Multi-Protocol On-board Ethernet Multi-function Print Server

NETWORK USER'S GUIDE

Please read this manual thoroughly before using this machine on your network. 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 printing needs. Download the latest drivers and utilities for your machine, read FAQs and troubleshooting tips or learn about special printing solutions.

Version 0

Definitions of warnings, cautions, and notes

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

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

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

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IMPORTANT NOTE

- Windows® XP in this document represents Windows® XP Professional, Windows® XP Professional x64 Edition and Windows® XP Home Edition.

Brother numbers

IMPORTANT

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

For Customer Service

In USA	1-800-284-4329
In Canada	1-877-BROTHER
In Europe	Visit http://www.brother.com for contact information on your local Brother office.

- 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, call 1-877-BROTHER.

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

In USA	Customer Support Brother International Corporation 100 Somerset Corporate Boulevard Bridgewater NJ 08807-0911
In Canada	Brother International Corporation (Canada), Ltd. - Marketing Dept. 1, rue Hôtel de Ville Dollard-des-Ormeaux, PQ, Canada H9B 3H6
In Europe	European Product & Service Support 1 Tame Street Audenshaw Manchester, M34 5JE, UK

Internet address

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

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

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

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

Table of Contents

1 Introduction

Overview

The Brother machine can be shared on a 10/100 MB wired Ethernet network using the internal network print server. The print server supports various functions and methods of connection depending on the operating system you are running on a network supporting TCP/IP. These functions include printing, scanning, PC-FAX send, PC-FAX receive, PhotoCapture Center™, Remote Setup and Status Monitor. The following chart shows what network features and connections are supported by each operating system.

Operating Systems	Windows® 2000 Windows® XP Windows® XP Professional x64 Edition Windows Vista™	Mac OS® X 10.2.4 or greater
10/100BASE-TX Wired Ethernet (TCP/IP)	✔	✔
Printing	✔	✔
BRAdmin Light	✔	✔
BRAdmin Professional [1]	✔	
Web BRAdmin [1]	✔	
Scanning	✔	✔
PC Fax Send [2]	✔	✔
PC Pax Receive [2]	✔	
PhotoCapture Center™	✔	✔
Remote Setup [2]	✔	✔
Status Monitor	✔	✔
Driver Deployment Wizard	✔	

[1] BRAdmin Professional and Web Admin are available as a download from http://solutions.brother.com.

[2] Not available for DCP models.

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

Network function features

Your Brother machine has the following basic network functions.

Network printing

The print server provides printing services for Windows® 2000/XP/XP Professional x64 Edition and Windows Vista™ supporting the TCP/IP protocols and Macintosh® supporting TCP/IP (Mac OS® X 10.2.4 or greater).

Network scanning

You can scan documents over the network to your computer (See *Network Scanning* in the Software User's Guide).

Network PC-FAX (Not available for DCP models)

You can directly send a PC file as a PC-FAX over your network (See *Brother PC-FAX Software* for Windows® and *Sending a Fax* for Macintosh® in the Software User's Guide for a complete description). Windows® users can also PC-FAX receive (See *PC-FAX receiving* in the Software User's Guide).

Network PhotoCapture Center™

You can view, retrieve and save data from USB flash memory drive or a media card inserted into the Brother machine.The software is automatically installed when you select network connection during the software installation. For Windows®, choose **PhotoCapture** tab of the **ControlCenter3**. For more information, see *ControlCenter3* in the Software User's Guide. For Macintosh®, launch any web browser in which FTP is available and enter FTP://xxx.xxx.xxx.xxx (where xxx.xxx.xxx.xxx is the IP address of your Brother machine).

Management utilities

BRAdmin Light

BRAdmin Light is a utility for initial setup of the Brother network connected devices. This utility can search for Brother product on your network, view the status and configure basic network settings, such as IP address from a computer running Windows® systems and Mac OS® X 10.2.4 or greater. For installing BRAdmin Light on Windows®, please see the Quick Setup Guide we provided with the machine. For Macintosh® users, BRAdmin Light will be installed automatically when you install the printer driver. If you have already installed the printer driver, you don't have to install it again.

