



Multi-Protocol On-board Print/Scan Server

Network User's Guide

NC-110h

Please read this manual thoroughly before using the machine. 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 machine needs. Download the latest drivers and utilities for your Brother machine, read the FAQs and troubleshooting tips.

Version A

Trademarks

Brother is a registered trademark of Brother Industries, Ltd.

UNIX is a trademark of UNIX Systems Laboratories.

Ethernet is a trademark of Xerox Corporation.

Postscript is a trademark of Adobe Systems Incorporated.

Apple and Macintosh 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.

BRAdmin Professional is a trademark of Brother Industries Ltd.

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.

©2004 Brother Industries Ltd.

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

In USA 1-800-284-4329

In Canada 1-877-BROTHER

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

In Europe European Technical Services
Shepley Street
Audenshaw
Manchester, M34 5JD
UK

In USA Customer Service
Brother International Corporation
100 Somerset Corporate Boulevard
Bridgewater, NJ 08807 USA

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 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

Service Center locator (USA)

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

Service Center locations (Canada)

For the location of a Brother authorized service center 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 Interface (BR-net)
Model Number: NC-110h

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.

Declaration of Conformity (Europe)

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

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

Safety: EN 60950,
EMC: EN 55022 Class B, EN 55024

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

Issued by: Brother Industries, Ltd.
Information & Document Company

Caution for LAN connection

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

Intel Copyright and License Information

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

Copyright© 2000 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.

Table of Contents

1	Introduction.....	1-1
	Computer Network Basics	1-1
	Overview.....	1-1
	Protocols	1-1
	Protocol Configuration Items	1-2
	TCP/IP Configuration	1-2
	Network Connection	1-4
	Types of Network.....	1-4
	Peer-to-Peer Printing.....	1-4
	Network Example	1-5
	Example : Peer-to-Peer (TCP/IP)	1-5
	Features	1-6
	Overview.....	1-6
	Network Printing	1-6
	Network Scanning	1-6
	Network PC-FAX (not available for DCP-310CN) ..	1-6
	Network PhotoCapture Center (not available for MFC-5440CN)	1-6
	Management Utilities	1-7
	Internet Fax / Scan to E-mail Server (Download only) (FAX-1940CN/MFC-3340CN/MFC-5440CN/MFC-5840CN only)	1-7
2	TCP/IP Configuration.....	2-1
	Assigning TCP/IP Information (Basic)	2-1
	Overview.....	2-1
	Using the machine's control panel to allocate an IP address	2-2
	Changing the IP Address using the BRAdmin Professional utility.....	2-2
	Using BRAdmin Professional utility and the TCP/IP Protocol to set the IP address	2-3
	Assigning TCP/IP Information Automatically (Advanced) ..	2-4
	Using DHCP to Configure the IP address	2-4
	Using APIPA to Configure the IP Address.....	2-4
	Using RARP to Configure the IP Address	2-5
	Using BOOTP to Configure the IP Address.....	2-5

3

Front Panel Setup	3-1
LAN Main Setup Menu.....	3-1
Setup TCP/IP.....	3-2
BOOT Method	3-2
IP Address	3-5
Subnet Mask.....	3-7
Gateway	3-8
Host Name.....	3-9
WINS Config.....	3-10
WINS Server.....	3-11
DNS Server	3-13
APIPA	3-14
Setup Misc.	3-16
Ethernet	3-16
Time Zone	3-18
Network Configuration List.....	3-19
Restoring the Network Settings to Factory Default...	3-20

4

Network Printing from Windows® (Peer to Peer).....	4-1
For Windows® 2000/XP, LAN Server and Warp Server users	4-1
Overview.....	4-1
Windows® 2000/XP (TCP/IP) Configuration	4-2
Windows® 2000/XP Printing	
(Printer Driver not yet installed)	4-2
Standard TCP/IP Port Printing.....	4-2
Windows® 2000/XP Printing	
(Printer Driver already installed)	4-3
For Windows® 98/Me users	4-4
Overview.....	4-4
TCP/IP Printing.....	4-5
Installing the Brother Peer to Peer Software	4-5
Associating to the printer	4-6
Adding a Second Brother LPR Port	4-7
Other Sources of Information.....	4-7

5

Network Printing from Macintosh®.....	5-1
TCP/IP Printing for Macintosh®.....	5-1
Printing from a Macintosh® using the Simple Network	
Configuration capabilities	
(Mac OS® X 10.2.4 or greater).....	5-1

6

Troubleshooting	6-1
Overview.....	6-1
Installation problems.....	6-1
Intermittent Problems	6-3
TCP/IP Troubleshooting	6-3
Windows® 98/Me Peer to Peer Print (LPR)	
Troubleshooting.....	6-4
 Appendix	 A-1
Appendix A	A-1
General Information.....	A-1
BRAdmin Professional utility (Recommended)	A-1
Web BRAdmin	A-1
Using Services.....	A-2
General.....	A-2
Appendix B	A-3
Updating other machines through the Network	
(Windows® only)	A-3
Appendix C	A-6
Specifications	A-6
Operating System Support	A-6
Protocol Support.....	A-6
Network	A-6
Network Printing	A-6
Network PC Fax send	A-6
Network Scanning	A-7
Management Utilities	A-8
Function Table and Factory Default Settings	A-9
 INDEX.....	 I-1

1

Introduction

Computer Network Basics

.....

Overview

The network-connected Brother machine allows multiple computers to carry out several independent print jobs on one machine.

To use the Brother machine through a network, you need to select a protocol, configure the Print/Scan server, and set up the computers you use.

Protocols

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

■ TCP/IP

This is the most popular set of protocols used for communication such as Internet and E-mail. This protocol can be used in almost all operating systems such as Windows®, Macintosh® and Linux. TCP/IP is suited to a large-scale network and is widely used for company networks.

TCP/IP is also widely used as the print protocol. The Brother machine can use the TCP/IP-based protocols such as LPR and NetBIOS Name Resolution.

Protocol Configuration Items

TCP/IP Configuration

- IP Address
- Subnet mask
- Gateway (when routers exist on your network)

■ IP Address

An IP address is a series of numbers that identifies each computer connected to a network. An IP address consists of four numbers separated by dots. Each number is between 0 and 255. You must allocate a unique IP address that is correct for the attached network.

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

192.168.1.1, 192.168.1.2, 192.168.1.3

■ Subnet mask

Subnet masks restrict network communication, see example below -

(Example) PC1 can talk to PC2

PC1 IP Address	193.	1.	2.	3
Subnet Mask	255.	255.	0.	0
PC2 IP Address	193.	1.	3.	4
Subnet Mask	255.	255.	0.	0

Here is an example of an IP address and a subnet mask.

IP Address	193.	1.	2.	3
Subnet Mask	255.	255.	0.	0



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

In the above example, we can communicate with anything that has an IP address that begins with 193.1.X.X

■ Gateway (and Router)

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



Node name

Node name appears in current BRAdmin Professional or Printer configuration page. The default Node name is "BRN_XXXXXX" ("XXXXXX" is the last six digits of Ethernet address.)

