMPORTANT INFORMATION: REGULATIONS	iii
Federal Communications Commission (FCC)	
Declaration of Conformity (For U.S.A. only)	iii
Industry Canada Compliance Statement (For Canada only).....	iii
Copyrights	iv
Table of Contents	viii

1	Unix® Printing.....	1-1
	Printing from UNIX®/Linux Using TCP/IP	1-1
	Overview.....	1-1
	TCP/IP	1-2
	General TCP/IP UNIX® Host Configuration	1-2
	Linux Configuration.....	1-6
	Linux Configuration Using CUPS	1-6
	HP-UX Configuration	1-7
	IBM RS/6000 AIX Configuration	1-8
	Sun Solaris 2.x Configuration	1-9
	SCO UNIX® Configuration	1-10
	IBM AS/400	1-11
	Other Systems.....	1-13
	Other Sources of Information	1-14

2	TCP/IP Printing.....	2-1
	Printing from Windows NT®4.0, Windows® 2000/XP, LAN Server and Warp Server	2-1
	Overview.....	2-1
	Windows NT®4.0 and Windows® 2000/XP (TCP/IP) Configuration	2-2
	Windows® 2000/XP Printing (Printer Driver not yet installed)	2-2
	Standard TCP/IP Port Printing.....	2-2
	Windows® 2000/XP Printing (Printer Driver already installed)	2-4
	Windows NT®4.0 Printing	2-4
	Windows NT®4.0 Printing: Installing the Brother Peer to Peer Software.....	2-5
	Windows NT®4.0 Printing: Associating to the Printer .	2-6
	Windows NT®4.0 Printing: Adding a Second Brother LPR Port	2-7

	LAN Server, OS/2 Warp Server Configuration	2-7
	Server Configuration.....	2-7
	Configuration of an OS/2 Server	2-8
	Other Sources of Information	2-10
3	Peer to Peer Printing	3-1
	How to Print in a Windows® 95/98/Me Peer to Peer Network	3-1
	Overview.....	3-1
	Quick Tips:.....	3-1
	Driver Deployment Wizard.....	3-2
	TCP/IP Printing.....	3-2
	Installing the Brother Peer to Peer Software	3-3
	Associating to the Printer.....	3-4
	Adding a Second Brother LPR Port.....	3-5
	Other Sources of Information	3-5
4	NetBIOS Peer to Peer Printing.....	4-1
	How to Print Using NetBIOS in Windows® 95/98/Me/2000/XP, Windows NT®4.0, LAN Server and OS/2 Warp Server	4-1
	Overview.....	4-1
	Print Server Configuration	4-2
	Changing the Workgroup/Domain Name Using TELNET or BRCONFIG or a Web Browser.....	4-3
	NetBIOS Port Monitor for Windows® 95/98/Me/2000/XP and Windows NT®4.0.....	4-4
	Installing the Brother NetBIOS Port Monitor	4-4
	Associating the Printer.....	4-5
	Windows® 95/98/Me	4-5
	Windows NT®4.0 /Windows® 2000/XP.....	4-6
	Adding a Second NetBIOS Print Port.....	4-7
	Windows® 95/98/Me	4-7
	Windows NT®4.0 / Windows® 2000/XP.....	4-8
	LAN Server/OS/2 Warp Server Configuration	4-8
	Server Configuration:.....	4-8
	Workstation Configuration:	4-9
	Other Sources of Information	4-9
5	Configuring Internet Printing for Windows®	5-1
	Internet Printing Installation	5-1
	Overview.....	5-1
	Brother Internet Print General Information	5-2

Brother Internet Print: Configuring the Brother Print Server	5-3
Print Server Configuration Checklist.....	5-3
Brother Internet Print: Using BRAdmin to Configure the Print Server.....	5-4
Brother Internet Print: Using a Web Browser to Configure the Print Server.....	5-5
Brother Internet Print: Using TELNET to Configure the Print Server.....	5-5
Brother Internet Print: Installing the BIP Software on Windows® 95/98/Me/2000/XP and Windows NT®4.0..	5-6
Setup from CD-ROM	5-7
Adding a Second Brother Internet Port.....	5-9
Windows® 2000/XP IPP Printing.....	5-9
Specifying a Different URL	5-11
Other Sources of Information	5-12

6

Novell® NetWare® Printing.....	6-1
How to Configure Novell® NetWare® Printing	6-1
Overview.....	6-1
General Information.....	6-2
Creating a NDPS Printer Using NWADMIN for NetWare® 5.....	6-3
NDPS Manager	6-3
NDPS Broker	6-4
Creating a Printer Agent	6-5
Configuring NetWare® 3 and NetWare® 4 Systems....	6-6
Creating the NetWare® Print Server (Bindery Queue Server) Using BRAdmin Professional Utility.....	6-6
Creating the NetWare® Print Server (NDS Queue Server) Using BRAdmin Professional Utility.....	6-8
Creating the NetWare® Print Server (NDS Queue Server) Using Novell® NWADMIN and BRAdmin Professional Utility	6-9
Creating the NetWare Print Server (NDS Remote Printer) Using Novell® NWAdmin and BRAdmin Professional Utility.....	6-12
Configuring the Brother Print Server (Queue Server Mode in Bindery Emulation Mode) Using PCONSOLE and BRCONFIG.....	6-14
Configuring the Brother Print Server (Queue Server Mode in NDS Mode) Using PCONSOLE and BRCONFIG	6-15

Configuring the Brother Print Server (Remote Printer Mode) Using PCONSOLE and BRCONFIG	6-18
Other Sources of Information	6-22

7

Printing From a Macintosh®	7-1
Printing from a Macintosh® Using AppleTalk® and TCP/IP or the Simple Network Configuration capabilities of Mac OS® X.	7-1
Overview	7-1
Macintosh® Configuration (Mac OS® X 10.1 to 10.3)	7-3
How to Select the Print Server (AppleTalk®/EtherTalk®)	7-3
How to Select the Print Server (TCP/IP)	7-4
Printing from a Macintosh® Using the Simple Network Configuration capabilities of Mac OS® X.	7-5
How to Select the Printer Driver	7-5
Changing the Configuration	7-6
Other Sources of Information.....	7-6

8

Web Based Management	8-1
How to use a Web Browser to Manage Your Device.....	8-1
Overview.....	8-1
How to Connect to Your Printer Using a Browser	8-2
Other Sources of Information	8-2

9

TCP/IP Configuration.....	9-1
Assigning TCP/IP Information.....	9-1
Overview.....	9-1
Using the Printer Control Panel to Allocate an IP Address (Printers with LCD Panels Only).....	9-2
Changing the IP Address Using the BRAdmin Application	9-2
Using BRAdmin and the IPX/SPX Protocol to Set the IP Address	9-3
Using BRAdmin and the TCP/IP Protocol to Set the IP Address	9-4
Using DHCP to Configure the IP Address	9-5
Using APIPA to Configure the IP Address.....	9-5
Using ARP to Configure the Print Server IP Address.	9-6
Using RARP to Configure the IP Address	9-8
Using BOOTP to Configure the IP Address.....	9-9
Configuring the IP Address with BRCONFIG	9-10

Changing the IP Address Settings with the TELNET Console	9-11
Other Sources of Information	9-13

10

Troubleshooting	10-1
Overview.....	10-1
Wireless Setup Problems	10-1
Network Initial Setup Problems	10-7
Intermittent Problems	10-10
TCP/IP Troubleshooting	10-10
UNIX® Troubleshooting.....	10-11
Windows NT®4.0/LAN Server (TCP/IP) Troubleshooting	10-12
Windows® 95/98/Me Peer to Peer Print (LPR) Troubleshooting.....	10-13
Windows® 95/98/Me Peer-to-Peer (HP JetAdmin Compatible Method) Troubleshooting	10-13
Windows® 95/98/Me and Windows NT®4.0 Peer-to-Peer Print (NetBIOS) Troubleshooting.....	10-14
Brother Internet Print (TCP/IP) Troubleshooting	10-14
Windows® 95/98/Me/2000/XP IPP Troubleshooting	10-15
Novell® NetWare® Troubleshooting	10-16
AppleTalk® Troubleshooting	10-17
Web Browser Troubleshooting (TCP/IP)	10-17

Appendix A.....	A-1
General Information	A-1
BRAdmin (Recommended).....	A-1
Web BRAdmin	A-1
HTTP (Recommended)	A-2
WebJetAdmin	A-2
TELNET	A-2
BRCONFIG.....	A-2
Using Services.....	A-3
General.....	A-3
Reloading the Print Server Firmware.....	A-4
General.....	A-4
Reloading Firmware Using BRAdmin	A-5
Reloading Using the FTP Protocol from a Command Prompt.....	A-6
Reloading Using the FTP Protocol from a Web Browser	A-7
Other Information.....	A-8

How to Print a Network Configuration Page	A-8
How to Reset to Factory Default Setting	A-8
Appendix B	B-1
Wireless Network.....	B-1
Introduction	B-1
Wireless LAN terms and concepts	B-1
Infrastructure Mode	B-2
Ad-hoc Mode	B-2
Authentication and Encryption.....	B-3
Channels	B-4
Configuring the Brother Wireless Print Server.....	B-5
Using the Control Panel Menus to Configure the Wireless Print Server.....	B-5
Using the BRAdmin Professional Utility to Configure the Wireless Print Server (for Windows® users) ...	B-10
Using a Web Browser to Configure the Wireless Print Server (for Windows® users)	B-12
NC-7100w Print Server Specifications	B-12
Index	I-1

1 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 while other protocols are active, this means that UNIX[®], NetWare[®], 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 Automatic Private IP Addressing (APIPA) protocol automatically assigns an IP address from the range: 169.254.1.0 to 169.254.254.255. If you want to disable the APIPA protocol, you can turn the setting off by using control panel buttons to access APIPA in the **TCP/IP** setting of the **NETWORK** menu. If the APIPA protocol is disabled, the default IP address of a Brother print server is 192.0.0.192. To change it, use the printer control panel, the BRAdmin Professional, Web BRAdmin software or let your DHCP server allocate an IP address to the printer.
- 2 Refer to *chapter 9* of this User's 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 for a Brother print server is usually `BRN_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.

Brother print servers also support the FTP protocol. This protocol can be used to send print jobs from UNIX[®] systems.

The Brother print server is pre-configured to run on a TCP/IP network with a minimum of setup. The only mandatory configuration of 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, or the printer control panel.



For setting the IP address of the print server, refer to the Quick Setup Guide or to *chapter 9* of this User's 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 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      BRN_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 Network Configuration Page), however, it is good practice to make the names the same. See *How to Print a Network Configuration Page* on page A-8 for information how to print the Network Configuration Page on your print server. (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 step 4. SCO user's should also skip to step 4 (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=BRN_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 `BRN_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 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 **Restart lpd** option. As soon as the lpd server restarts, you will be able to send printed documents from your server.

Linux Configuration Using CUPS

Many Linux systems support Common UNIX[®] Printing System (CUPS).

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 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):
 - **Line printer name** (user-selectable).
 - **Remote system name** (the print server name; must match what is in hosts file or use print server IP address).
 - **Remote printer queue** (Print server binary or text service name, e.g. BINARY_P1 or TEXT_P1).
 - **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:
 - **Name of queue to add** (user selectable).
 - **Activate the queue** (Yes).
 - **Destination host** (print server name; must match name in `/etc/hosts` file or use the print server IP address)
 - **Name of queue on remote printer** (print server binary or text service name, eg. `BINARY_P1` or `TEXT_P1`).
 - **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` 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 name of the printer that will be used to spool to.
- 4 Deselect **Use External remote Printing Protocol...**
- 5 To eject the printed page, add the command `rp=lpaf` to the `/etc/printcap` file.

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 interfaces, 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.

Older SCO UNIX® Systems

The Brother print servers support the FTP protocol. Earlier SCO UNIX® systems are often configured to print using the FTP protocol.

IBM AS/400

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) RMTprtQ(<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.