For more information on BRAdmin Light, visit us at http://solutions.brother.com.

BRAdmin Professional (for Windows®)

BRAdmin Professional is a utility for more advanced management of network connected Brother devices. This utility can search for Brother products on your network, view the status and configure the network settings from a computer running Windows® system. BRAdmin Professional has additional features from BRAdmin Light.

For more information and downloading, visit us at http://solutions.brother.com.

Web BRAdmin (for Windows®)

Web BRAdmin is a utility for managing network connected Brother devices on your LAN and WAN. This utility can search for Brother product on your network, view its status and configure the network settings. Unlike BRAdmin Professional, which is designed for Windows® only, the Web BRAdmin server utility can be accessed from any client PC with a web browser that supports JRE (Java Runtime Environment). By installing the Web BRAdmin server utility on a PC running IIS [1], administrators with a web browser can connect to the Web BRAdmin server, which then communicates with the device itself.

For more information and downloading, visit us at http://solutions.brother.com.

[1] Internet Information Server 4.0 or Internet Information Service 5.0/5.1/6.0/7.0

Remote Setup (Not available for DCP models)

The Remote Setup software allows you to configure network settings from a Windows® or Macintosh® (Mac OS® X 10.2.4 or greater). (See *Remote Setup* in the Software User's Guide).

Note

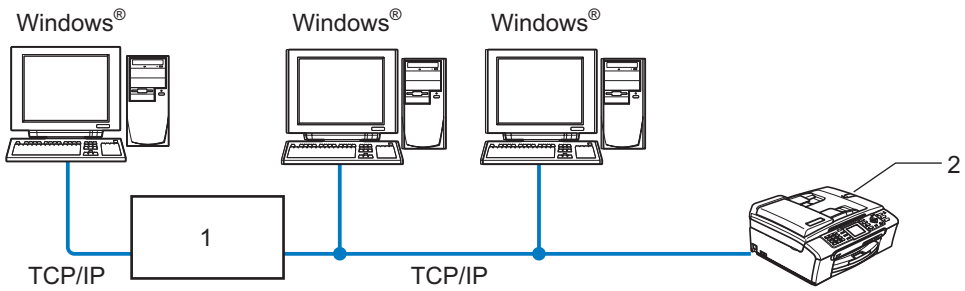
We recommend Microsoft Internet Explorer 6.0® (or higher) or Firefox® 1.0 (or higher) for Windows® and Safari™ 1.0 for Macintosh®. Please also make sure that JavaScript and Cookies are always enabled in whichever browser you use. We recommend you upgrade to Safari™ 1.2 or higher to enable JavaScript. If a different web browser is used, make sure it is compatible with HTTP 1.0 and HTTP 1.1.

Types of Network Connections

Network Connection Example

Peer-to-Peer printing using TCP/IP

In a Peer-to-Peer environment, each computer directly sends and receives data to each device. There is no central server controlling file access or printer sharing.