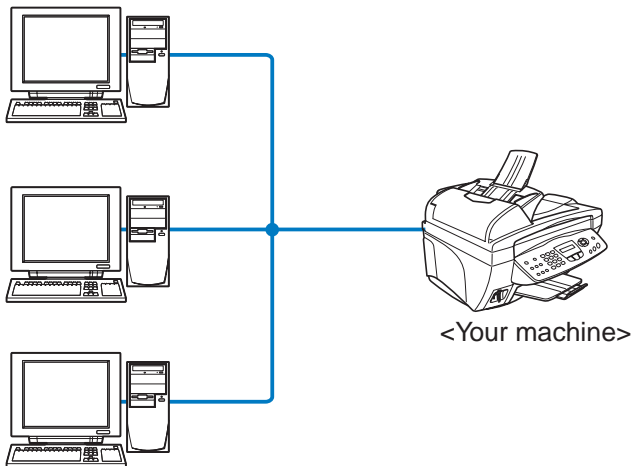
Network Connection

Types of Network

There are various ways to configure and arrange networks and network printing depending on the office environment and requirements. We recommend to use this product in a Peer to Peer environment in which each computer directly sends and receives data to and from the Brother machine.

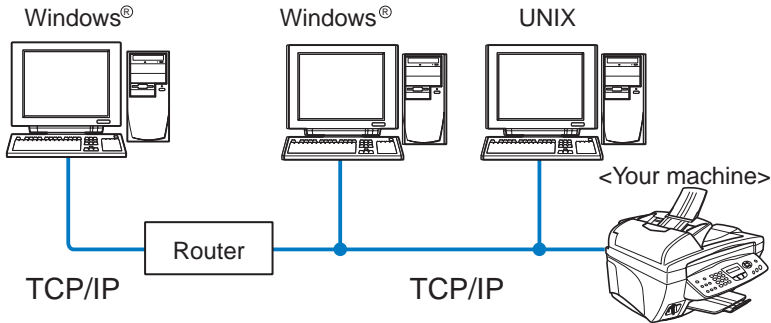
Peer-to-Peer Printing

Each computer requires configuration of the printer port.



Network Example

Example : Peer-to-Peer (TCP/IP)



- Each computer needs the TCP/IP and Print Protocol configured.
- The Brother machine needs to have an appropriate IP address configured.
- If a TCP/IP environment has already been established, we recommend using Peer-to-Peer.
- If routers are in use, then computers can access the Brother machine through the routers. (In this case, the Gateway address must be configured.)
- The Brother machine can also communicate with Macintosh® (TCP/IP compatible Operating Systems) devices.

Features



Overview

The Brother Network Print/Scan server allows your Brother machine to be shared on a 10/100Mbit Ethernet Network. Administration utilities provide easy configuration and management of your Brother machine. Once configured, it allows your machine to print, scan documents and PC-FAX over a network. This is supplied with Brother's Peer to Peer printing software allowing you to easily share the machine as a small workgroup printer.

Network Printing

The Print/Scan server provides printing services for Windows® 98/Me, Windows® 2000/XP supporting the TCP/IP protocols and Macintosh® Networks supporting QuickDraw over TCP/IP. (See *chapter 5* for details)

Network Scanning

You can scan documents over the network to your computer. (See chapter 7 of the Software User's Guide on the CD-ROM)

Network PC-FAX (not available for DCP-310CN)

You can directly send a PC file as a PC-FAX on your Network. (See chapter 5 of the Software User's Guide on the CD-ROM for complete description)

Network PhotoCapture Center (not available for MFC-5440CN)

You can view or retrieve data from the media card inserted into the Brother machine by double-clicking the Network PhotoCapture Center icon on the desktop of your PC. The software is automatically installed when you select network connection during the software installation.

Management Utilities

The BRAdmin Professional utilities provide powerful, easy to use configuration and management of Fax and network settings.

Internet Fax / Scan to E-mail Server (Download only) (FAX-1940CN/MFC-3340CN/MFC-5440CN/MFC-5840CN only)

The Brother machine can be assigned an E-mail address allowing you to send, receive or forward documents over a Local Area Network or the Internet to PC's or other Internet Fax machines. In order to use this function, please download the necessary software from our web site -

The Brother Solutions Center (<http://solutions.brother.com>). Before using this function, you have to configure the necessary machine settings by using the machine's control panel. For details, please refer to the user's guide for Internet Fax on the web site listed above.

Assigning TCP/IP Information (Basic)

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 you want to disable the APIPA protocol, set APIPA to Off using the control panel. For more information, see page 3-14. If the APIPA protocol is disabled, the default IP address of a Brother Print/Scan 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 machine's control panel settings.
- BRAdmin Professional utility (for Windows® 98/Me and Windows® 2000/XP).
- DHCP, APIPA, Reverse ARP (RARP) or BOOTP.
- Other SNMP based management utilities.

These configuration methods are described in the following paragraphs.




The IP address you assign to the Print/Scan 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). (See page 1-2 for more details.)

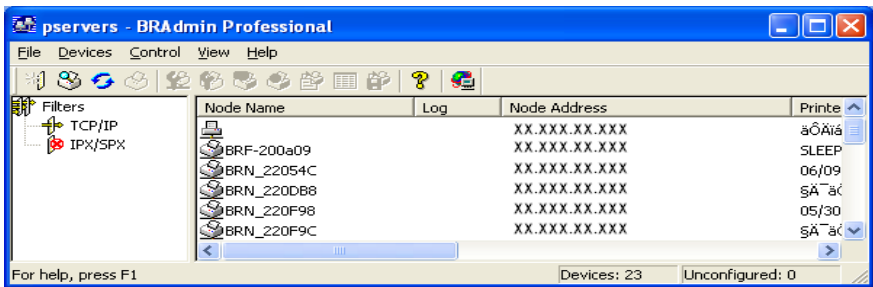
Using the machine’s control panel to allocate an IP address

Refer to *chapter 3* for details on how to configure the IP address information using the machine’s control panel. By using the control panel on the machine, you can program the IP address details at the same time that other machine parameters are configured.

Changing the IP Address using the BRAdmin Professional utility

 Please use the BRAdmin Professional utility version that was supplied on the CD-ROM with your Brother product. You can also download the latest Brother BRAdmin Professional utility version from <http://solutions.brother.com>. This utility is only available for Windows® users.

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



The BRAdmin Professional utility can use the TCP/IP protocols to communicate with the Brother Print/Scan server.

If you wish to use the TCP/IP protocol to manage the Print/Scan server make sure that the Print/Scan server has a valid IP address. If you are not using DHCP, BOOTP or RARP, you will want to change the IP address. This is how to change the IP address using the BRAdmin Professional utility:

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

Using BRAdmin Professional utility 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 BRAdmin window.
- 2 Select the **Device** menu and choose the **Search Active Devices**.



If the Print/Scan 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 **Devices** menu and choose **Setup Unconfigured Devices**.
- 4 Select the MAC address of your Print/Scan server and click the **Configure** button.

You can find the node name and MAC address by printing out the machine configuration page. See page 3-19 for information on how to print the configuration page on your Print/Scan server.