For example:

```
CRTOUTQ OUTQ(BR1) RMTSYS(*INTNETADR)
RMTprtQ(BINARY_P1) AUTOSTRWTR(1) CNNTYPE(*IP)
DESTTYPE(*OTHER) MFRTYPMDL(*HP5SI)
INTNETADR('10.0.0.200') TEXT('Arnes Printer')
```

If you are using A4 paper, you may find that the printer page formatting is incorrect (this is probably because your AS/400 system is set to Letter sized paper), to resolve this problem, do the following:

Edit the **Host Print Transform** source code:

```
RTVWSCST DEVTYPE(*TRANSFORM) MFRTYPMDL(*HP5SI)
SRCMBR(HP5SI) SRCFILE(MYLIB/SRC)
```

At the paper definition, alter the existing hex codes for **Letter Size**, 1B 26 6C 02 41 to hex codes for **A4 Size**, 1B 26 6C 32 36 41.

OS/400 version 4, 5, 5.1

You can also use the following command line to create a printer definition:

```
CRTDEVPRT DEVD(BR2) DEVCLS(*LAN) TYPE(3812)
MODEL(1) LANATTACH(*IP) PORT(9100) FONT(011)
PARITY(*NONE) STOPBITS(1) TRANSFORM(*YES)
MFRTYPMDL(*HP5SI) PPRSRC1(*A4) PPRSRC2(*A4)
RMTLOCNAME('10.0.0.200') SYSDRVPGM(*HPPJLDRV)
TEXT('Arnes Printer')
```

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

Refer to *chapter 9* of this User's Guide to learn how to configure the IP address of the printer.

2

TCP/IP Printing

Printing from Windows NT[®]4.0, Windows[®] 2000/XP, LAN Server and Warp Server

Overview

Users of Windows NT[®]4.0 can print directly to a network-ready Brother printer using the TCP/IP protocol. Microsoft Windows NT[®]4.0 users must install Microsoft's "TCP/IP printing" protocol. Windows[®] 2000/XP users are able to send print jobs directly to the printer without installing any additional software. Brother's print server also supports 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 Automatic Private IP Addressing (APIPA) protocol automatically assigns an IP address from the range: 169.254.1.0 to 169.254.254.255. If the APIPA protocol is disabled, the default IP address of a Brother print server is 192.0.0.192. To change it, use the printer control panel (if applicable), the BRAdmin Professional, Web BRAdmin software or let your DHCP server allocate an IP address to the printer.
- 1 The default password for Brother print servers is `access`.
- 2 Windows NT[®]4.0 users must install the "Microsoft TCP/IP printing" protocol (available through the control panel applet).
- 3 Windows[®] 2000/XP users can print using TCP/IP using the standard Network Printing software and IPP protocol software built into any Windows[®] 2000/XP installation. For more information, see *Windows[®] 2000/XP IPP Printing* on page 5-9.

- 4 Windows® 95/98/Me users can send print jobs using the IPP protocol via a Windows® 2000/XP computer providing that the Microsoft Internet Print Services software is installed on the client PC, IIS is installed and running on the Windows® 2000/XP computer and that the client PC is using version 4 or later of Microsoft Internet Explorer. For more information, see *Windows® 2000/XP IPP Printing* on page 5-9.
- 5 The default name for a Brother print server is usually BRN_XXXXXX (where XXXXXX is the last six digits of the Ethernet address of the print server).

Windows NT® 4.0 and Windows® 2000/XP (TCP/IP) Configuration

If you have not already done so, install the TCP/IP protocol onto your Windows NT® 4.0 system. This is done via the **Network** icon in the **Control Panel** window of the Windows NT® 4.0 system (use the **Start** button on Windows 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 and IPP (Internet Printing Protocol). 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** 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. Select a new port from the pull-down window and select **Standard TCP/IP 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 then select the **Have Disk** option to browse to the CD-ROM. 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 choose **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, proceed to the 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®4.0 system will review protocol bindings and then you will see the **TCP/IP Properties** dialog.
- 6 Configure the host IP address, subnet mask, and gateway address in that dialog. Consult your system manager for these addresses.

- 7 Click **OK** to exit (your Windows NT[®]4.0 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 installation menu program according to the Quick Setup Guide.
- 2 Select the desired Language and then select **Install Software**. Click **For Administrators**. 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 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 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 Network Configuration Page. By default the NetBIOS name will appear as BRN_XXXXXX where XXXXXX is the last six digits of the Ethernet address. See *How to Print a Network Configuration Page* on page A-8 for information how to print the Network Configuration Page on your print server.
- 8 Click the **OK** button. When prompted you must re-boot 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 then 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, click 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 **Ports** tab and click 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 click **OK**. And then click **Close** in the **Printer Ports** dialog. You should now see the port that you have just created in the **Print to the following port(s)** setting of the printer driver.

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 an 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 9* 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

Refer to *chapter 9* of this User's Guide to learn how to configure the IP address of the printer.

3

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 feature 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 Automatic Private IP Addressing (APIPA) protocol automatically assigns an IP address from the range: 169.254.1.0 to 169.254.254.255. If the APIPA protocol is disabled, the default IP address of a Brother print server is 192.0.0.192. To change it, use the printer control panel (if applicable), the BRAdmin Professional, Web BRAdmin software or let your DHCP server allocate an IP address to the printer.
- 2 Refer to *chapter 9* of this User's Guide to learn how to configure the IP address on your printer.
- 3 The default password for Brother print servers is `access`.

- 4 Windows® 95/98/Me users can send print jobs using the IPP protocol via a Windows® 2000 computer providing that the Microsoft Internet Print Services software is installed on the client PC, IIS is installed and running on the Windows® 2000 and that the client PC is using version 4 or later of Microsoft Internet Explorer.
- 5 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.

Driver Deployment Wizard

This installer includes the Windows® PCL driver and Brother network port driver (LPR and NetBIOS).

If the administrator then installs the printer driver and port driver using this software, he can save the file to the File server or send the file in E-mail to users. Then, each user just clicks that file to have the printer driver, port driver, IP address, and so on, automatically copied to their PC.

For more information, see the Driver Deployment Wizard User's Guide on the CD-ROM.

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 has 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 9* of this User's Guide.

Installing the Brother Peer to Peer Software



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

- 1 Start the CD-ROM installation menu program according to the Quick Setup Guide.
- 2 Select the proper model and then the **Install Software** menu. Click **For Administrators**. Then select the **Network Print Software** menu to start the **Brother Network Print Software** installation program.
- 3 Click 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 Peer to Peer Print (LPR)** files and click **Next**. The installation program will create the directory for you if it does not already exist on your disk.
- 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 the Network Configuration Page. By default the NetBIOS name will usually appear as BRN_XXXXXX where XXXXXX is the last six digits of the Ethernet address. See *How to Print a Network Configuration Page* on page A-8 for information how to print the Network Configuration Page on your print server.



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 **Settings** 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 click **Next**.
- 5 Select the correct driver. Click **Next** when you are done.
- 6 If you have selected a printer driver that is already being used, you have the option of either keeping the existing driver (recommended) or replacing it. Select the desired option and click **Next**.
- 7 Select the Brother LPR port (the port name you assigned in step 6 of the "Installing the Brother Peer to Peer Software" section) and click **Next**.
- 8 Enter any desired name for the Brother printer and click **Next**. For example, you could call the printer "Networked Brother Printer".
- 9 Windows® will now ask you if you wish to print out a test page, select **Yes** and then select **Finish**.

You have now finished installing the Peer to Peer Print (LPR) software.

Adding a Second Brother LPR Port

You do not re-run the install program to add a new Brother LPR port. Instead, click 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 **Details** tab and click 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 9* of this User's Guide to learn how to configure the IP address of the printer.

4 NetBIOS Peer to Peer Printing

How to Print Using NetBIOS in Windows[®] 95/98/Me/2000/XP, Windows NT[®] 4.0, LAN Server and OS/2 Warp Server

Overview

Brother 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 Automatic Private IP Addressing (APIPA) protocol automatically assigns an IP address from the range: 169.254.1.0 to 169.254.254.255. If the APIPA protocol is disabled, the default IP address of a Brother print server is 192.0.0.192. To change it, use the printer control panel (if applicable), the BRAdmin Professional, Web BRAdmin software or let your DHCP server allocate an IP address to the printer.
- 2 Refer to *chapter 9* of this User's 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 application.

Print Server Configuration

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

When you install Windows® 95/98/Me you are asked which workgroup you belong to. The default workgroup name for Windows® 95/98/Me is `WORKGROUP`, however you could change this to anything you want. With Windows NT®4.0, Microsoft introduced the concept of "Domains". A domain offers centralized security management whereas a workgroup offers distributed security management. The print server does not care if your network consists of a Workgroup or a Domain, the only thing you must tell it is the name of the workgroup or domain. The Brother print server automatically has a default workgroup/domain name of `WORKGROUP`. If you need to change name, you can configure the Brother print server to recognize this. There are 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 (This utility can use the TCP/IP protocol or NetWare® IPX protocol - no file server necessary.)
- Use a Web browser (the print server must have a valid IP address and your computer must also have a valid IP address); you can configure the IP address by using BRAdmin.
- TELNET, again your computer and printer must have a valid IP address.
- Use BRCONFIG for DOS (this utility requires a NetWare® file server and the IPX protocol).



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

Changing the Workgroup/Domain Name Using TELNET or BRCONFIG or a Web Browser

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

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

Now enter the command:

```
SET NETBIOS DOMAIN domainname  
EXIT
```

Where `domainname` is the name of the domain or workgroup that you are on. If you are not sure what your domain name or workgroup name is, look in the Identification tab in your Windows® 95/98/Me and Windows 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 **Network Configuration** screen, then enter your workgroup/domain name into the **Domain Name** text box. Make sure you submit the changes (click on the **Submit** button).

NetBIOS Port Monitor for Windows® 95/98/Me/2000/XP and Windows NT®4.0

This software requires the TCP/IP transport protocols to be installed on your Windows® 95/98/Me/2000/XP and Windows NT®4.0 computer. To install those protocols 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



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

- 1 Start the CD-ROM installation menu program according to the Quick Setup guide.
- 2 Select the proper model and then the **Install Software** menu. Click **For Administrators**. Then select the **Network Print Software** menu to start the **Brother Network Print Software** installation program.
- 3 Click 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 click **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 click **OK**. The name must be unique on your PC, however other computers can use the same port name as the name you specify on your PC.

- 7 You must now enter the server name and port name for the actual print server. You can use the **Browse** button to search for the print server, select the domain/workgroup name, and then the server is listed. If the print server does not automatically appear in your browse list, then you must ensure that the domain name is configured correctly. Otherwise you must enter the name manually. The name should be compliant with UNC (Universal Name Convention). For example:
`\\NodeName\ServiceName.`

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

```
\\BRN_310107\BINARY_P1
```



You can find the NetBIOS name and MAC address by printing out the Network Configuration Page. See *How to Print a Network Configuration Page* on page A-8 for information on how to print the Network Configuration Page on your print server.

- 8 Then click **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, Windows NT®4.0 and Windows® 2000/XP systems using the standard Windows® printer setup procedure. To do this, go 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 click **Next**.
- 5 Select the correct driver. Click **Next** when you are done.
- 6 If you have selected a printer driver that is already being used, you have the option of either keeping the existing driver (recommended) or replacing it. Select the desired option and click **Next**.
- 7 Select the **Brother NetBIOS Port** (the port name you assigned in step 6 of the "Installing the Brother NetBIOS Port Monitor" section and click **Next**.
- 8 Enter any desired name for the Brother printer and click **Next**. For example, you could call the printer "Networked Brother Printer".
- 9 Windows® will now ask you if you wish to print out a test page, select **Yes** and then select **Finish**.

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

Windows NT® 4.0 /Windows® 2000/XP

- 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 (Windows® XP) when you are asked how the printer is connected to your computer, and then click **Next**.
- 5 Select the **Brother NetBIOS Port** (the port name you assigned in step 6 of the "Installing the Brother NetBIOS Port Monitor" section and click **Next**.
- 6 Select the correct driver. Click **Next** when you are done.
- 7 If you have selected a printer driver that is already used, you have the option of either keeping the existing driver (recommended) or replacing it. Select the desired option and click **Next**.

- 8 Enter any desired name for the Brother printer and click **Next**. For example, you could call the printer "Networked Brother Printer".
- 9 Select **Not Shared** or **Shared** and **Share Name** and click **Next**.
- 10 Windows® will now ask you if you wish to print out a test page, select **Yes** and then select **Finish**.