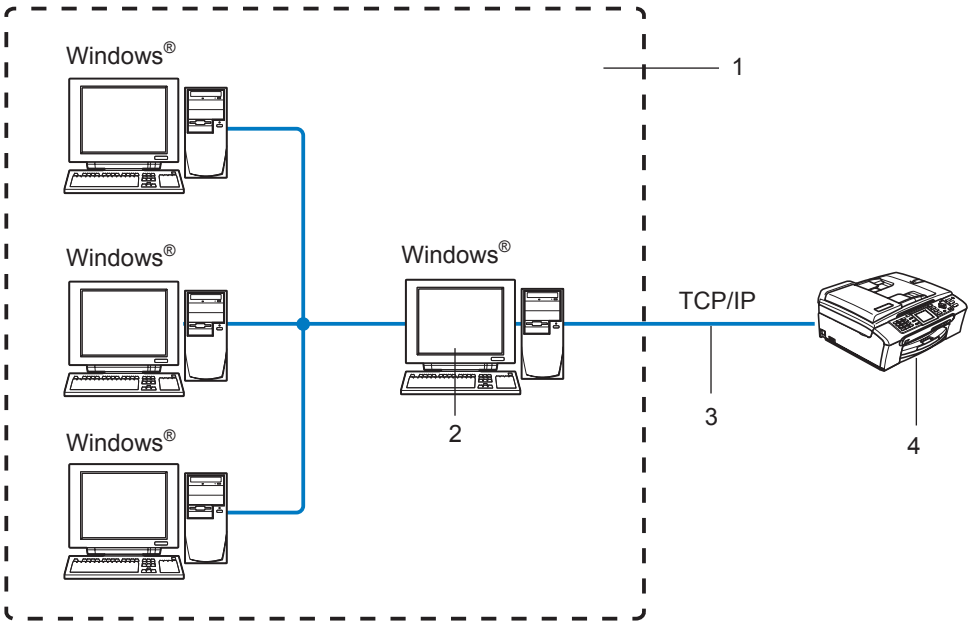
1 Switch or Router

2 Network printer (your machine)

- In a smaller network of 2 or 3 computers, we recommend the Peer-to-Peer printing method as it is easier to configure than the Network Shared Printing method described on the following page. See *Network Shared Printing* on page 5.
- Each computer must use the TCP/IP Protocol.
- The Brother machine needs an appropriate IP address configuration.
- If you are using a router, the Gateway address must be configured on the computers and the Brother machine.

Network Shared Printing

In a Network Shared environment, each computer sends data via a centrally controlled computer. This type of computer is often called a “Server” or a “Print Server”. Its job is to control the printing of all print jobs.



1 Network Shared

2 Also known as “Server” or “Print Server”

3 TCP/IP or USB

4 Network printer (your machine)

- In a larger network, we recommend a Network Shared printing environment.
- The “Server” or the “Print Server” must use the TCP/IP Print Protocol.
- The Brother machine needs an appropriate IP address configuration unless the machine is shared via the USB port of the server.

Protocols

TCP/IP protocols and functions

Protocols are the standardized sets of rules for transmitting data on a network. Protocols allow users to gain access to network connected resources. The print server used on this Brother product supports the TCP/IP (Transmission Control Protocol/Internet Protocol) protocols. TCP/IP is the most popular set of protocols used for communication such as Internet and E-mail. This protocol can be used in almost all operating systems such as Windows®, Macintosh® and Linux. The following TCP/IP protocols are available on this Brother product.

DHCP/BOOTP/RARP

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

Note

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

APIPA

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

DNS client

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

LPR/LPD

Commonly used printing protocols on a TCP/IP network.

Port9100

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

mDNS

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

TELNET

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

SNMP

The Simple Network Management Protocol (SNMP) is used to manage network devices including computers, routers and Brother network ready machines.

LLTD

The Link Layer Topology Discovery protocol (LLTD) lets you locate the Brother machine easily on the Windows Vista™ **Network Map**. Your Brother machine will be shown with a distinctive icon and the node name. The default setting for this protocol is Off.

You can activate LLTD using the BRAdmin Professional utility software. Visit the download page for your model at http://solutions.brother.com to download BRAdmin Professional.

Web Services

The Web Services protocol enables Windows Vista™ users to install the Brother printer driver by right-clicking the machine icon from the **Start** / **Network** selection. (See *Installation when using Web Services (For Windows Vista™ users)* on page 47). The Web Services also lets you check the current status of the machine from your computer.

2 Configuring your network printer

Overview

Before you can use your Brother machine on your network, you need to install the Brother software and also configure the appropriate TCP/IP network settings on the machine itself. To do this, we recommend that you use the automatic installer on the Brother CD-ROM as this will guide you through the software and network installation.

If you do not wish to use the automatic installer, or you do not understand some of the terms used by the automatic installer, refer to the remainder of this chapter for more information.