- 5 Enter the **IP address**, **Subnet mask** and **Gateway** (if needed) of your Print/Scan server.
- 6 Click **OK** then select **Close**.
- 7 With the correctly programmed IP address, you will see the Brother Print/Scan server in the device list.

Assigning TCP/IP Information Automatically (Advanced)

Using DHCP to Configure the IP address

The Dynamic Host Configuration Protocol (DHCP) is one of several automated mechanisms for IP address allocation. If you have a DHCP Server in your network (typically a Unix/Linux or Windows® 2000, XP network) the Print/Scan 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/Scan server configured via DHCP, BOOTP or RARP, you must set the BOOT METHOD to static so that the Print/Scan server has a static IP address. This will prevent the Print/Scan server from trying to obtain an IP address from any of these systems. To change the BOOT METHOD, use the machine's control panel or the BRAdmin Professional utility.

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 it's 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.



To disable APIPA, refer to page 3-14.

Using RARP to Configure the IP Address

The Brother Print/Scan 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/Scan server and the second entry is the name of the Print/Scan 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/Scan 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/Scan 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/Scan server will load its IP address from the BOOTP server when the machine is powered on.

Setup TCP/IP

This menu has nine sections: **BOOT Method**, **IP Address**, **Subnet Mask**, **Gateway**, **Host Name**, **WINS Config**, **WINS Server**, **DNS Server** and **APIPA**.

BOOT Method

This selection controls how the machine obtains the IP address for itself. The default setting is `Auto`.

(For MFC-410CN, MFC-620CN, MFC-3340CN, MFC-5440CN, MFC-5840CN)

- 1 Press **Menu/Set**, **5**, **1**, **1**. (**4**, **1**, **1** for **MFC-5440CN**)
- 2 Press **▲** or **▼** to select `Auto`, `Static`, `RARP`, `BOOTP` or `DHCP`.
- 3 Press **Menu/Set**.
- 4 Press **Stop/Exit**.

(For DCP-310CN)

- 1 Press **Menu**.
- 2 Press **▲** or **▼** to select `3.LAN`. Press **Set**.
- 3 Press **▲** or **▼** to select `1.Setup TCP/IP`. Press **Set**.
- 4 Press **▲** or **▼** to select `1.BOOT Method`. Press **Set**.
- 5 Press **▲** or **▼** to select `Auto`, `Static`, `RARP`, `BOOTP` or `DHCP`. Press **Set**.
- 6 Press **Stop/Exit**.

Static mode

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

Auto mode

In this mode, the machine will scan the network for a DHCP server, if it can find one, and if the DHCP server is configured to allocate an IP address to the machine, then the IP address supplied by the DHCP server will be used. If no DHCP server is available, then the machine will scan for a BOOTP server. If a BOOTP server is available, and it is configured correctly, the machine will take its IP address from the BOOTP server. If a BOOTP server is not available, the machine will scan for a RARP server. If a RARP server also does not answer, the IP Address is scanned through APIPA facility, see page 2-1. After it is initially powered ON, it may take a few minutes for the machine to scan the network for a server.

RARP mode

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

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

Where the first entry is the Ethernet address of the Print/Scan server and the second entry is the name of the Print/Scan 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/Scan server will get the IP address from the rarp daemon when it is powered on.

BOOTP mode

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/Scan 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/Scan server will load its IP address from the BOOTP server when the printer is powered on.

DHCP mode

Dynamic Host Configuration Protocol (DHCP) is one of several automated mechanisms for IP address allocation. If you have DHCP server in your network (typically a Unix, Windows® 2000/XP network) the Print/Scan server will automatically obtains 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/Scan server configured via DHCP, BOOTP or RARP, you must set the Boot Method to Static, this will prevent the Print/Scan server from trying to obtain an IP address from any of these systems. To change the Boot Method, you can use the front panel or the BRAdmin application.

IP Address

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

(For MFC-410CN, MFC-620CN, MFC-3340CN, MFC-5440CN, MFC-5840CN)

- 1 Press **Menu/Set**, **5**, **1**, **2**. (**4**, **1**, **2** for **MFC-5440CN**)
- 2 Select **1** to change. Enter the IP address.
- 3 Press **Menu/Set**.
- 4 Press **Stop/Exit**.

(For DCP-310CN)

- 1 Press **Menu**.
- 2 Press ▲ or ▼ to select 3.LAN.
Press **Set**.
- 3 Press ▲ or ▼ to select 1.Setup TCP/IP.
Press **Set**.
- 4 Press ▲ or ▼ to select 2.IP Address.
Press **Set**.
- 5 Press ▲ or ▼ to select 1 to change.
Press **Set**.
- 6 Press ▲ repeatedly to enter the first three-digit number for the IP address.
Press **Set**.
Repeat this step until you have entered the fourth three-digit number to complete the IP address.



Each number can also be increased / decreased by holding down ▲ or ▼.

- 7 Press **Stop/Exit**.



When the Boot Method is set to “Auto”, the machine cannot receive an IP address from a BOOTP server in Windows® 2000. So please ensure that you use DHCP for Windows® 2000 server.

Subnet Mask

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

(For MFC-410CN, MFC-620CN, MFC-3340CN, MFC-5440CN, MFC-5840CN)

- 1 Press **Menu/Set**, **5**, **1**, **3**. (**4**, **1**, **3** for **MFC-5440CN**)
- 2 Select **1** to change. Enter the Subnet Mask address.
- 3 Press **Menu/Set**.
- 4 Press **Stop/Exit**.

(For DCP-310CN)

- 1 Press **Menu**.
- 2 Press **▲** or **▼** to select **3**. LAN.
Press **Set**.
- 3 Press **▲** or **▼** to select **1**. Setup TCP/IP.
Press **Set**.
- 4 Press **▲** or **▼** to select **3**. Subnet Mask.
Press **Set**.
- 5 Press **▲** or **▼** to select **1** to change.
Press **Set**.
- 6 Press **▲** repeatedly to enter the first three-digit number for the Subnet Mask address.
Press **Set**.
Repeat this step until you have entered the fourth three-digit number to complete the Subnet Mask address.



Each number can also be increased / decreased by holding down **▲** or **▼**.

- 7 Press **Stop/Exit**.

Gateway

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

(For MFC-410CN, MFC-620CN, MFC-3340CN, MFC-5440CN, MFC-5840CN)

- 1 Press **Menu/Set**, **5**, **1**, **4**. (**4**, **1**, **4** for **MFC-5440CN**)
- 2 Select **1** to change. Enter the Gateway address.
- 3 Press **Menu/Set**.
- 4 Press **Stop/Exit**.

(For DCP-310CN)

- 1 Press **Menu**.
- 2 Press **▲** or **▼** to select **3**. LAN.
Press **Set**.
- 3 Press **▲** or **▼** to select **1**. Setup TCP/IP.
Press **Set**.
- 4 Press **▲** or **▼** to select **4**. Gateway.
Press **Set**.
- 5 Press **▲** or **▼** to select **1** to change.
Press **Set**.
- 6 Press **▲** repeatedly to enter the first three-digit number for the Gateway address.
Press **Set**.
Repeat this step until you have entered the fourth three-digit number to complete the Gateway address.