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

Adding a Second NetBIOS Print Port

- 1 You do not need to re-run the installation program to add a new NetBIOS port. Instead, click the **Start** button, select **Settings**, and open the **Printers** window. Click 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 click the **Add Port** button. In the **Add Port** dialog, select the **Other** radio button and then highlight **Brother NetBIOS port**. Click **OK** and enter the port name. The default port name is BNT1. If you have already used this name, you will get an error message if you try to use it again, in which case use BNT2, etc... Once you have specified the port name, click the **OK** button. You will then see the **Port Properties Dialog**. Enter the print server and port name of the printer that you wish to print to and click **OK**. You should now see the port that you have just created in the **Print to the following port** setting of the printer driver.

Windows NT®4.0 / Windows® 2000/XP

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

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 (usually *BRN_XXXXXX* by default, where *XXXXXX* is the last six digits of Ethernet address) and *ServiceName* is the service name of the print server (*BINARY_P1* by default).

For example:

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



You can find the NetBIOS name and MAC address by printing out the Network Configuration Page. See *How to Print a Network Configuration Page* on page A-8 for information on how to print the Network Configuration Page on your print server.

Other Sources of Information

- 1 Visit <http://solutions.brother.com> for more information on network printing.
- 2 Refer *chapter 9* of this User's Guide to learn how to configure the IP address of the printer.

Printing for Windows®

Internet Printing Installation

Overview

Brother's Brother Internet Print (BIP) software, for Windows® 95/98/Me and Windows NT®4.0, allows a PC user at one location to send a print job to a Brother Printer at a remote location via the Internet. For example, a user on a PC in New York could print a document directly from his Microsoft Excel application program to a printer in Paris.

Windows® 2000/XP users can also use this BIP software, but are recommended to use the IPP protocol support that is part of the Windows® 2000/XP operating systems. Skip to the "Windows® 2000 IPP Printing" section of this document.

Quick Tips:

- 1 The Automatic Private IP Addressing (APIPA) protocol automatically assigns an IP address from the range: 169.254.1.0 to 169.254.254.255. If the APIPA protocol is disabled, the default IP address of a Brother print server is 192.0.0.192. To change it, use the printer control panel (if applicable), the BRAdmin Professional, Web BRAdmin software or let your DHCP server allocate an IP address to the printer.
- 2 Refer to *chapter 9* of this User's 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 and IPP protocol software built into any Windows® 2000/XP installation.

- 5 Windows® 95/98/Me users can send print jobs using the IPP protocol via Windows® 2000 computer, provided that the Microsoft Internet Print Services software is installed on the client PC, Internet Information Server (IIS) is installed and running on the server and that the client PC is using version 4 or later of Microsoft Internet Explorer.

Brother Internet Print General Information

The BIP software is installed using a standard Windows® 95/98/Me/2000/XP and Windows NT®4.0 Installation Wizard. It creates a virtual port on the Windows® 95/98/Me/2000/XP and Windows NT®4.0 PC that operates in a similar way to the standard LPT1 printer port from the application program point of view. The user can use the Windows® 95/98/Me/2000/XP and Windows NT®4.0 Print Manager to create a printer that uses this port along with a standard Windows® 95/98/Me/2000/XP and Windows NT®4.0 compatible printer. Any Windows® 95/98/Me/2000/XP and Windows NT®4.0 applications program can therefore print to this printer (and hence to the virtual port) without modification or operational procedure.

When a job is printed to the BIP virtual port, it is actually MIME-encoded (converted to a standard Internet E-mail message) and sent out to a Brother print server at the remote location. 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 e-mail 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 using BRAdmin, 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 E-mail address; for example, if you assign the E-mail 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 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, or the IPX protocol.

The steps required to configure the print server to receive print jobs from a Windows® 95/98/Me/2000/XP and Windows NT®4.0 PC running the BIP software is as follows:

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



You can find the node name and MAC address by printing out the Network Configuration Page. See *How to Print a Network Configuration Page* on page A-8 for information on how to print the Network Configuration Page on your print server.

- 3 Click on the **POP3/SMTP** tab.
- 4 Enter the 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 address of your SMTP server (consult your network administrator if you do not know this address).
- 9 Click the **OK** button and save the changes. Now exit the BRAdmin application. 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 print 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 POP3/SMTP option and enter the information as described above. Refer to "*Brother Internet Print: Using a Web Browser 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 or a Web Browser to configure the remote print server.

As an alternative to BRAdmin, 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 address
```

where `ipaddress` is the 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 Windows® 95/98/Me/2000/XP and Windows NT®4.0

To install the BIP software on a Windows® 95/98/2000/XP and Windows NT®4.0 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 **Install Software** menu. Click **For Administrators**. Then select the **Network Print Software** menu to start the **Brother Network Print Software** installation program.
- 3 Click 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 click **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 the mail server.
- 8 Click **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 the **Notification** type.

- 10 Click **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/2000/XP and Windows NT®4.0 system using the standard Windows® 95/98/Me/2000/XP and Windows NT®4.0 printer setup procedure. To do this, go the **Start** button, select **Settings** and then **Printers**.

12 Select **Add Printer** to begin the printer installation.

13 Click **Next** when you get the **Add Printer Wizard** window.

<**For Windows® 95/98/Me users**>

14 Select **Local Printer** when you are asked how the printers are connected to your computer and click **Next**.

<**For Windows NT®4.0 and Windows® 2000/XP users**>

14 Select **Local Printer** when you are asked how the printer is connected to your computer, and then click **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 CD-ROM. 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 click **Next**.

17 Select the **Brother Internet port** (BIP...) which you selected in step 6 and click **Next**.

<**For Windows NT®4.0 and Windows® 2000/XP users**>

15 Select the **Brother Internet port** (BIP...) which you selected in step 6 and click **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 CD-ROM. 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 click **Next**.
- 18 Enter any desired name for the BIP remote printer and click **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 the 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, click the **Start** button, select **Settings**, and open the **Printers** window. 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® 4.0, Windows® 2000/XP)** tab and click 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® 4.0, Windows® 2000/XP)** and it will give you the **Port Name** text box. 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.

Windows® 2000/XP IPP Printing

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

- 1 Run the **Add Printer Wizard** and click the **Next** button when you see the **Welcome to the Add Printer Wizard** screen.

- 2 You are now able to select **Local Printer** or **Network Printer**.
For Windows® 2000: Make sure that you select **Network Printer**.
For Windows® XP: Make sure that you select **A Network Printer, or a Printer attached to another computer**.
- 3 You will see the **Add Printer Wizard** screen.
- 4 For Windows® 2000: Select **Connect to a printer on the Internet or on your intranet** and then enter the following in the URL field: `http://printer_ip_address:631/ipp`
(Where `printer_ip_address` is the IP address or DNS name of your printer).

For Windows® XP: Select **Connect to a printer on the Internet or on a home or office network** and then enter the following in the URL field: `http://printer_ip_address:631/ipp`
(Where `printer_ip_address` is the IP address or DNS name of your printer).
- 5 When you click **Next**, Windows® 2000/XP will make a connection with the URL that you specified.

If the printer driver has already been installed:

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

If the printer driver has NOT been installed:

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

- 6 Click **OK**. You will then see the printer selection screen in the **Add Printer Wizard**.
- 7 If your printer is not in the list of supported printers, click the **Have Disk** button. You will then be asked to insert the driver disk.

- 8 Click the **Browse** button and select the CD-ROM or network share that contains the appropriate Brother printer driver.
- 9 Now specify the model name of the printer.
- 10 If the printer driver that you are installing does not have a Digital Certificate you will see a warning message. Click **Yes** to continue with the installation. The **Add Printer Wizard** will then complete.
- 11 Click the **Finish** button and the printer is now configured and ready to print. To test the printer connection, print a test page.

Specifying a Different URL

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

http://printer_ip_address:631/ipp

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

http://printer_ip_address:631/ipp/port1

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

http://printer_ip_address:631/

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

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