Note

If you do not wish to, or are unable to use the automatic installer or any of Brother's software tools, you can also use the machine's control panel to change network settings. For more information, see *Control panel setup* on page 15.

IP addresses, subnet masks and gateways

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

IP address

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

- Example: In a small network, you would normally change the final number.

  192.168.1.1, 192.168.1.2, 192.168.1.3

If you have a DHCP/BOOTP/RARP server in your network (typically a UNIX®/Linux, Windows® 2000/XP or Windows Vista™ network) the print server will automatically obtain its IP address from that server.

Note

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

For more information on DHCP, BOOTP and RARP, see *Using DHCP to configure the IP address* on page 42, *Using BOOTP to configure the IP address* on page 42 and *Using RARP to configure the IP address* on page 43.

If you do not have a DHCP/BOOTP/RARP server, the Automatic Private IP Addressing (APIPA) protocol will automatically assign an IP address from the range 169.254.1.0 to 169.254.254.255. For more information on APIPA, see *Using APIPA to configure the IP address* on page 44.

If the APIPA protocol is disabled, the default IP address of a Brother print server is 192.0.0.192. However, you can easily change this IP address number to match with the IP address details of your network. For information on how to change the IP address, see *Setting up the IP address and subnet mask* on page 10.

Subnet mask

Subnet masks restrict network communication.

■ Example: Computer1 can talk to Computer2

- Computer1

  IP Address: `192.168.1.2`

  Subnet Mask: `255.255.255.0`

- Computer2

  IP Address: `192.168.1.3`

  Subnet Mask: `255.255.255.0`

Note

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

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

Gateway (and router)

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

Setting up the IP address and subnet mask

Using the BRAdmin Light utility to configure your machine for the network printer

BRAdmin Light

The BRAdmin Light utility is designed for initial setup of the Brother network connected devices. It also can search for Brother products in a TCP/IP environment, view the status and configure basic network settings, such as IP address. The BRAdmin Light utility is available for Windows® 2000/XP, Windows Vista™ and Mac OS® X 10.2.4 or greater.

How to configure your machine using the BRAdmin Light utility

Note

- Please use the BRAdmin Light utility version that was supplied on the CD-ROM of your Brother product. You can also download the latest Brother BRAdmin Light utility version from http://solutions.brother.com.
- If you require more advanced printer management, use the latest Brother BRAdmin Professional utility that is available as a download from http://solutions.brother.com. This utility is only available for Windows® users.
- If you are using personal Firewall software, disable it. Once you are sure that you can print, re-start your personal Firewall software.
- Node Name: Node Name appears in current BRAdmin Light. The default Node Name of the network card in the machine is “BRNxxxxxxxxxxxx” (“xxxxxxxxxxxx” is your machine’s Ethernet address.) [1].
- By default, no password is required. To set a password, double click the device you want to set a password. Click **Control** tab, and then click **Change Password**. Enter the new password.

[1] For DCP560CN, the default Node Name is “BRN_xxxxxx” (“xxxxxx” is the last six digits of Ethernet address.).

1. Start the BRAdmin Light utility.

   - For Windows® 2000/XP and Windows Vista™

     Click **Start** / **All Programs** [1] / **Brother** / **BRAdmin Light** / **BRAdmin Light**.

     [1] **Programs** for Windows® 2000 users

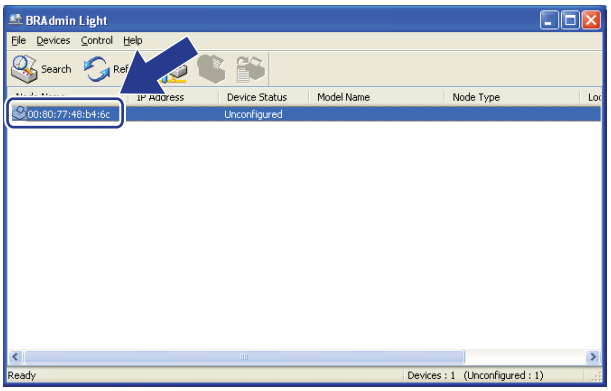
   - For Mac OS® X 10.2.4 or greater users

     Double-click **Macintosh HD** (Startup Disk) / **Library** / **Printers** / **Brother** / **Utilities** / **BRAdmin Light.jar** file.