Each number can also be increased or decreased by holding down **▲** or **▼**.

- 7 Press **Stop/Exit**.

Host Name

You can register the machine name on the Network. This name is often referred to as a NetBIOS name; it will be the name that is registered by the WINS server on your network. Brother recommends the name BRN_XXXXXX (where XXXXXX is the last six digits of the Ethernet address) (up to 15 characters).

(For MFC-410CN, MFC-620CN, MFC-3340CN, MFC-5440CN, MFC-5840CN)

- 1 Press **Menu/Set**, **5**, **1**, **5**. (**4**, **1**, **5** for **MFC-5440CN**)
- 2 Select **1** to change. Enter the Host Name.
- 3 Press **Menu/Set**.
- 4 Press **Stop/Exit**.

(For DCP-310CN)

- 1 Press **Menu**.
- 2 Press **▲** or **▼** to select **3**. LAN.
Press **Set**.
- 3 Press **▲** or **▼** to select **1**. Setup TCP/IP.
Press **Set**.
- 4 Press **▲** or **▼** to select **5**. Host Name.
Press **Set**.
- 5 The Host Name will be displayed.
- 6 Press **Stop/Exit**.



DCP-310CN cannot change the Host Name from the control panel menu, however the BRAdmin Professional utility enables you to change the IP Address. (See Changing the IP Address using the BRAdmin Professional utility, page 2-2.)

WINS Config

This selection controls how the machine obtains the IP address for the WINS server.

(For MFC-410CN, MFC-620CN, MFC-3340CN, MFC-5440CN, MFC-5840CN)

- 1 Press **Menu/Set**, **5**, **1**, **6**. (**4**, **1**, **6** for **MFC-5440CN**)
- 2 Press **▲** or **▼** to select **Auto** or **Static**.
- 3 Press **Menu/Set**.
- 4 Press **Stop/Exit**.

(For DCP-310CN)

- 1 Press **Menu**.
- 2 Press **▲** or **▼** to select **3.LAN**.
Press **Set**.
- 3 Press **▲** or **▼** to select **1.Setup TCP/IP**.
Press **Set**.
- 4 Press **▲** or **▼** to select **6.WINS Config**.
Press **Set**.
- 5 Press **▲** or **▼** to select **Auto** or **Static**.
Press **Set**.
- 6 Press **Stop/Exit**.

Auto

Automatically uses a DHCP request to determine the IP addresses for the primary and secondary WINS servers. You must set the BOOT Method to Auto for this feature to work.

Static

Uses a specified IP address for the primary and secondary WINS servers.

WINS Server

(For MFC-410CN, MFC-620CN, MFC-3340CN, MFC-5440CN, MFC-5840CN)

- 1 Press **Menu/Set**, **5**, **1**, **7**. (**4**, **1**, **7** for **MFC-5440CN**)
- 2 Press **▲** or **▼** to select **Primary** or **Secondary**.
- 3 Press **Menu/Set**.
- 4 Enter the WINS Server address.
- 5 Press **Menu/Set**.
- 6 Press **Stop/Exit**.

(For DCP-310CN)

- 1 Press **Menu**.
- 2 Press **▲** or **▼** to select **3.LAN**.
Press **Set**.
- 3 Press **▲** or **▼** to select **1.Setup TCP/IP**.
Press **Set**.
- 4 Press **▲** or **▼** to select **7.WINS Server**.
Press **Set**.
- 5 Press **▲** or **▼** to select **Primary** or **Secondary**.
Press **Set**.
- 6 Press **▲** repeatedly to enter the first three-digit number for the WINS Server address.
Press **Set**.
Repeat this step until you have entered the fourth three-digit number to complete the WINS Server address.



Each number can also be increased or decreased by holding down **▲** or **▼**.

- 7 Press **Stop/Exit**.

Primary WINS Server IP Address

This field specifies the IP address of the primary WINS (Windows® Internet Naming Service) server. If set to a non-zero value, the machine will contact this server to register its name with the Windows® Internet Name Service.

Secondary WINS Server IP Address

This field specifies the IP address of the secondary WINS server. It is used as a backup to the Primary WINS server address. If the Primary server is unavailable, the machine still can register itself with a secondary server. If set to a non-zero value, the machine will contact this server to register its name with the Windows® Internet Name Service. If you have a primary WINS server, but no secondary WINS server, simply leave this field blank.

DNS Server

(For MFC-410CN, MFC-620CN, MFC-3340CN, MFC-5440CN, MFC-5840CN)

- 1 Press **Menu/Set**, **5**, **1**, **8**. (**4**, **1**, **8** for MFC-5440CN)
- 2 Press **▲** or **▼** to select **Primary** or **Secondary**.
- 3 Press **Menu/Set**.
- 4 Enter the DNS Server address.
- 5 Press **Menu/Set**.
- 6 Press **Stop/Exit**.

(For DCP-310CN)

- 1 Press **Menu**.
- 2 Press **▲** or **▼** to select **3.LAN**.
Press **Set**.
- 3 Press **▲** or **▼** to select **1.Setup TCP/IP**.
Press **Set**.
- 4 Press **▲** or **▼** to select **8.DNS Server**.
Press **Set**.
- 5 Press **▲** or **▼** to select **Primary** or **Secondary**.
Press **Set**.
- 6 Press **▲** repeatedly to enter the first three-digit number for the DNS Server address.
Press **Set**.
Repeat this step until you have entered the fourth three-digit number to complete the DNS Server address.



Each number can also be increased or decreased by holding down **▲** or **▼**.

- 7 Press **Stop/Exit**.

Primary DNS Server IP Address

This field specifies the IP address of the primary DNS (Domain Name Service) server.

Secondary DNS Server IP Address

This field specifies the IP address of the secondary DNS server. It is used as a backup to the Primary DNS server address. If the Primary server is unavailable, the machine will contact the Secondary DNS server.

APIPA

The setting of On will cause the print server to automatically allocate a Link-Local IP address in the range (169.254.1.0 - 169.254.254.255) when the Print/Scan server cannot obtain an IP address through the BOOT Method you have set (Menu, 5, 1, 1). Selecting Off means the IP address doesn't change, when the Print/Scan server cannot obtain an IP address through the BOOT Method you have set.

(For MFC-410CN, MFC-620CN, MFC-3340CN, MFC-5440CN, MFC-5840CN)

- 1** Press **Menu, 5, 1, 9.** (**4, 1, 9** for **MFC-5440CN**)
- 2** Press **▲** or **▼** to select **On** or **Off**.
- 3** Press **Menu/Set**.
- 4** Press **Stop/Exit**.

(For DCP-310CN)

- 1** Press **Menu**.
- 2** Press ▲ or ▼ to select 3.LAN.
Press **Set**.
- 3** Press ▲ or ▼ to select 1.Setup TCP/IP.
Press **Set**.
- 4** Press ▲ or ▼ to select 9.APIPA.
Press **Set**.
- 5** Press ▲ or ▼ to select On or Off.
Press **Set**.
- 6** Press **Stop/Exit**.

Setup Misc.