```
http://printer_ip_address:631/brn_XXXXXX_p1  
http://printer_ip_address:631/binary_p1  
http://printer_ip_address:631/text_p1  
http://printer_ip_address:631/postscript_p1  
http://printer_ip_address:631/pcl_p1  
http://printer_ip_address:631/brn_XXXXXX_p1_at
```

Where `printer_ip_address` is the IP address of the printer.

Other Sources of Information

- 1 Visit <http://solutions.brother.com> for more information on network printing and for documents on the IPP protocol and how to configure a Windows® 2000/95/98/Me System.
- 2 Visit Microsoft's web site for the "Microsoft Internet Print Services" software for Windows® 95/98/Me.
- 3 Refer to *chapter 9* of this User's Guide to learn how to configure the IP address of the printer.

6 Novell® NetWare® Printing

How to Configure Novell® NetWare® Printing

Overview

Brother print servers allow NetWare® client PCs to print jobs on the same printer as TCP/IP or other network protocol users. All NetWare® jobs are spooled through the Novell® server and delivered to the printer when it is available.

Quick Tips:

- 1 If you create a NDPS Printer for Netware® 5, you have to configure the IP address of the print server in advance. The Automatic Private IP Addressing (APIPA) protocol automatically assigns an IP address from the range: 169.254.1.0 to 169.254.254.255. If the APIPA protocol is disabled, the default IP address of a Brother print server is 192.0.0.192. To change it, use the printer control panel (if applicable), the BRAdmin Professional, Web BRAdmin software or let your DHCP server allocate an IP address to the printer.
- 2 The default password for Brother print servers is `access`.

General Information

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

The system administrator can create Bindery (NetWare® 3), NDS (NetWare® 3 and NetWare® 4) based queues in a single environment without having to switch between applications by using the BRAdmin application.

NetWare® 5 users wishing to configure an NDPS printer must use the NWADMIN application supplied with NetWare® 5. Please note that it is possible to create IPX BINDERY or NDS based queues on a NetWare® 5 system using the BRAdmin application.

You must install the Novell® NetWare® Client 32 if you wish to create queue information on your NetWare® servers using the BRAdmin application.

If you can't use the BRAdmin application in your environment, you can create the queue using the traditional NetWare® PCONSOLE utility or NWADMIN utilities, but you will then also need to use the Brother BRCONFIG utility, TELNET or a WWW browser to configure the print server.

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

Creating a NDPS Printer Using NWADMIN for NetWare® 5

With NetWare® 5, Novell® has released a new preferred printing system called Novell® Distributed Print Services (NDPS). Before the print server can be configured, NDPS must be installed on the NetWare® 5 server and an NDPS Manager configured on the server.



For further information regarding NDPS printers and printing, see the *Other Sources of Information* section at the end of this chapter.

NDPS Manager

This creates a NDPS manager that interacts with services running at the server and manages an unlimited number of printer agents.

You have to create an NDPS manager within an NDS tree before creating server-based printer agents. If the NDPS manager controls a printer attached directly to the server, you must load the manager on the server that the printer is attached to.

- 1 In NetWare® administrator, navigate to the area you want the NDPS manager to reside. Select **Object | Create | NDPS Manager** and click **OK**.
- 2 Enter an **NDPS manager name**.
- 3 Browse to a server (which has NDPS installed but no NDPS manager installed) where you want to install the NDPS manager and then to the volume you want the NDPS manager database assigned to. Click **create**.

NDPS Broker

When NDPS is installed, an NDPS broker is loaded onto the network. One of the Broker services Resource Management Service allows Printer Drivers to be installed onto the server for use with Printer Agents.

To add a Printer Driver to the Broker:

- 1 Make sure the **Resource Management Service** is enabled.
- 2 Open the **Broker Object's** main window in NetWare® Administrator
- 3 Select the **Resource Management** view.
- 4 The **Resource Management** dialog appears. Select the **Add Resources** button.
- 5 When the **Manage Resources** dialog appears, select the icon for the type of driver you want to add. This will be a 3.1x, 95/98/Me or NT4.0 driver for NetWare® 5 (Additionally, a Windows® 2000 driver is available for NetWare® 5.1). If you are using NDPS version 1 with NetWare® 4.x, only 3.1x and 95/98/Me options will be available. NDPS version 2 for NetWare® 4.x will support Windows NT®4.0 drivers automatic download.
- 6 A complete list of currently loaded resources of that type appears in the **Current Resources** window. Click the **Add** button.
- 7 The **Add <resource type>** dialog appears. The listed resources that appear on this screen are currently installed.
- 8 Click the **Browse** button to locate the driver you want to add to the list. The driver list appears possibly showing several printers. This should be the driver in the different languages.

Creating a Printer Agent

Follow the steps below to create a Printer Agent for the control access printer (NDS object).

- 1 In NetWare® Administrator, select **object | create | NDPS Printer**. Enter the NDPS printer name.
- 2 If this is a new printer select **create A New Printer Agent**.
- 3 If there is already an NDS printer and you are upgrading it to use the NDPS scheme, select **Existing NDS printer object**. You will then have to select which printer object you wish to upgrade.
- 4 Enter the name you wish the Printer Agent to be referred to by, and either type the name of the NDPS Manager or click the reference button and select a NDPS Manager. Select **Novell Printer Gateway** for the **Gateway type** and click **OK**.
- 5 Select **None** for the printer Type, and **Novell Port Handler** for the Port Handler Type. Then click **OK**.
- 6 You must now specify the type of connection that you are going to use. There are four possible options. Select the **LPR over IP** option.
- 7 Enter the relevant details of the printer, and Brother recommends typing `Binary_P1` for the printer name. Click **finish** and wait. Select the printer drivers for the client operating systems.

Follow the steps below to create a Printer Agent for the public access printer.

- 1 In NetWare® Administrator, double click **NDPS Manager**.
- 2 Click **Printer Agent List**.
- 3 Click **New**.
- 4 Enter the name you wish the Printer Agent to be referred to by, and select **Novell Printer Gateway** for the **Gateway type** and click **OK**.

- 5 Select **None** for the printer Type, and **Novell Port Handler** for the Port Handler Type. Then click **OK**.
- 6 You must now specify the type of connection that you are going to use. There are four possible options. Select the **LPR over IP** option.
- 7 Enter the relevant details of the printer and Brother recommends typing `Binary_P1` for the printer name. Click **finish** and wait. Select the printer drivers for the client operating systems.

You are now ready to print.

Configuring NetWare® 3 and NetWare® 4 Systems

Brother's BRAdmin application provides similar functionality to the NetWare® PCONSOLE utility (or the NWADMIN utility in NetWare® 4.1x or later). To use the BRAdmin application to configure a Brother print server under NetWare®, make sure that you are logged in as SUPERVISOR (NetWare® 2.xx or 3.xx) or ADMIN (NetWare® 4.1x or later) and perform the appropriate steps as detailed in the following pages.



You must install the Novell® NetWare® Client 32 if you wish to create queue information on your NetWare® servers by BRAdmin.

Creating the NetWare® Print Server (Bindery Queue Server) Using BRAdmin Professional Utility

- 1 Make sure that you logged in as SUPERVISOR (NetWare® 2.xx or 3.xx) or ADMIN (NetWare® 4.xx or later).
- 2 Start BRAdmin.

- 3 One or more print servers will appear in the list (the default node names are BRN_XXXXXX, where XXXXXX is the last six digits of the Ethernet address (MAC address)).



You can find the node name and MAC address by printing out the Network Configuration Page. See *How to Print a Network Configuration Page* on page A-8 for information on how to print the Network Configuration Page on your print server.

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



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

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

Now exit the BRAdmin application. You are ready to print.

Creating the NetWare® Print Server (NDS Queue Server) Using BRAdmin Professional Utility

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



You can find the node name and MAC address by printing out the Network Configuration Page. See *How to Print a Network Configuration Page* on page A-8 for information on how to print the Network Configuration Page on your print server.

- 4 Select the printer that you wish to configure and double click it. You will be asked for a password. The default password is `access`.
- 5 Select the **NetWare** tab.
 - a If it is not already selected, select **Queue Server** as the operating mode.
 - b Select the correct NDS tree and NDS context (you can manually enter this information, or by clicking on the down arrow by the side of NDS tree and the **Change** button by the side of NDS Context, you can let BRAdmin display your choices automatically). Once you have specified this information, click on the **Change NDS queues** button.
 - c In the **NetWare Print Queues** screen select the appropriate **TREE** and Context and then click the **New Queue** button.
 - d Enter the queue name and specify the volume name. If you do not know the volume name, select the **Browse** button to browse the NetWare® volumes. When the information is entered correctly, select the **OK** button.

- e Your queue name will appear in the TREE and Context that you specified. Select the queue and click on **Add**. The queue name will then be transferred to the Service Print Queues Window. You will be able to see the TREE and Context information along with the queue name information in this Window.
- f Click on the **Close** button. Your Brother print server will now log into the appropriate NetWare® server.

Now exit the BRAdmin application. You are ready to print.

Creating the NetWare® Print Server (NDS Queue Server) Using Novell® NWADMIN and BRAdmin Professional Utility

If you do not wish to use the Brother BRAdmin application solely to configure your NetWare® file server, use the following instructions for configuration using the NWADMIN application in conjunction with the BRAdmin application.

- 1 Make sure that you are logged in as ADMIN in NDS mode on the NetWare® 4.1x (or later) file server and start the NWADMIN application.
- 2 Select desired **Context** that will contain the Printer and then click on **Object** from the menu bar and then **Create**. When you get the **New Object** menu, select **Printer** and then **OK**.
- 3 Enter the name of the printer and select **Create**.
- 4 Select the desired **Context** that will contain the default print queue, and then click on **Object** and **Create** to get the **New Object** menu.
- 5 Select **Print Queue** and then **OK**. Make sure that **Directory Service Queue** is selected and then type in a name for the default print queue.
- 6 Click on the button to select the print queue volume. Change the directory context if necessary, then select the desired volume (from **Available Objects**) and click **OK**. Click **Create** to create the print queue.

- 7 Change context if required and then double click the name of the printer you created in step 3.
- 8 Click **Assignments**.
- 9 Click **Add**.
- 10 Change the context if necessary.
- 11 Select the print queue you created in step 5.
- 12 Click **Configuration** and set the **Printer type** to **Other/Unknown**. Click **OK**.
- 13 Change the context if required, select **Object** from the menu bar and then **Create**. When you get the **New Object** menu, select **print server** and then **OK**.
- 14 Enter the name of the print server and select **Create**.



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

You can find the current service name and MAC address by printing out the Network Configuration Page. See *How to Print a Network Configuration Page* on page A-8 for information on how to print the Network Configuration Page on your print server.

Important:

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

- 15 Double click on the name of your print server. Click on **Assignments** and then **Add...**
- 16 If necessary, change the directory context. Select the printer you created in step 3 and click **OK** and then **OK** again.
- 17 Exit NWADMIN.

- 18 Start the appropriate BRAdmin application, and select the correct print server from the list (by default, the node name is BRN_XXXXXX, where XXXXXX is the last six digits of the Ethernet address (MAC address)).
- 19 Double click the appropriate Brother print server. You will be prompted for a password, the default password is `access`. Now select the NetWare® tab.
- 20 Select **Queue Server** as the operating mode.

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



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

- 21 Enter the NDS tree name (note that a print server can service both NDS and bindery queues).
- 22 Type in the name of the context where the print server resides.
- 23 Exit the BRAdmin application making sure that you save the changes that you have made. You are now ready to print.

Creating the NetWare Print Server (NDS Remote Printer) Using Novell® NWAdmin and BRAdmin Professional Utility

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

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

12 Change context if necessary and select the print queue you created. Click **OK** and then **OK** again, and then exit NWADMIN.

13 Start the appropriate BRAdmin application, and select the correct print server you wish to configure (by default, the node names will begin with BRN_XXXXXX, where XXXXXX is the last six digits of the Ethernet address (MAC address)).



You can find the NetWare® server name and MAC address by printing out the Network Configuration Page. See *How to Print a Network Configuration Page* on page A-8 for information on how to print the Network Configuration Page on your print server.

14 Double click the appropriate print server. You will be prompted for a password, the default password is `access`.

15 Now select the **NetWare** tab.

16 Select **Remote Printer** as the **Operating Mode**, select the name of your PSERVER NLM as the print server Name and select the number of the printer from step 6 as the Printer Number.



The same service assigned by NetWare® print server cannot be used for both queue server mode and remote printer mode. If you want to enable remote printer capabilities on a service other than the default NetWare® service, you must define new services that are enabled for NetWare® and for the desired port.

17 Click **OK**. And exit BRAdmin.

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

As an alternative to Brother's BRAdmin application or the Novell® NWADMIN application, you can use the standard Novell® PCONSOLE utility in conjunction with Brother's BRCONFIG program to set up your print queues. BRCONFIG program will be installed at the same time when you install the BRAdmin and you can find the BRCONFIG in the menu **Start/Program/Brother BRAdmin utilities**.

Configuring the Brother Print Server (Queue Server Mode in Bindery Emulation Mode) Using PCONSOLE and BRCONFIG

- 1 Login as `Supervisor` (NetWare® 3.xx) or `ADMIN` (NetWare® 4.1x or later; be sure to specify the `/b` option for bindery mode).
- 2 Execute BRCONFIG from the Windows® menu.
- 3 Select the corresponding server name from the list of print servers.
- 4 When you get the message that the print server is connected, type the default password `access` in response to the `#` prompt (the password will not echo), and then press the **ENTER** key in response to the `Enter Username>` prompt.
- 5 When you get the `Local>` prompt, type:
 - 6 `SET NETWARE SERVER servername ENABLE`
Where `servername` is the name of the file server on which the print queue will reside. If there is more than one file server that you wish to print from, repeat this command as many times as necessary.
- 7 Type `EXIT` to exit the BRCONFIG remote console program and save the changes, then start the Novell® PCONSOLE utility.
- 8 If you have NetWare® 4.xx, change the mode to Bindery Mode by pressing the F4 key. Select **print server Information** (NetWare® 3.xx) or **print servers** (NetWare® 4.1x; ignore the warning message) from the **Available Options** menu.