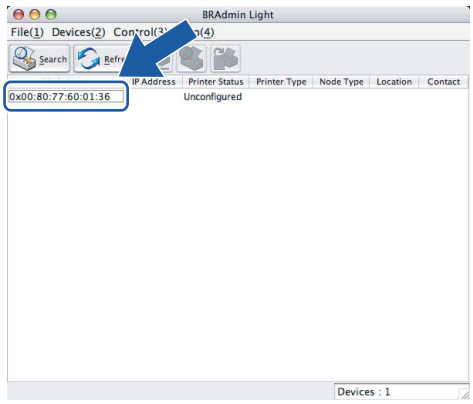
2. BRAdmin Light will search for new devices automatically.

3 Double-click the unconfigured device.

Windows®



Macintosh®

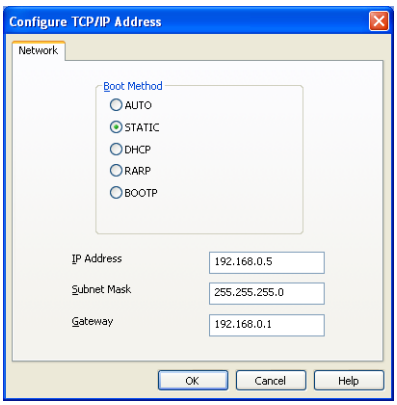


Note

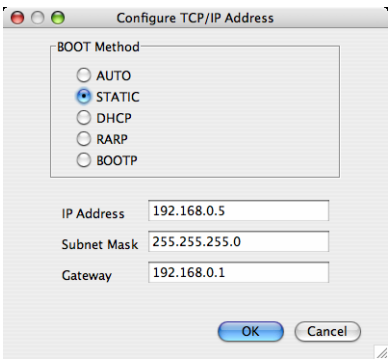
- If the print server is set to its factory default settings without using a DHCP/BOOTP/RARP server, the device will appear as **Unconfigured** in the BRAdmin Light utility screen.
- You can find the Node Name and Ethernet address by printing the Network Configuration List. See *Printing the Network Configuration List* on page 24 for information on how to print the Network Configuration List on your print server.

4 Choose **Static** from **Boot Method**. Enter the **IP address**, **Subnet Mask** and **Gateway** (if needed) of your print server.

Windows®



Macintosh®



5 Click **OK**.

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

Using the control panel to configure your machine for a network

You can configure your machine for a network using the control panel LAN menu. See *Control panel setup* on page 15.

Using other methods to configure your machine for a network

You can configure your machine for a network using other methods. See *Other ways to set the IP address (for advanced users and administrators)* on page 42.

Changing the print server settings

Using the BRAdmin Light utility to change the print server settings

1. Start the BRAdmin Light utility.

   - For Windows® 2000/XP and Windows Vista™ users

     Click **Start** / **All Programs** [1] / **Brother** / **BRAdmin Light** / **BRAdmin Light**.

     [1] **Programs** for Windows® 2000 users

   - For Mac OS® X 10.2.4 or greater users

     Double-click **Macintosh HD** (Startup Disk) / **Library** / **Printers** / **Brother** / **Utilities** / **BRAdmin Light.jar** file.

2. Select the print server which you want to change the settings.
3. Select **Network Configuration** from the **Control** menu.
4. Enter a password if you have set it.
5. You can now change the print server settings.

Note

If you want to change more advanced settings, use the BRAdmin Professional utility that is available as a download from http://solutions.brother.com.

Using the control panel to change the print server settings

You can configure and change the print server settings using the control panel LAN menu. See *Control panel setup* on page 15.