Ethernet

Ethernet link mode. Auto allows the print server to operate in 100BaseTX full or half duplex, or in 10BaseT full or half duplex mode by auto negotiation.

100BaseTX Full Duplex (100B-FD) or Half Duplex (100B-HD) and 10BaseT Full Duplex (10B-FD) or Half Duplex (10B-HD) fix the print server link mode. This change is valid after the print server has been reset (default is `Auto`).



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

(For MFC-410CN, MFC-620CN, MFC-3340CN, MFC-5440CN, MFC-5840CN)

- 1** Press **Menu/Set**, **5**, **2**, **1**. (**4**, **2**, **1** for **MFC-5440CN**)
- 2** Press **▲** or **▼** to select `Auto/100B-FD/100B-HD/10B-FD/10B-HD`.
- 3** Press **Menu/Set**.
- 4** Press **Stop/Exit**.

(For DCP-310CN)

- 1** Press **Menu**.
- 2** Press ▲ or ▼ to select 3.LAN.
Press **Set**.
- 3** Press ▲ or ▼ to select 2.Setup Misc.
Press **Set**.
- 4** Press ▲ or ▼ to select 1.Ethernet.
Press **Set**.
- 5** Press ▲ or ▼ to select Auto/100B-FD/100B-HD/
10B-FD/10B-HD.
Press **Set**.
- 6** Press **Stop/Exit**.

Time Zone

This field displays the time zone you can set for your country. The time is the difference between your location and Greenwich Mean Time. This time will be shown on documents received via the Internet. For example the Time Zone for Eastern Time in the USA and Canada is GMT-05:00.

(For MFC-410CN, MFC-620CN, MFC-3340CN, MFC-5440CN, MFC-5840CN)

- 1 Press **Menu/Set**, **5**, **2**, **2**. (**4**, **2**, **2** for **MFC-5440CN**)
- 2 Press **▲** or **▼** to enter the time.
- 3 Press **Menu/Set**.
- 4 Press **Stop/Exit**.

(For DCP-310CN)

- 1 Press **Menu**.
- 2 Press **▲** or **▼** to select **3.LAN**.
Press **Set**.
- 3 Press **▲** or **▼** to select **2.Setup Misc**.
Press **Set**.
- 4 Press **▲** or **▼** to select **2.Time Zone**.
Press **Set**.
- 5 Press **▲** or **▼** to enter the time.
Press **Set**.
- 6 Press **Stop/Exit**.

Windows® Time Zone Setting

You can determine the time difference for your location by using the Time Zone setting in Windows®.

- 1 Click on **Start**.
- 2 Select **Settings / Control Panel**.
- 3 Double click on **Date/Time**.
- 4 Select **Time Zone**.

Verify your time zone setting from the pull-down menu (this menu displays the time difference from GMT).

Network Configuration List

This feature prints a report listing all the current network Print/Scan server Settings.

(For MFC-410CN, MFC-620CN, MFC-3340CN, MFC-5440CN, MFC-5840CN)

- 1 Press **Menu/Set**, **6**, **6**. (**5**, **6** for **MFC-5440CN**)
- 2 Press **Mono Start** or **Colour Start**.
- 3 Press **Stop/Exit**.

(For DCP-310CN)

- 1 Press **Menu**.
- 2 Press **▲** or **▼** to select **4.Print Reports**. Press **Set**.
- 3 Press **▲** or **▼** to select **3.Network Config**. Press **Set**.
- 4 Press **Mono Start** or **Colour Start**.
- 5 Press **Stop/Exit**.

Restoring the Network Settings to Factory Default

To restore all network settings of the internal Print/Scan server to factory default, please follow the steps below.

(For MFC-410CN, MFC-620CN, MFC-3340CN, MFC-5440CN, MFC-5840CN)

- 1 Make sure the machine is not operating, then disconnect all the cables from the machine (except power cable).
- 2 Press **Menu/Set**, **5**, **0**. (**4**, **0** for **MFC-5440CN**)
- 3 Press **1** to select **Reset**.
- 4 Press **1** to select **Yes**.
- 5 The machine will re-start, re-connect cables once this is complete.

(For DCP-310CN)

- 1 Make sure the machine is not operating, then disconnect all the cables from the machine (except power cable).
- 2 Press **Menu**.
- 3 Press **▲** or **▼** to select **3.LAN**.
Press **Set**.
- 4 Press **▲** or **▼** to select **0.Factory Reset**.
Press **Set**.
- 5 Press **▲** to select **1.Reset**.
- 6 Press **▲** again to select **1.Yes**.
- 7 The machine will re-start, re-connect cables once this is complete.

4 Network Printing from Windows® (Peer to Peer)

For Windows® 2000/XP, LAN Server and Warp Server users

Overview

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 you want to disable the APIPA protocol, set APIPA to Off using control panel. For more information, see page 3-14. If the APIPA protocol is disabled, the default IP address of a Brother Print/Scan server is 192.0.0.192. To change it, use the machine's control panel, the BAdmin Professional utility software or let your DHCP server allocate an IP address to the printer.
- 2 The default password for Brother Print/Scan server is `access`.
- 3 Windows® 2000/XP users can print using TCP/IP with the standard Network Printing software.
- 4 The default name for a Brother Print/Scan server is usually `BRN_XXXXXX` (where `XXXXXX` is the last six digits of the Ethernet address of the Print/Scan server).

Windows® 2000/XP (TCP/IP) Configuration

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 most commonly used configurations, Standard TCP/IP Port printing. If you have already installed the printer driver, jump to the **printer driver already installed** section.

Standard TCP/IP Port Printing



There may be differences on Windows® XP in some steps.

- 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 **Create a new port** and select **Standard TCP/IP Port** port from the pull-down window.
- 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 machine on CD-ROM then select the **Have Disk** option to browse to the CD-ROM.
- 12 Select the “X:\ENG\W2K\Addprt” folder (where X is your drive letter). Click on **Open**, then **OK**. Select your printer model, then click **Next** (example is for Windows® 2000).
- 13 When the driver is installed, click the **Next** button.
- 14 Specify a name and click the **Next** button.
- 15 Now specify if you wish to share the printer, enter the share name and click **Next**.
- 16 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 to 10 of the “Standard TCP/IP Port Printing” section starting on the previous page.

For Windows® 98/Me users



Overview

Microsoft's Windows® 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® 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 you want to disable the APIPA protocol, set APIPA to Off using control panel. For more information, see page 3-14. If the APIPA protocol is disabled, the default IP address of a Brother Print/Scan server is 192.0.0.192. To change it, use the machine's control panel, the BAdmin Professional utility software or let your DHCP server allocate an IP address to the printer.
- 2 Refer to *chapter 2* of this user guide to learn how to configure the IP address on your machine.
- 3 The default password for Brother Print/Scan server is `access`.

Driver Deployment Wizard

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

If the administrator installs the printer driver and port driver using this software, they can save an executable file to the File server or send the file in an E-mail to other users. By simply running the attached executable file the user automatically installs and configures the printer driver, port driver and IP address to their PC.