- 9 You will be shown a list of current print servers. Press the **INSERT** key to create a new entry, type in the NetWare® print server name (BRN_XXXXXX_P1 by default, where XXXXXX is the last six digits of the Ethernet address) and press **ENTER**. Return to the main **Available Options** menu by pressing **ESCAPE**.
- 10 Select the **Print Queue Information** (NetWare® 3.xx) or **Print Queues** (NetWare® 4.1x) menu option to see list of configured print queues.
- 11 Press **INSERT** to create a new queue on the file server, type the new queue name and press **ENTER**. The name does not have to be related to the name of the print server resources, but should be short and convenient for users to remember.
- 12 Make sure that the new queue name is highlighted, and then press **ENTER** to configure the queue.
- 13 Select **Queue Servers** (in NetWare® 4.1x, this item is called **print servers**) and press **ENTER** to specify which network print servers can print jobs from this print queue. The list will be empty, since none have been selected yet if this is a new queue.
- 14 Press **INSERT** to get a list of the queue server candidates and select the print server service name from step 9, Press **ENTER**.
- 15 Press **ESCAPE** several times until you return to the **Available Options** menu.

Force the print server to rescan file servers for print jobs. You may either turn the printer off and on again or you may use the BRCONFIG or TELNET command `SET NETWARE RESCAN` to make the print server rescan for file servers.

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

- 1 Make sure that you are logged in as `ADMIN` in NDS mode on the NetWare® 4.1x file server.
- 2 Run the PCONSOLE utility from PC workstation.

- 3 Select print servers from the **Available Options** menu.
- 4 Press **INSERT** and enter the print server name.



Enter the NetWare® print service name of the print server exactly as it appeared in the Network Configuration Page (the default name is BRN_XXXXXX_P1, where XXXXXX is the last six digits of the Ethernet address (MAC address), unless you changed the name to something else). You can find the NetWare® print service name and MAC address by printing out the Network Configuration Page. See *How to Print a Network Configuration Page* on page A-8 for information on how to print the Network Configuration Page on your print server.

Important:

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

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

- 12 Press **INSERT** and enter a descriptive name for the printer.
- 13 Make sure that the new printer name is highlighted, and then press **ENTER**. You will be shown the **Printer Configuration Window**.
- 14 Select **Print Queues Assigned: (See List)**, and then press **ENTER**.
The list of print queues will be empty, since none has been selected.
- 15 Press **INSERT** to get a list of the print queues and select the print queue name which you entered in Step 7.
- 16 Press **ESCAPE** several times and go back to the **Available Options** menu.
- 17 Select **print servers** and select the name of the print server that you entered in Step 4.
- 18 Highlight the **Printers** option in the **print server Information** menu.
- 19 Press **INSERT** and select the name of the printer you entered in Step 12.
- 20 Press **ESCAPE** several times to return to DOS.
- 21 Execute the BRCONFIG from the Windows[®] menu.

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

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

- Where `tree` is the NDS tree name.
- Where `context` is the name of context where the print server resides.

- Service is the name of the service assigned by NetWare® print server name (where the default services are BRN_XXXXXX_P1 for the Brother printer, where XXXXXX is the last six digits of the Ethernet address (MAC address)).
- You can also enter the TREE and CONTEXT name using your web browser, by connecting to the Brother print server using the TCP/IP protocol and selecting the **NetWare protocol configuration**.

22 Use the BRCONFIG command or TELNET command: SET NETWARE RESCAN to force the print server to rescan for file servers, or power cycle the printer.



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

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

- 1 Make sure that the PSERVER NLM (NetWare® Loadable Module) is loaded on your file server.
- 2 Log into the file server from your PC workstation as ADMIN if you are using NetWare® 4.1x (if you want NDS support, do not login under bindery mode). If you are using NetWare® 2.xx or 3.xx, login as SUPERVISOR.
- 3 Run the PCONSOLE utility from your PC workstation.
- 4 If you are creating a new print queue, select **Print Queue Information** (NetWare® 3.xx) or **Print Queues** (NetWare® 4.1x) from the **Available Options** menu.

- 5 Press **INSERT**, type in the desired print queue name (with NetWare® 4.1x, you will also be asked for a volume name; press **INSERT** and select the appropriate volume), and press **ESCAPE** to return to the main menu.

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

6

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

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

6

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

Assigning the Remote printer name and number using BRCONFIG

7

- a* Execute the BRCONFIG from the Windows® menu.

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

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

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

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

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

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



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

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

Other Sources of Information

- 1 Visit <http://solutions.brother.com> for more information on network printing.
- 2 Refer to *chapter 9* of this User's Guide to learn how to configure the IP address of the printer.

7

Printing From a Macintosh®

Printing from a Macintosh® Using AppleTalk® and TCP/IP or the Simple Network Configuration capabilities of Mac OS® X.

Overview

Brother print servers 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.

NC-7100w Brother wireless print server supports Mac OS® X 10.1 to 10.3. You can use the TCP/IP printing capability for any Mac OS® X version. This allows Macintosh® users to send print jobs using the TCP/IP protocol.

With the release of Mac OS® X 10.2, Apple® introduced Simple Network Configuration capabilities. These Simple Network Configuration capabilities support automatic network configuration. If you choose to use the the Simple Network Configuration capabilities features of your Brother product, you usually do not need to configure any IP address settings yourself.

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

Quick Tips:



- 1 The default name that will appear in the **Print Center** of a Macintosh® will usually be BRN_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 printer using a web browser and then click on **Network Configuration**. Enter the password (the default password is *access*) then select **Configure AppleTalk**. Click on BRN_XXXXXX_P1_AT, then on **Service Name**. Enter the new name that you wish to appear in **Print Center**. Then click on **Submit**.
- 3 The default password for Brother print servers is *access*.
- 4 See *How to Print a Network Configuration Page* on page A-8 for information on how to print the Network Configuration Page on your print server.
- 5 The Automatic Private IP Addressing (APIPA) protocol automatically assigns an IP address from the range: 169.254.1.0 to 169.254.254.255. If the APIPA protocol is disabled, the default IP address of a Brother print server is 192.0.0.192. To change it, use the printer control panel (if applicable), the BRAdmin Professional, Web BRAdmin software or let your DHCP server allocate an IP address to the printer.

Macintosh® Configuration (Mac OS® X 10.1 to 10.3)

The appropriate PPD file supplied with your printer must be installed. Insert the CD-ROM into the CD-ROM drive of your computer. Double click the **Start Here OS X** icon. Select your language and follow the on-screen instructions for **Install Software**.



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 From the **Go** menu, select **Applications**.
- 3 Open the **Utilities** folder.
- 4 Open the **Print Center** icon.
- 5 Click the **Add Printer** button.
- 6 Select **AppleTalk**.
- 7 Select BRN_XXXXXX_P1_AT and click the **Add** button.

For AppleTalk® connections, the printer's AppleTalk® service name is BRN_XXXXXX_P1_AT, where XXXXXX is the last six digits of the Ethernet address.

Printing the Network Configuration Page will allow you to confirm the MAC address. See *How to Print a Network Configuration Page* on page A-8 for information on how to print the Network Configuration Page on your print server.

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 From the **Go** menu, select **Applications**.
- 3 Open the **Utilities** folder.
- 4 Open the **Print Center** Icon.
- 5 Click the **Add Printer** button.
- 6 Select **LPR Printers using IP**.
- 7 Enter the TCP/IP address of the printer into the **LPR Printer's Address** box.

Printing the Network Configuration Page will allow you to confirm the TCP/IP address. See *How to Print a Network Configuration Page* on page A-8 for information on how to print the Network Configuration Page on your print server.

- 8 If you are not using the default **Queue** enter the Queue name you are using.
- 9 From the **Printer Model** pull-down list select your model.
- 10 Click **Add** and the printer will be available from the **Printer List**.

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

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

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

Please note that Brother recommends that you use Mac OS® X 10.2.4 or later version.

How to Select the Printer Driver

- 1 From the **Go** menu, select **Applications**.
- 2 Open the **Utilities** folder.
- 3 Open the **Print Center** icon.
- 4 Click the **Add Printer...** button.
- 5 Select Rendezvous and any available machines which are compatible with Simple Network Configuration capabilities will be displayed.



If you are using Mac OS® X 10.2.1, three printers will be listed. Select any one of these listed.

- 6 Select **Brother** from the **Printer Model**.
- 7 Select **Model Name**, and then click **Add**. The PPD files installed in your Macintosh® will be displayed. Select the relevant PPD file. The Brother printer will be displayed.
- 8 Click the printer, then click the **Make Default** to set the printer as the default printer. The printer is now ready to print.

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.

Other Sources of Information

- 1 Visit <http://solutions.brother.com> for more information on network printing.
- 2 Refer to *chapter 9* of this User's Guide to learn how to configure the IP address of the printer.
- 3 Refer to *chapter 8* for more information on web-based management.

How to use a Web Browser to Manage Your Device

Overview

A standard 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 a printer on your network using a web browser:

- 1 Printer status information.
- 2 Take control of the printer's control panel.
- 3 Software version information of the printer and print server.
- 4 Change network and printer settings details.

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

Quick Tips:

- 1 The Automatic Private IP Addressing (APIPA) protocol automatically assigns an IP address from the range: 169.254.1.0 to 169.254.254.255. If the APIPA protocol is disabled, the default IP address of a Brother print server is 192.0.0.192. To change it, use the printer control panel (if applicable), the BRAdmin Professional, Web BRAdmin software or let your DHCP server allocate an IP address to the printer.
- 2 Refer to *chapter 9* of this User's 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 able to connect to the printer and manage it.
- 5 You can also use the BRAdmin application to manage the printer and its network configuration.

How to Connect to Your Printer Using a Browser

Type `http://printer's IP Address /` into your browser (you can also use the NetBIOS name of the print server, if you are in a Microsoft® Windows® domain/Workgroup environment). Enter the DNS name of the printer if connecting to a network that uses the DNS protocol.

Other Sources of Information

- 1 Visit <http://solutions.brother.com> for more information on network printing.
- 2 Refer to *chapter 9* of this User's Guide to learn how to configure the IP address of the printer.

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.

The Automatic Private IP Addressing (APIPA) protocol automatically assigns an IP address from the range: 169.254.1.0 to 169.254.254.255. If the APIPA protocol is disabled, the default IP address of a Brother print server is 192.0.0.192. However, you can easily change this IP address number to match with the IP address details of your network. This can be done in any of the following ways:

- From your printer's control panel settings (if your printer has an LCD panel).
- BRAdmin application (for Windows® 95/98/Me, Windows NT®4.0 and Windows® 2000/XP, using the IPX/SPX or TCP/IP protocols).
- DHCP, APIPA, Reverse ARP (rarp) or BOOTP.
- The ARP command.
- Brother BRCONFIG NetWare® utility (a Novell® Network is necessary).
- TELNET.
- HTTP (Web browser).
- 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).

Using the Printer Control Panel to Allocate an IP Address (Printers with LCD Panels Only)

Refer to the Quick Setup Guide for details on how to configure IP address information using the printer control panel. By using the control panel on the printer, you can program the IP address details at the same time that other printer parameters are configured.

Changing the IP Address Using the BRAdmin Application



Please use BRAdmin Professional version 1.59 or later.

Start the BRAdmin application (from Windows[®] 95/98/Me, Windows NT[®]4.0 and Windows[®] 2000/XP).

The BRAdmin application can use the IPX/SPX or TCP/IP protocols to communicate with the Brother print server.

If you wish to use the TCP/IP protocol to manage the print server make sure that the print server has a valid IP address. There are two ways to change the IP address using the BRAdmin Professional utility:

- Use the IPX/SPX protocol.
- Use the TCP/IP protocol and let BRAdmin find the Brother print server as an unconfigured device.

Using BRAdmin and the IPX/SPX Protocol to Set the IP Address

If your PC is using the Novell® NetWare® Client software and is using the IPX/SPX protocol, do the following:

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

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



You can find the node name and MAC address by printing out the printer Network Configuration Page. See *How to Print a Network Configuration Page* on page A-8 for information on how to print the Network configuration Page on your print server.

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

Restart the print server by using BRAdmin, Web Browser or TELNET. If you are not sure how to restart the print server, you may simply turn the printer's power switch off, and then switch it on.

Using BRAdmin and the TCP/IP Protocol to Set the IP Address

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

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



If the print server is set to its factory default settings without using a DHCP server, the device will appear as APIPA in the BRAdmin Professional utility screen.

- 3 Select the **Device** menu and choose **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 Network Configuration Page. See *How to Print a Network Configuration Page* on page A-8 for information on how to print the Network Configuration Page on your print server.

- 5 Enter 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

The 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[®]/Linux, Windows NT[®]4.0, Windows[®] 2000 or Novell[®] NetWare[®] network) the print server will automatically obtain its IP address from DHCP server and register its name with any RFC 1001 and 1002-compliant dynamic name services.



If you do not want your print server configured via DHCP, BOOTP or RARP, you must set the BOOT METHOD to static so that the print server has a static IP address. This will prevent the print server from trying to obtain an IP address from any of these systems. To change the BOOT METHOD, use the printer's control panel (for those printers that have a LCD panel), TELNET (using the SET IP METHOD command), a Web browser or by using the BRAdmin application.

Using APIPA to Configure the IP Address

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

By default, the APIPA protocol is enabled.

Using ARP to Configure the Print Server IP Address

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