TCP/IP Printing

Brother's 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/Scan 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 machine, for more information on IP address configuration, refer to *chapter 2* of this user 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 **Software Installation** menu. Then select the appropriate menu to start the **Brother Network Print Software** installation program.
- 3 Push the **Next** button in response to the Welcome message.
- 4 Select the **Brother Peer to Peer Print (LPR)** button.
- 5 Select the desired directory to install the **Brother Peer to Peer Print (LPR)** files and push **Next**. The installation program will create the directory for you if it does not already exist on your disk.
- 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/Scan 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/Scan server supports TCP/IP and NetBIOS names, you can also enter the NetBIOS name of the Print/Scan server. The NetBIOS name can be seen in your printer configuration page. By default the NetBIOS name will usually appear as BRN_XXXXXX where XXXXXX is the last six digits of the Ethernet address.



Windows® 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 push **Next**.
- 5 Select the correct driver. Click **Next** when you are done.
- 6 If you have selected a printer driver that is already being used, you have the option of either keeping the existing driver (recommended) or replacing it. Select the desired option and press **Next**.

- 7 Select the Brother LPR port (the port name you assigned in step 6 of the “Installing the Brother Peer to Peer Software” on page 4-5) and press **Next**.
- 8 Enter any desired name for the Brother printer and press **Next**. For example, you could call the printer “Networked Brother Printer”.
- 9 Windows® will now ask you if you wish to print out a test page, select **Yes** and then select **Finish**.

You have now finished installing the 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, press the **Start** button, select **Settings**, and open the **Printers** window. Click on the icon of the printer that you wish to configure, select **File** from the menu bar, and then choose **Properties**. Click on the **Details** tab and push the **Add Port** button. In the **Add Port** dialog, select the **Other** radio button and then highlight **Brother LPR port**. Click **OK** and enter the port name. The default port name is BLP1. If you have already used this name, you will get an error message if you try to use it again, in which case use BLP2, etc... Once you have specified the port name, click the **OK** button. You will then see the **Port Properties** dialog.

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

Other Sources of Information

Refer to *chapter 2* of this user guide to learn how to configure the IP address of the machine.

5 Network Printing from Macintosh®

TCP/IP Printing for Macintosh®

This chapter explains how to print from Macintosh® on a Network. For more information on how to configure the default Quick Draw driver on a Network, see the Quick Setup Guide included with the machine.

Printing from a Macintosh® using the Simple Network Configuration capabilities (Mac OS® X 10.2.4 or greater)

The Simple Network Configuration capabilities let you create an instant network of computers and smart devices just by connecting them to each other.

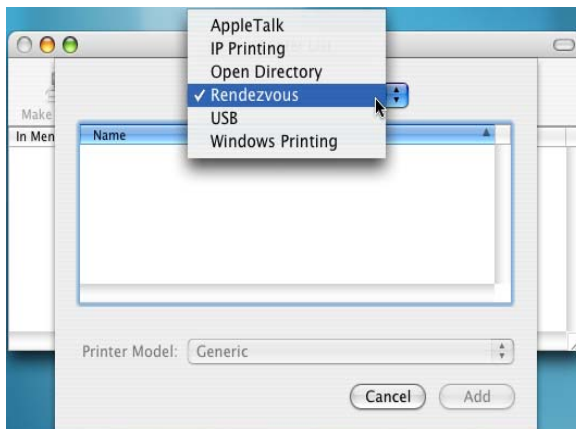
The Simple Network Configuration capabilities on a Macintosh® running OS X allow your machine to automatically configure its IP address settings.

Refer to the information below if you wish to learn how to configure a Brother machine into a Mac OS® X Simple Network Configuration environment. Please note that you must use the version Mac OS® X 10.2.4 or greater.

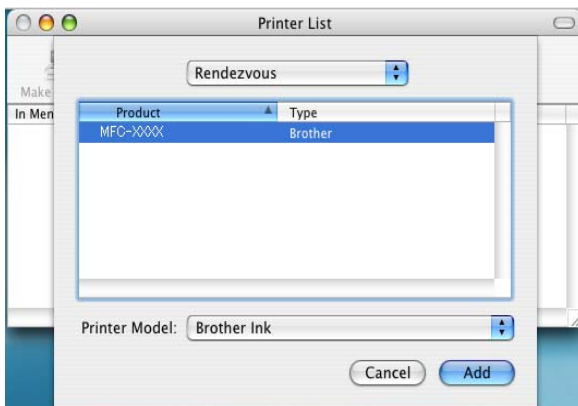
- 1 Run the **Print Center** software and click **Add**.



- 2 Select Rendezvous (maybe changed in the future version of the Mac OS® X) and any Simple Network Configuration compatible machines will be displayed.



- 3 Select the machine and click the **Add** button.



- 4 Click the machine and click the **Make Default** button to set the printer as the default printer. The machine is now ready to print.



Overview

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

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

Installation problems

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

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

Verify that the machine and the configuration are correct by printing the Network configuration page. Refer to page 3-19 of this user's guide. If the test fails, check:

- a If the LCD does not display "LAN Active" after being connected to the network, then the network firmware settings may be corrupted. Please refer to Step 3.
- b In this event, try to restore the factory default settings of the Print/Scan server from the menu. (See *Restoring the Network Settings to Factory Default*, page 3-20.) Once you have done that, switch the machine off then on again, then try to print out the Network configuration page. (See *Network Configuration List*, page 3-19.)

- 2 If the configuration page prints but you cannot print documents, try the following



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

a If you are using TCP/IP:

Try pinging the Print/Scan server from the host operating system command prompt with the command:

```
ping ipaddress
```

Where `ipaddress` is the Print/Scan server IP address (note that in some instances it can take up to two minutes for the Print/Scan server to load its IP address after setting the IP address). If a successful response is received, then proceed to the Windows® 98/Me Peer to Peer (LPR) or Internet Printing troubleshooting section. Otherwise, proceed to step 3, and then go to TCP/IP Troubleshooting section.

b If you are running Macintosh®:

If you are using the Quick Draw driver make sure that you can see the Print/Scan server name under the Brother Ink (IP) icon in the Chooser. If it is visible, then the connection is good, so proceed to the Macintosh® Section. Otherwise, go to step 3.

If you use the TCP/IP, please visit the Brother Solutions Center web site on: <http://solutions.brother.com>

- 3 If you cannot make any of the connections in step 2, check the following:

a Make sure the machine is powered on and on-line.

b Check the cabling, network connection, and print out a configuration page in the Network STATISTICS information to see if bytes are being transmitted and received.

- 4 If you are using a repeater or hub, make sure that SQE (heartbeat) is turned off at the hub (if applicable). Also, if you have a hub or multi-port repeater, verify that the hub or repeater port is good by trying the Print/Scan server on a different port or on the other hub or multi-port repeater.

- 5 If you have a bridge or router located between the Print/Scan server and host computer, make sure that the device is set up to allow the Print/Scan server to send and receive data from the host. For example, a bridge can be set up to only allow certain types of Ethernet addresses to pass through (a process known as filtering); therefore, such a bridge must be configured to allow Brother Print/Scan server addresses. Likewise, a router can be set up to pass only certain protocols, so be sure that the desired protocol can be passed through to the Print/Scan server.