```
arp -s ipaddress ethernetaddress
```

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

Windows® Systems

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

```
arp -s 192.189.207.2 00-80-77-31-01-07
```

UNIX®/Linux Systems

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

```
arp -s 192.189.207.2 00:80:77:31:01:07
```



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 cannot use the ARP command again to change the address. The print server will ignore any attempts to do this. If you wish to change the IP address again, use a Web Browser, TELNET (using the SET IP ADDRESS command) the printer's control panel or factory reset the print server (which will then allow you to use the ARP command again).

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

Using RARP to Configure the IP Address

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

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

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

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

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

For AT&T UNIX[®]-based systems, type:

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

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

Using 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:

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

and:

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

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

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

Configuring the IP Address with BRCONFIG

Users of Novell® networks have additional alternatives for configuring the IP address of Brother print servers by using the remote console facility.

On a NetWare® network, you can use the BRCONFIG utility which is included with every print server.

Execute BRCONFIG from the Windows® menu. Select the corresponding server name from the list of print servers. When you get the message that the print server is connected, type the default password access in response to the “#” prompt.

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
```

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

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

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

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
```

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

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

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

Other Sources of Information

Visit <http://solutions.brother.com> for more information on TCP/IP protocol.

10 Troubleshooting

Overview

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

- 1 Wireless Setup Problems
- 2 Network Initial Setup Problems
- 3 Intermittent Problems
- 4 Protocol-Specific Troubleshooting

Wireless Setup Problems

Before you configure the NC-7100w print server, you need to temporarily change your computer's wireless settings to communicate with the unconfigured print server.

If you are unable to see NC-7100w network (SETUP) in the list when using Windows® XP or Mac OS® X 10.1 to 10.3, check the following:

For more information, refer to the Quick Setup Guide that was supplied with this product.

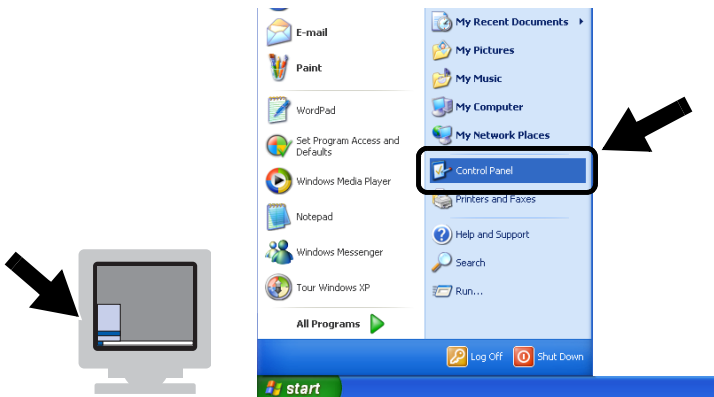
- 1 Move your printer with the print server installed closer to your PC and try again.
- 2 Reset the print server back to its default factory setting and try again. See *How to Print a Network Configuration Page* on page A-8 for information how to reset to factory default setting.
- 3 Follow the steps below according to your operating system version, Windows® XP or Mac OS® X 10.1 to 10.3. If you are using Windows® 98/Me, Windows NT® 4.0 or Windows® 2000, please refer to your wireless card manufacture instructions for changing the wireless settings.

For Windows® XP users

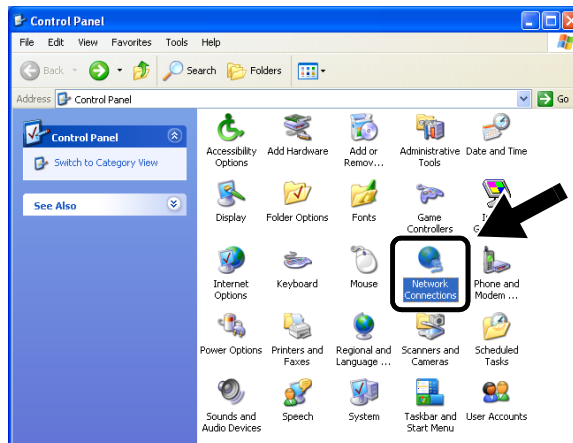


You may need to update Windows® XP and install the latest modules to show the screens shown in this section.

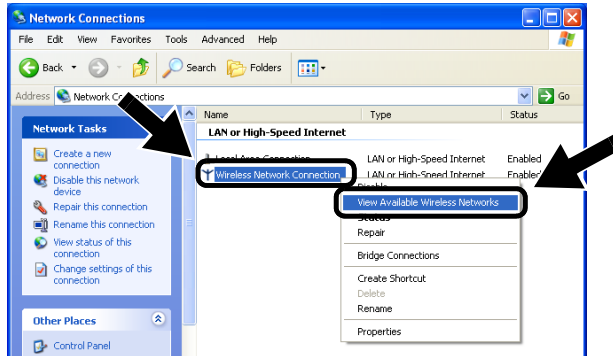
1 Click **Start** and then **Control Panel**.



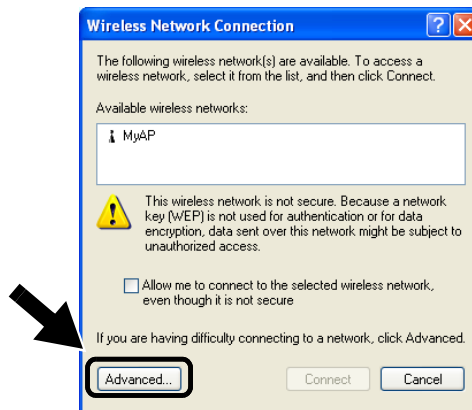
2 Click the **Network Connections** icon.



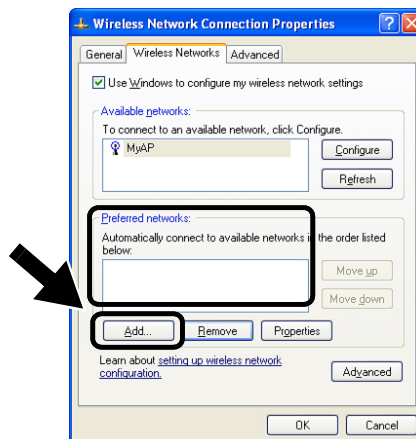
- 3 Select and right click **Wireless Network Connection**. Click **View Available Wireless Networks**.



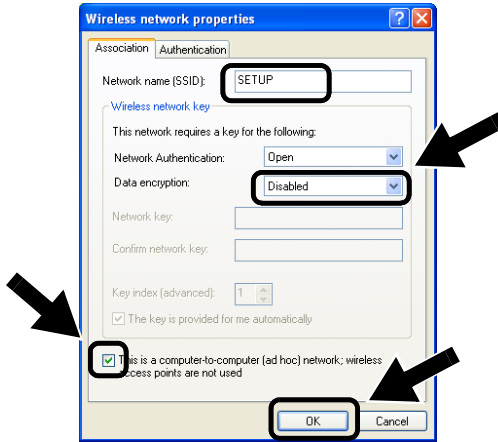
- 4 Click the **Advanced** button.



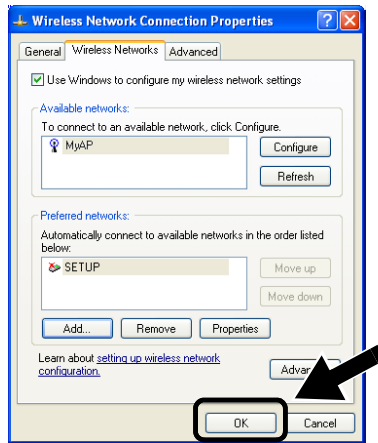
- 5 Make the **Preferred networks** field blank by using **Remove**. Click **Add**.



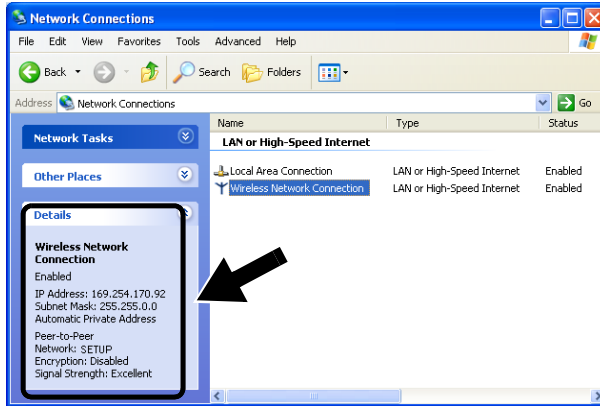
- 6 Enter **SETUP**. Select **Disabled**.
Make sure that the check box at the bottom of the screen is selected, and then click **OK**.



- 7 Click **OK**.



- 8 Check the wireless network connection status. It may take a few minutes for the IP address to be displayed.



- 9 You can now use the Brother Wireless Setup Wizard to configure your print server settings.

For Mac OS® X 10.1 to 10.3 users

- 1 Click the AirPort status icon and select **Open Internet Connect....**



- 2 Select **Create Network...** from the **Network** option.



- 3 Enter **SETUP**, select **11** from the **Channel** option, and then click **OK**.



- 4 Your wireless network is connected successfully.



- 5 You can now use the Brother Wireless Setup Wizard to configure your print server settings.

Network Initial Setup Problems

If having configured the necessary wireless network settings and you are unable to print, check the following:

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

Verify that the printer and the configuration are good by printing the Network Configuration Page. See *How to Print a Network Configuration Page* on page A-8 for information how to print the Network Configuration Page on your print server. If the test fails, check:

If you cannot print the Network Configuration Page or the network configuration is incorrect, try to restore the factory default settings of the print server by pressing the Network Test Button on the back of the printer for more than 5 seconds. Then, turn off the printer and then on again. You can check the settings by printing the Network Configuration Page. See *How to Print a Network Configuration Page* on page A-8 for information how to print the Network Configuration Page on your print server.

- 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 Check to see if there is any LED activity.

The Brother wireless print server has two LEDs (as shown in Figure 10-1.)

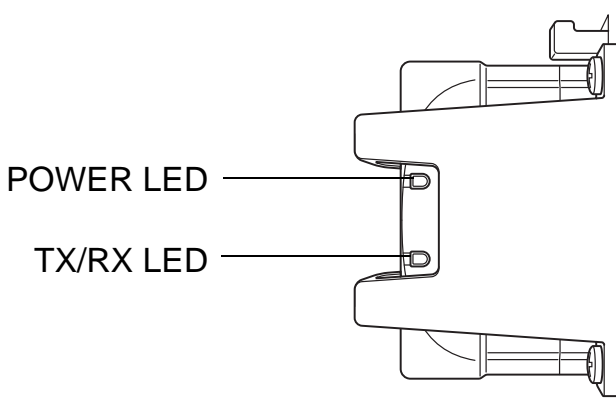


Figure 10-1

LEDs Status

POWER LED	TX/RX LED	Status	
		Ad-hoc mode	Infrastructure mode
Off	Off	The printer's power switch is turned off.	
On	Off	N/A	Not linked to Access Point
Blinking synchronously		Active	Linked to Access Point

b 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 to initialize).

c If you are using a Novell® system:

Verify that the print server can be seen on the network. To do this, login as the SUPERVISOR (not as someone with supervisor privileges) or ADMIN (for NetWare® 4 or later servers), go into PCONSOLE or NWADMIN, select PRINT SERVER INFORMATION, and select the name of the print server (make sure that you have entered the print server name). If you can see `Print Server Status` and `Control` in the menu, then the Brother print server is visible to the network, proceed to the Novell® NetWare® Installation Troubleshooting Section.

d If you are running AppleTalk® for Macintosh®:

Make sure that you can see the print server name in the **Printer List** when you select **AppleTalk** in the **Print Center**. If it is visible, then the connection is good, so proceed to *AppleTalk® Troubleshooting* on page 10-17.

Intermittent Problems

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

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

TCP/IP Troubleshooting

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



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

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

- 1 The problem may be the result of mismatched or duplicate IP address. Verify that the IP address is correctly loaded into the print server (via the configuration page. Make sure that no other nodes on the network have this address (DUPLICATE IP ADDRESS ARE THE BIGGEST CAUSE OF TCP/IP PRINTING PROBLEMS)).
- 2 If you used BRCONFIG or NCP to enter the IP address, make sure that you exited the remote console properly with a CTRL-D or EXIT and that you turned the printer off and then again (it may take up to two minutes for the IP address to take effect).
- 3 Make sure that the TCP/IP protocol of the print server is enabled.

- 4 If you used rarp, make sure that you started the rarp daemon on any workstation using the rarpd, rarpd-a, or equivalent command. Verify that the `/etc/ethers` file contains the correct Ethernet address and that the print server name matches the name in the `/etc/hosts` file.
- 5 If you used bootp, make sure that you started the bootp daemon on any UNIX[®] workstation and bootp is enabled (i.e., the "#" is removed from the bootp entry) in the `/etc/bootptab` file is correctly configured.
- 6 Also verify that host computer and the print server are either on the same subnet, otherwise that the router is properly configured to pass data between the two devices.

UNIX[®] Troubleshooting

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

if

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

then to

```
:lp = :\
```

- 3 If you are using a Berkeley-based UNIX[®], make sure that the daemon is started on Berkeley based systems with the command `lpc start printer`, where `printer` is the name of the local print queue.
- 4 If you are using an AT&T-based UNIX[®], make sure the printer is enabled (`enable printer`, where `printer` is the name of the local print queue).

- 5 Make sure that the lpr/lpd remote line printer service are running on the host computer (refer to your host computer documentation for information on how to do this).
- 6 If you are having trouble printing more than one job at a time, try increasing the IP timeout using the `SET IP TIMEOUT` command or using BRAdmin.
- 7 If text or PCL jobs are run together, try setting the service (remote printer) with EOT set to string number 2 (<ESC>E). For example:

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

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

If you are having trouble printing with Windows NT[®]4.0 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.
- 2 Try to turn the **Byte Count** on in the **Configure port** area of printer driver properties.

You may find that during the installation of BLP software, the screen that prompts you for a Port name is not displayed. This may happen on some Windows® 95/98/Me 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 IPX/SPX-Compatible Protocol (or the TCP/IP protocol if you are using a later version of JetAdmin), the Client for Microsoft Networks, and the network adapter card driver.
 - Install the Latest HP JetAdmin software.
 - Restart the system, and then add the HP JetAdmin service.

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

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

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

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.

Windows® 95/98/Me/2000/XP IPP Troubleshooting

Want to use a different Port number other than 631

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

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

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

Get More Info option in Windows® 2000 not working

If you are using a URL of:

`http://ip_address:631` or `http://ip_address:631/ipp`, the **Get More Info** option in Windows® 2000 will not function. If you wish to use the **Get More Info** option use the following URL:

```
http://ip_address
```

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

Windows® 95/98/Me clients not able to get the driver from a Windows® 2000/XP system.

You must be using version 4.0 or later of Internet Explorer and the **Microsoft Internet Print Services** software must be installed on your client computers.

Novell® NetWare® Troubleshooting

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



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

- Turning off the printer and then on again to force to rescan the NetWare® queue.
 - Deleting and recreating the print server and creating a new print queue in order to eliminate the possibility of setup errors.
- 1 If you changed the login password, you must change the password in both the Brother print server (using the `SET NETWARE PASSWORD` command if you are using the BRConfig software) or by using a web browser or the BRAdmin application and in the file server (using the PCONSOLE Print Server Information Change Password command).
 - 2 If you created the print queue using PCONSOLE and instead of BRAdmin, make sure that you have enabled at least one NetWare® file server using the `SET NETWARE SERVER servername ENABLED` command.
 - 3 Have you exceeded your NetWare® user limit?
 - 4 Make sure that the print server name you used in PCONSOLE exactly matches the name that is configured in the print server, and make sure it is defined as a Queue Server for the print queue.
 - 5 If you are running both 802.3 and Ethernet II frames on different file servers on your network, there is a possibility that the print server may not make a connection to the desired file server. Try forcing the frame type to the desired one using the `SET NETWARE FRAME` command from the print server remote console or using BRAdmin.

- 6 If you are using DOS CAPTURE statement and losing portions of your print job, try setting the TIMEOUT parameter in your CAPTURE statement to a higher value (at least 50 seconds for Windows®).

AppleTalk® Troubleshooting

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

- 1 Make sure that the AppleTalk® protocol of your Macintosh® is enabled and you have selected the correct network interface from the AppleTalk®.
- 2 Make sure that the AppleTalk® protocol of the print server is enabled.
- 3 Make sure that you can see the print server name in the **Printer List** when you select **AppleTalk** in **Print Center**.

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 4.0 or later/ Microsoft Internet Explorer version 4.0 or later.

A Appendix A

General Information

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

- Brother BRAdmin application for Windows® 95/98/Me, Windows NT®4.0 and Windows® 2000/XP
- Brother Web BRAdmin application for IIS*
- HTTP (using a web browser)
- WebJetAdmin Software
- TELNET (command utility)
- Brother BRCONFIG NetWare® Utility (command utility)

BRAdmin (Recommended)

The Brother BRAdmin application can use the TCP/IP or IPX/SPX 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.

Web BRAdmin

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

Please note this software may not be included on the CD-ROM that was supplied with your Brother product. If it was not, please visit <http://solutions.brother.com/webbradmin> to learn more about this software and to download it.

IIS* = Internet Information Server 4.0 or 5.0

HTTP (Recommended)

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

WebJetAdmin

Brother's print server range is HP WebJetAdmin compatible.

TELNET

To connect to the print server using TELNET on UNIX[®], Windows NT[®]4.0, 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, click 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.

BRCONFIG

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

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

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

Service (Example)	Definition
BINARY_P1	TCP/IP binary, NetBIOS service.
TEXT_P1	TCP/IP text service (adds carriage return after each line feed).
POSTSCRIPT_P1	PostScript service (switches PJL-compatible printer to PostScript mode).
PCL_P1	PCL service (switches PJL-compatible printer to PCL mode).
BRN_XXXXXX_P1_AT	AppleTalk [®] and LPD service for Mac OS [®] 8.6 or later.
BRN_XXXXXX_P1	NetWare [®] service (TCP/IP is enabled for backwards compatibility).

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

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, visit the Brother Solutions web site at <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 out a configuration page (see *How to Print a Network Configuration Page* on page A-8 for information on how to print a configuration page).

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

- 1 Use the BRAdmin application (**Recommended**)
- 2 Use the FTP protocol (**Recommended if running on Macintosh® or UNIX® network**)
- 3 Use another system (such as a Novell® or UNIX® system to send the new firmware file to the print server).

Reloading Firmware Using BRAdmin

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

- 1 Start BRAdmin.
- 2 Highlight the appropriate print server. Then 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 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.

- 5 NetWare[®] GET from a server

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



If you encounter problems upgrading the firmware and you find that the network portion of the printer no longer functions, you should try re-programming the print server by using the COPY command from the DOS prompt of your PC. To do this, connect a parallel cable between your PC and printer and use the command `COPY filename LPT1:/B` (where filename is the new firmware file).

Reloading Using the FTP Protocol from a Command Prompt

By specifying the print server PASSWORD AS THE USERNAME when logging on, it becomes possible to upgrade the firmware of the print server or printer (if supported). The following example assumes that the print server password is "cambridge"

```
D:\>ftp
ftp> open 220.0.250.200
Connected to 220.0.250.200.
220 FTP print service:V-1.05/Use the network
password for the ID if updating.
User (220.0.250.200:(none)): cambridge
230 User cambridge logged in.
ftp> bin
200 Ready command OK.
ftp> hash
Hash mark printing on ftp: (2048 bytes/hash mark) .
ftp> send brnt261.blf
200 Ready command OK.
150 Transfer Start
#####
#####
#####
#####
#####
#####
#####
#####
#####
#####
226 Data Transfer OK/Entering FirmWareUpdate mode.
ftp: 1498053 bytes sent in 8.52Seconds
175.77Kbytes/sec.
ftp> close
226 Data Transfer OK.
ftp> quit
```

When you see "226 Data Transfer OK/Entering FirmWareUpdate mode", you can be sure that the firmware file is being transferred to the print server. If you do not see this message, the file you are sending to the printer will either be ignored or the printer will print garbage.



You must use the "bin" command to put the FTP client into Binary communications mode. If you do not specify the bin command the upgrade process will not function correctly.

Reloading Using the FTP Protocol from a Web Browser

Please visit the Brother Solutions Web site at <http://solutions.brother.com> for more information on upgrading the print server using a web browser.

Other Information

How to Print a Network Configuration Page

To print the Network Configuration Page, use a fine ball point pen to hold down the Network Test Button of the printer for **less** than 5 seconds.

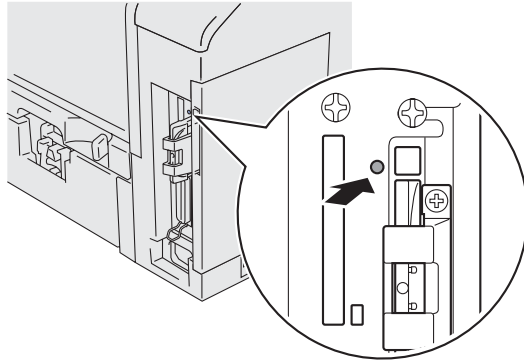


Figure A-1

How to Reset to Factory Default Setting

If you wish to reset the print server back to its default factory settings (resetting all information such as the password and IP address information), use a fine ball point pen to hold down the Network Test Button for **more** than 5 seconds.

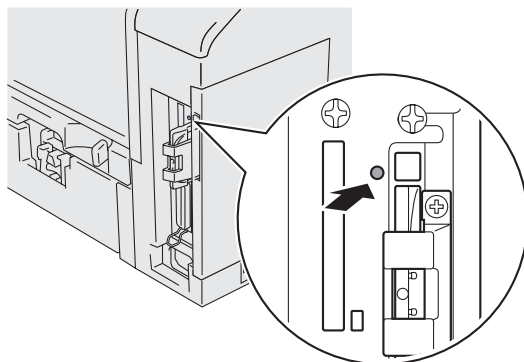


Figure A-2

B Appendix B

Wireless Network

Introduction

The Brother NC-7100w wireless print server supports the IEEE 802.11b and 802.11g wireless networking standards and can work in Infrastructure or Ad-hoc mode using common Wireless Authentication and security methods.

Depending on the placement of the Brother NC-7100w wireless print server, distances of up to 90 meters can be reached. However, distance and overall quality can vary depending on the environment itself and the types of device used within that environment.

Wireless LAN terms and concepts

There are two types of Wireless networks: Infrastructure mode and Ad-hoc

Infrastructure Mode

Infrastructure mode networks have a central access point at the heart of the network. The access point can also act as a bridge or a gateway to a wired network. When the Brother wireless device is set in this mode, it receives all print jobs via an access point.

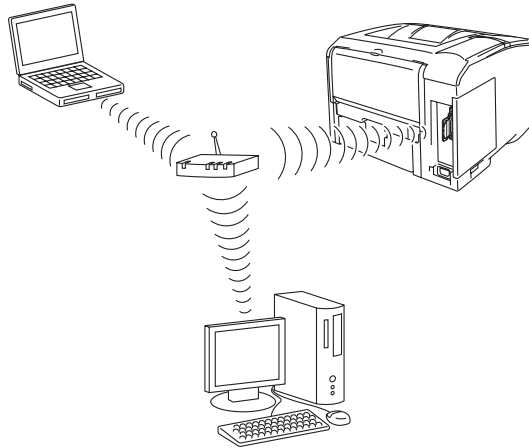


Figure B-1

Ad-hoc Mode

Ad-hoc networks (also sometimes referred to as peer-to-peer networks) do not have a central Access point. Each Wireless client communicates directly with each other. When the Brother wireless device is set in this mode, it receives all print jobs directly from the computer sending the print data.

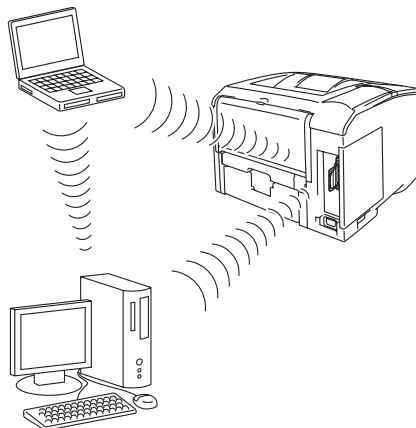


Figure B-2

Authentication and Encryption

Most Wireless networks use some kind of security settings. These security settings define the authentication (how the device identifies itself to the network) and encryption (how the data is encrypted as it is sent on the network). If you do not correctly specify these options when you are configuring your Brother wireless device, it will not be able to connect to the Wireless network. Therefore care must be taken when configuring these options. Please refer to the information below to see which authentication and encryption methods your Brother wireless device supports. For more information on Wireless communication visit, <http://solutions.brother.com/wireless>

Authentication Methods

The Brother Wireless Print Server supports the following methods:

■ Open System

Wireless devices are allowed access to the network without any authentication.

■ Shared Key (Infrastructure mode only)

A secret pre-determined key is shared by all devices that will access the wireless network.

Encryption Methods

Encryption is used to secure the data itself. The NC-7100w supports WEP encryption.

■ None

No encryption method is used.

■ WEP

By using WEP (Wired Equivalent Privacy), the data is transmitted and received with a secure key.

Network Key

There are some rules for each security method:

■ Open System/Shared Key with WEP

Enter the WEP key that will be used to access your network. This key is a 64-bit or 128-bit value that must be entered in an ASCII or HEXADECIMAL format.

64 (40) bit ASCII: Uses 5 text characters.
e.g. "Hello" (this is case sensitive).

64 (40) bit Hexadecimal:
Uses 10 digits of hexadecimal data.
e.g. "71f2234aba"

128 (104) bit ASCII: Uses 13 text characters.
e.g. "Wirelesscomms"
(this is case sensitive).

128 (104) bit Hexadecimal:
Uses 26 digits of hexadecimal data
e.g. "71f2234ab56cd709e5412aa3ba"

Channels

Wireless Ethernet networks use Channels. There are up to 13 channels that can be used. However, in many countries the number of channels available are restricted.

Configuring the Brother Wireless Print Server

You can configure and change the wireless print server settings using the Brother Wireless Setup Wizard (recommended), the BRAdmin Professional utility, printer control panel buttons, a web browser or by using TELNET.

Using the Control Panel Menus to Configure the Wireless Print Server

You can access the **NETWORK** menu by following steps below to configure the wireless print server. See the printer User's Guide for more information on the control panel menus and control panel buttons.

READY



Press any of the **Menu** buttons (**+**, **-**, **Set** or **Back**) to take the printer offline.

INFORMATION



Press the **+** button or the **-** button to move forward or backward through the menus until **NETWORK** is displayed.

NETWORK

Press the **Set** button to move to the next menu level.

NETWORK menu

Table B-1 shows the list of the **NETWORK** menu.



In order to make your wireless settings effective, you must select the **APPLY** option from the **WIRELESS** menu and then select **YES** or **YES AND REPORT**. If you do not do this, the network settings will not be used unless you switch the printer off and then on again.

Table B-1 NETWORK menu

Display Shows	Description	
TCP/IP	Subsetting	Description
	TCP/IP ENABLE	=ON/OFF
	IP ADDRESS=	=0.0.0.0 255.255.255.255
	SUBNET MASK=	=0.0.0.0 255.255.255.255
	GATEWAY=	=0.0.0.0 255.255.255.255
	IP BOOT TRIES	=0 3267
	IP METHOD	=AUTO, STATIC, RARP, BOOTP, DHCP
	APIPA	=ON/OFF
NETWARE	NETWARE ENABLE	=ON/OFF
	NETWARE FRAME	=AUTO, 8023, ENET, 8022, SNAP
APPLETALK	=ON/OFF	
NETBIOS/IP	=ON/OFF	

Table B-I NETWORK menu (Continued)

Display Shows	Description	
WIRELESS	COMM.MODE	=INFRASTRUCTURE , AD-HOC
	LIST SSID	Shows a list of available names for the wireless network
	SSID	Shows SSID (uses a maximum of 32 digits and characteres 0-9, a-z and A-Z in ASCII values)
	CHANNEL	=113
	AUTHENTICATION	=OPEN SYSTEM, SHARED KEY
	ENCRYPTION	=NONE, WEP
	WEP KEY SELECT	=KEY1, KEY2, KEY3, KEY4
	WEP KEY1 SIZE	=40 (64) BITS, 104 (128) BITS
	WEP KEY1 TYPE	=ASCII, HEX
	WEP KEY1	Shows the WEP key (uses a maximum of 5 or 13 digits and characters 0-9, a-z and A-Z in ASCII values, or uses a maximum of 10 or 26 digits and characters 0-9 and A-F in HEX values)
	WEP KEY2 SIZE . . . WEP KEY4	
	APPLY	=YES, YES&REPORT YES&REPORT prints the Network Configuration Page.

List of factory settings

Table B-II shows the factory settings.

■ Network factory default setting

If you wish to reset the print server back to its default factory settings (resetting all information such as the password and IP address information), hold down the network test button on the NC-7100w print server for more than 5 seconds.

Table B-II List of factory settings

Submenu	Factory setting	
TCP/IP	Subsetting	Factory setting
	TCP/IP ENABLE	=ON
	IP ADDRESS	=###.###.###.### * ¹
	SUBNET MASK	=0.0.0.0 * ¹
	GATEWAY	=0.0.0.0
	IP BOOT TRIES	=3
	IP METHOD	=AUTO
	APIPA	=ON
NETWARE	NETWARE ENABLE	=ON
	NET FRAME	=AUTO
APPLETALK	=ON	
NETBIOS/IP	=ON	

Table B-II List of factory settings (Continued)

Submenu	Factory setting	
WIRELESS	COMM.MODE	=AD-HOC
	LIST SSID	XXX
	SSID	SETUP
	CHANNEL	=11
	AUTHENTICATION	=OPEN SYSTEM
	ENCRYPTION	=NONE
	WEP KEY SELECT	=KEY1
	WEP KEY1 SIZE WEP KEY2 SIZE WEP KEY3 SIZE WEP KEY4 SIZE	=64(40)BITS
	WEP KEY1 TYPE WEP KEY2 TYPE WEP KEY3 TYPE WEP KEY4 TYPE	=ASCII
	WEP KEY1 WEP KEY2 WEP KEY3 WEP KEY4	XXX
	APPLY	=YES

*1 Automatic Private IP Addressing (APIPA) protocol automatically configures an IP address and subnet mask. For more details, see Chapter 9 of this guide.

Using the BRAdmin Professional Utility to Configure the Wireless Print Server (for Windows® users)

The steps required to configure the wireless print server using the BRAdmin Professional utility is as follows:

- 1 Start BRAdmin Professional.
- 2 Select the node name of the Brother NC-7100w wireless print server from the list.
- 3 From the **Control** menu, select **Configure Wireless Print Server**.
- 4 You will be prompted for a password; the default password is `access`.

Wireless settings list for the BRAdmin Professional utility

Table B-III shows the wireless settings and status which you can configure and confirm using the BRAdmin Professional utility.

Table B-III Wireless settings and status

Item	Setting options
Communication Mode	Infrastructure, Ad-hoc 802.11 (802.11b only)
Wireless Network Name (SSID)	0 to 32 bytes
Channel	1-13 (for Ad-hoc mode)(The number of channels varies by country.)
Authentication Method	Open System, Shared Key, WPA-PSK
Encryption Mode	NONE, WEP, TKIP
WEP Key	Shows the WEP key (uses a maximum of 5 or 13 digits and characters 0-9, a-z and A-Z in ASCII values, or uses a maximum of 10 or 26 digits and characters 0-9 and A-F in HEX values)
Item	Current status
Operating Mode	802.11b, 802.11g
Operating Rate	1, 2, 5.5, 11 Mbps (for 802.11b), 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, 54 Mbps (for 802.11g)
Receiving Level	1 to 5

Using a Web Browser to Configure the Wireless Print Server (for Windows® users)

The steps required to configure the wireless print server using a web browser is as follows:

- 1 Connect to the print server IP address using your web browser. For example; `http://10.148.xxx.xx`.
- 2 Click **Network Configuration**. You will be prompted for a password. The default user name and password is “admin” and “access”.
- 3 Click **Configuration Wireless**.

For the wireless settings list when using a web browser, see *Wireless settings and status on page B-11*.

NC-7100w Print Server Specifications

Model name	NC-7100w	
Network types	IEEE802.11b/g wireless	
Frequency	2400-2483.5 MHz	
RF channels	US and Canada	1-11
	Europe	1-13
	Australia	1-13
Communication mode	Infrastructure, Ad-hoc 802.11 (802.11b only)	
Data rates	802.11b	11/5.5/2/1 Mbps
	802.11g	54/48/36/24/18/12/9/6 Mbps
Link distance	90 m (295 ft.) at lowest data rate (The distance rate will vary upon miscellaneous items.)	
Network security	SSID, 128 (104) / 64 (49) bit WEP	
Interface	AIO	
LED	2 LEDs (POWER, TX/RX)	
Button	1 Network Test Button	

Model name	NC-7100w	
Protocols	TCP/IP	APR, RARP, BOOTP, DHCP, APIPA (Auto IP), WINS/NetBIOS, DNS, LPR/LPD, Raw Port/Port9100, POP3/SMTP, SMB Print, IPP, FTP, mDNS, SSDP, TELNET, SNMP, HTTP, TFTP
	Netware [®] IPX/SPX	
	AppleTalk [®]	
Dimensions (W x D x H)	87 x 127 x 31.6 mm (3.4 x 5 x 1.2 in.)	
Weights	0.11 Kg (2.4 lb)	

Index

A

Ad-hoc mode B-1, B-2
AIX 1-3
AIX 4.0 1-8
APIPA 1-1, 9-5
AppleTalk 7-1, 7-3, 10-9, 10-17
ARP 1-2, 9-1, 9-6
Authentication B-3
Authentication methods B-3

B

Berkeley UNIX 1-1
BINARY_P1 1-2, 1-3, A-3
BINDERY 6-2
BIP 5-1
BOOTP 1-2, 9-9
BRAdmin 9-2
Brother LPR port 3-4
Brother NetBIOS Port Monitor
..... 4-2, 4-4
Brother Peer to Peer Print . 3-4
Brother Wireless Setup Wizard
..... B-5
Browser 8-2

C

CFGTCP 1-11
Channel B-4
Control panel menu B-5

D

DHCP 1-2, 9-1, 9-5
DNS 8-2
domain
2-5, 3-3, 4-1, 4-2, 4-3, 8-2,
10-14
DOS 4-1

E

E-mail 5-2
emailpassword 5-6
Encryption B-3
Encryption methods B-3
EtherTalk 7-1, 7-3

F

Factory settings B-8
flash memory A-4
FTP 1-2, 1-11, A-4, A-6

H

hosts 3-4
HP distributed print service 1-7
HP JetDirect 3-2
HP-UX 1-3
HP/UX 1-7
HTTP 8-1, 9-1, A-1
Hyper Text Transfer Protocol ..
..... 8-1

I

IBM LAN Server 2-1
IBM RS/6000 AIX 1-8
IEEE 802.11b B-1
IEEE 802.11g B-1
IIS 2-2, 3-2, A-1
INFORMATION menu B-6
Infrastructure mode ... B-1, B-2
Internet 5-1
Internet Printing 5-1
IPP 2-1, 2-4, 3-2, 5-1, 5-9, 10-15
IPX 6-2
IPX/SPX 9-1
ISP 5-2

J

JetAdmin 10-13
JetDirect 3-2

L

LAN Server 2-7, 4-8
LCD menu B-6
LED 10-8
LED status 10-8
Linux 1-1, 1-6
lpc 1-5, 1-14
lpstat 1-5

M

Macintosh 7-2
mailboxname 5-6
Microsoft Internet Explorer 2-2
Microsoft Internet Print Services
..... 2-2, 3-2
Microsoft TCP/IP printing ... 2-1
MIME 5-2

N

NDPS 6-2, 6-3
NDS 6-2
NET USE 4-9
NetBIOS 4-1, 4-8, 10-14
NetWare 3 6-2, 6-6
NetWare 4 6-2, 6-6
NetWare 5 6-2
Netware GET A-5
Network key B-4
network neighborhood 4-1
Novell 10-9
Novell Distributed Print Services
..... 6-3
Novell NetWare 10-16
NWADMIN 6-2

O

Open system B-3
OS/2 2-7
OS/2 Warp 4-8
OS/2 Warp Server 2-1, 2-7
OS/400 1-11

P

password 1-1, 2-1, 3-1, 4-1, 5-1
PCONSOLE 6-6
Peer to Peer Printing 3-1
Peer-to-Peer 10-13, 10-14
ping 10-9
POP3 5-3, 5-6
PPD 7-3
PRINTCAP 1-2
printcap 1-4
Printer Agent 6-5
PSERVER NLM 6-12

R

RARP 9-8
reloading firmware A-5
RFC 1001 and 1002 9-5
rlpstat 1-5

S

sam 1-7
SCO UNIX configuration .. 1-10
SCOADMIN 1-10
server message block 4-1
service 1-3
SETUP menu B-6
Shared key B-3
simple mail transport protocol ..
..... 5-2
smaller networks 3-1
SMB 4-1, 4-8
smit 1-8
SMTP 5-2, 5-7

Specifications	B-12
Sun Solaris 2.x	1-9
sysadmsh	1-11

T

TCP/IP	1-1, 9-1, B-6
TCP/IP printing	2-1
TELNET	4-3, 5-5, 9-1, 9-11, A-1, A-2
TEXT_P1	1-2, 1-3, A-3
TFTP GET	A-5
TFTP PUT	A-5
TGV Multinet	1-5

U

UNIX	1-1
------------	-----

W

Web BRAdmin	A-1
web browser	9-1
WebJetAdmin	A-1
WEP	B-3
Windows 2000	2-1, 3-2, 4-1, 5-1, 6-4, 9-1, 10-15
Windows 2000 printing	2-2, 2-4
Windows 95/98/Me	2-2, 3-1, 4-1, 5-1, 6-4, 9-1, 10-13
Windows NT 4.0	2-1, 4-1, 5-1, 5-2, 6-4, 9-1
Windows NT 4.0 printing	... 2-4
Windows XP2-1, 4-1, 5-1, 9-1, 10-15
Wired Equivalent Privacy	... B-3
Wireless network	B-1
workgroup	4-2