Intermittent Problems

If the Print/Scan server and machine 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 machine 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/Scan 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 the following in order to eliminate the possibility of setup errors.

Turning off the machine and then on again.
To eliminate the possibility of setup errors, delete and recreate the print server, then create a new print queue.

- 1 The problem may be the result of mismatched or duplicate IP addresses. Verify that the IP address is correctly loaded into the Print/Scan server (via the configuration page. Make sure that no other nodes on the network have this address (DUPLICATE IP ADDRESSES ARE THE BIGGEST CAUSE OF TCP/IP PRINTING PROBLEMS).
- 2 Make sure that the TCP/IP protocol of the Print/Scan server is enabled.
- 3 If you used rarp, make sure that you started the rarp daemon on any workstation using the rarpd, rarpd-a, or equivalent command. Verify that the `/etc/ethers` file contains the correct Ethernet address and that the Print/Scan server name matches the name in the `/etc/hosts` file.
- 4 If you used bootp, make sure that you started the bootp daemon on any UNIX workstation and bootp is enabled (i.e., the “#” is removed from the bootp entry) in the `/etc/bootptab` file is correctly configured.
- 5 Also verify that host computer and the Print/Scan server are either on the same subnet, otherwise that the router is properly configured to pass data between the two devices.

Windows® 98/Me Peer to Peer Print (LPR) Troubleshooting

If you are having trouble printing on a Windows® 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 “TCP/IP Printing” on page 4-5.
- 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® 98/Me computers. Press the ALT and TAB keys to make it appear.

Appendix

Appendix A

General Information

You can change the configuration of your Print/Scan server using any of the following methods.

- Brother BRAdmin Professional utility for Windows® 98/Me and Windows® 2000/XP
- Brother Web BRAdmin Professional utility for IIS*

BRAdmin Professional utility (Recommended)

The Brother BRAdmin Professional utility can use the TCP/IP protocol. This utility allows you to graphically manage aspects of the network and printer.

Web BRAdmin

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

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

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

IIS* = Internet Information Server 4.0

or

Internet Information Services 5.0, 5.1

Using Services

General

A service is a resource that can be accessed by computers that wish to print to the Brother Print/Scan server. The Brother Print/Scan server provides the following predefined services (do a SHOW SERVICE command in the Brother Print/Scan 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).
BRN_XXXXXX_P1	Quickdraw Driver for Mac OS® 8.6 - 9.2, Mac OS® X 10.2.4 or greater.

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

Appendix B

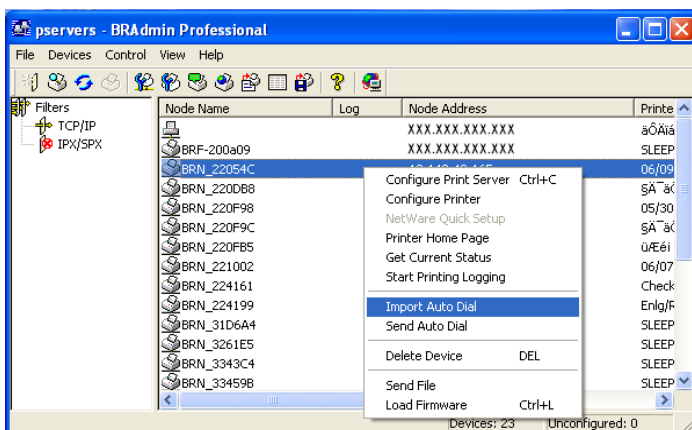
Updating other machines through the Network (Windows® only)

It is possible to program a Brother machine on the network with either settings from an already programmed machine or with data from the Brother PC-FAX Address Book. (See Software User's Guide chapter 5)

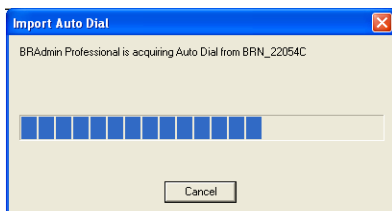
When Brother PC-FAX is used from a PC that has BRAdmin Professional installed, an extra option appears in BRAdmin Professional. By selecting a networked machine in the BRAdmin main window and right clicking it you will be presented with an extra option, **Import Auto Dial**.



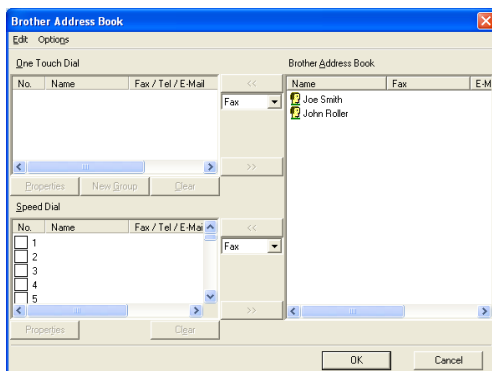
If the import Auto Dial option does not appear, open the Brother PC-FAX address book by selecting **Start, Programs, Brother, MFL-Pro Suite, PC-FAX Address Book**. It is necessary to run the address book utility to create an address book file.



When you select this option BRAdmin reads the telephone settings from that machine (if there are any programmed) into Brother PC-FAX Address Book.

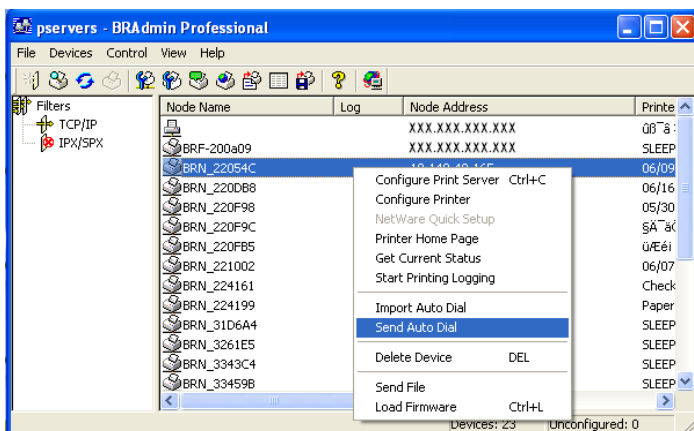


Illustrated below is a screenshot of the Brother PC-FAX Address Book dialog box. The left side of the dialog box displays the One-Touch / Speed-Dial numbers read from the machine. The right side displays a list of Brother Address Book members. You can add One-Touch / Speed-Dial numbers from the machine to this list or send members from the Address Book list to the machine.



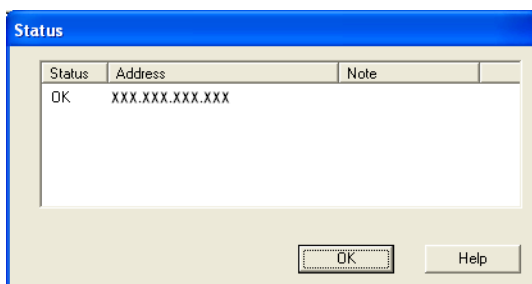
This data is then stored in the Windows® Temp Folder and can be used to update singular or multiple machines on the network.

Highlight singular or multiple networked Brother machines in the main BRAdmin window by highlighting and pressing the shift key on your keyboard. Right click the highlighted machine and press **Send Auto Dial**. The new data is then sent to all highlighted machines.



A dialog box is displayed showing the upload status of the current machine and beneath this the whole progress is displayed if updating multiple machines.

When the process is finished a dialog box is displayed showing which machine on the network has been updated.



Appendix C

Specifications

Operating System Support

Windows® 98/98SE/Me and Windows® 2000/XP

Mac OS® 8.6-9.2 / Mac OS® X 10.2.4 or greater

Protocol Support

TCP/IP (including the following)

- RARP, BOOTP, DHCP, APIPA, NetBIOS Name Resolution, WINS, DNS Resolver, LPR/LPD, Port9100, mDNS, TELNET, SNMP, TFTP

Network

10/100Base-TX Ethernet Network

Network Printing

Windows® 98/Me Peer-to-Peer Printing

Windows® 2000/XP TCP/IP Printing

Macintosh® Printing (Quick Draw over TCP/IP)

Network PC Fax send

Windows® 98/98SE/Me and Windows® 2000/XP

Mac OS® 8.6-9.2 / Mac OS® X 10.2.4 or greater

Network Scanning



Windows® 98/98SE/Me and Windows® 2000/XP



Up to 25 clients can be connected to one machine at a time.

Computer Requirements (for drivers, BRAdmin Professional, Peer-to-Peer software, etc.)

CPU

- Pentium 75MHz or Higher for Windows® 98/98SE
- Pentium 150MHz or Higher for Windows® Me
- Pentium 133MHz or Higher for Windows® 2000
- Pentium 233MHz or Higher for Windows® XP

RAM

- 24MB or greater (32MB recommended) for Windows® 98/98SE
- 32MB or greater (64MB recommended) for Windows® Me
- 64MB or greater (128MB recommended) for Windows® 2000/XP

For Macintosh® connection

Computer

- Ethernet ready Power Macintosh®

RAM

- 32MB or more (64MB or more recommended) for Mac OS® 8.6-9.2
- 128MB or more (160MB or more recommended) for Mac OS® X 10.2.4 or greater

OS

- Mac OS® 8.6-9.2 / Mac OS® X 10.2.4 or greater

Management Utilities

BRAdmin Professional utility

- Windows® 98/98SE/Me and Windows® 2000/XP

Web BRAdmin

- Windows® 2000 Professional/Server/Advanced Server/XP Professional

Function Table and Factory Default Settings

(For MFC-410CN, MFC-620CN, MFC-3340CN, MFC-5440CN, MFC-5840CN)

LEVEL ONE	LEVEL TWO	LEVEL THREE	OPTIONS	OPTIONS	FACTORY DEFAULT
5.LAN (4.LAN for MFC-5440CN)	1.Setup TCP/IP	1.BOOT Method	Auto/ Static/ RARP/ BOOTP/ DHCP		Auto
		2.IP Address	[000-255].[000-255].[000-255].[000-255]		169.254.X.X *1
		3.Subnet Mask	[000-255].[000-255].[000-255].[000-255]		255.255.0.0 *1
		4.Gateway	[000-255].[000-255].[000-255].[000-255]		000.000.000.000
		5.Host Name	BRN_XXXXXX=(last 6 figures of Ethernet address) (up to 15 characters)	BRN_XXXXXX	BRN_XXXXXX
		6.WINS Config	Auto/ Static		Auto
		7.WINS Server	(Primary) 000.000.000.000	(Secondary) 000.000.000.000	000.000.000.000
		8.DNS Server	(Primary) 000.000.000.000	(Secondary) 000.000.000.000	000.000.000.000
		9.APIPA	On/Off		On
	2.Setup Misc.	1.Ethernet	Auto/ 100B-FD/ 100B-HD/ 10B-FD/ 10B-HD		Auto
		2.Time Zone	GMTXXX:XX		GMT-00:00
	0.Factory Reset				

(For DCP-310CN)

LEVEL ONE	LEVEL TWO	LEVEL THREE	OPTIONS	OPTIONS	FACTORY DEFAULT
3.LAN	1.Setup TCP/IP	1.BOOT Method	Auto/ Static/ RARP/ BOOTP/ DHCP		Auto
		2.IP Address	[000-255].[000-255].[000-255].[000-255]		169.254.X.X *1
		3.Subnet Mask	[000-255].[000-255].[000-255].[000-255]		255.255.0.0 *1
		4.Gateway	[000-255].[000-255].[000-255].[000-255]		000.000.000.000
		5.Host Name	BRN_XXXXXX=(last 6 figures of Ethernet address) (up to 15 characters)	BRN_XXXXXX	BRN_XXXXXX
		6.WINS Config	Auto/ Static		Auto
		7.WINS Server	(Primary) 000.000.000.000	(Secondary) 000.000.000.000	000.000.000.000
		8.DNS Server	(Primary) 000.000.000.000	(Secondary) 000.000.000.000	000.000.000.000
		9.APIPA	On/Off		On
	2.Setup Misc.	1.Ethernet	Auto/ 100B-FD/ 100B-HD/ 10B-FD/ 10B-HD		Auto
		2.Time Zone	GMTXXX:XX		GMT-00:00
	0.Factory Reset				

*1: The factory setting for the 'IP Address' and 'Subnet Mask' setting may be changed by the APIPA setting.

INDEX

A

Address Book A-3
APIPA 2-1, 2-4, 3-14

B

BINARY_P1 A-2
BOOT Method 3-2
BOOTP 2-5
BRAdmin Professional 2-2, 2-3
BRN_XXXXXX_P1 A-2
Brother LPR Port 4-5, 4-7
Brother Peer to Peer Software
..... 4-5

D

DHCP 2-1, 2-4
DNS Server 3-13

E

Ethernet 3-16

F

Factory Default 3-20, A-9

G

Gateway 1-3, 3-8

H

Host Name 3-9

I

IBM LAN Server 4-1
IIS A-1
Internet Fax 1-7
IP Address 1-2, 3-5

L

LAN 3-1

LAN Server 4-1

M

Macintosh Printing 5-1

N

Network Configuration List 3-19
Network Printing 4-1
Node name 1-3
Notification message 3-16

O

OS/2 Warp Server 4-1

P

Password 4-4
PC-FAX 1-6
Peer-to-Peer 1-4
PhotoCapture Center 1-6
Ping 6-2
Printing 1-6
Protocol 1-1

Q

Quick Draw 5-1

R

RARP 2-5
Relay Domain 3-16
RFC 1001 2-4

S

Scan to E-mail Server 1-7
Scanning 1-6
Server Password 4-1
Simple Network Configuration
..... 5-1
Subnet Mask 1-2, 3-7

T

TCP/IP 1-1, 3-2

TCP/IP Printing4-5
TCP/IP protocol2-1
TEXT_P1A-2
Time Zone3-18

W

Warp Server4-1
Web BRAdminA-1
Windows Printing (2000/XP)
.....4-2
Windows Printing (98/ME)
.....4-4, 4-5
WINS Configuration3-10
WINS Server3-11