Using the Remote Setup to change the print server settings (Not available for DCP models)

Remote Setup for Windows®

The Remote Setup application allows you to configure network settings from a Windows® application. When you access this application, the settings on your machine will be downloaded automatically to your PC and displayed on your PC screen. If you change the settings, you can upload them directly to the machine.

1. Click the **Start** button, **All Programs**, **Brother**, **MFC-XXXX LAN**, then **Remote Setup** (where XXXX is your model name).
2. Enter a password if you have set it.
3. Click **TCP/IP (Wired)** or **Setup Misc**.
4. You can now change the print server settings.

Remote Setup for Macintosh®

The Remote Setup application allows you to configure many MFC settings from a Macintosh® application. When you access this application, the settings on your machine will be downloaded automatically to your Macintosh® and displayed on your Macintosh® screen. If you change the settings, you can upload them directly to the machine.

1. Double click the **Macintosh HD** icon on your desktop, **Library**, **Printers**, **Brother**, then **Utilities**.
2. Double click the **Remote Setup** icon.
3. Enter a password if you have set it.
4. Click **TCP/IP (Wired)** or **Setup Misc**.
5. You can now change the print server settings.

3 Control panel setup

LAN menu

Before using your Brother product in a network environment, you need to configure the correct TCP/IP settings. For more information, see *Configuring your network printer* on page 8.

In this chapter, you will learn how to configure the network settings using the control panel, located on the front of the machine.

The LAN menu selections of the control panel allow you to set up the Brother machine for your network configuration. Press **Menu**, then press ▲ or ▼ to select LAN. Proceed to the menu selection you wish to configure. See *Function table and default factory settings* on page 50.

Please note that the machine is supplied with the BRAdmin Light Windows® software and Remote Setup applications for Windows® and Macintosh®, which also can be used to configure many aspects of the network. See *Using the Remote Setup to change the print server settings (Not available for DCP models)* on page 14 for wired connection.

TCP/IP

This menu has nine sections: BOOT Method, IP Address, Subnet Mask, Gateway, Node 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.

Note

If you do not want your print server configured via DHCP, BOOTP or RARP, you must set the BOOT Method to Static so that the print server has a static IP address. This will prevent the print server from trying to obtain an IP address from any of these systems. To change the BOOT Method, use the machine's control panel, BRAdmin Light utility or Remote Setup.

1. Press **Menu**.
2. Press ▲ or ▼ to select LAN.
   Press **OK**.
3. Press ▲ or ▼ to select TCP/IP.
   Press **OK**.
4. Press ▲ or ▼ to select BOOT Method.
   Press **OK**.
5. Press ▲ or ▼ to select Auto, Static, RARP, BOOTP or DHCP.
   Press **OK**.

   (For MFC-680CN) Press ◄ or ► to select Auto, Static, RARP, BOOTP or DHCP.
   Press **OK**.

6 Press **Stop/Exit**.

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 *Using APIPA to configure the IP address* on page 44. After it is initially powered ON, it may take a few minutes for the machine to scan the network for a server.

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.

RARP mode

The Brother print server IP address can be configured using the Reverse ARP (RARP) service 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:

(For DCP-560CN) `00:80:77:31:01:07 BRN_310107`

(For other models) `00:80:77:31:01:07 BRN008077310107`

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

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

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

For AT&T UNIX® based systems, type:

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

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

BOOTP 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
```

Note

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

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

(For DCP-560CN)

```
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:
```

(For other models)

```
BRN008077310107 1  00:80:77:31:01:07 192.189.207.3
```

and:

```
BRN008077310107:ht=ethernet:ha=008077310107:\
ip=192.189.207.3:
```

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

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

DHCP mode

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

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 administrator 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 administrator for an IP address for the network the unit will be connected on.

1. Press **Menu**.

2. Press ▲ or ▼ to select `LAN`.
   Press **OK**.
3. Press ▲ or ▼ to select `TCP/IP`.
   Press **OK**.
4. Press ▲ or ▼ to select `IP Address`.
   Press **OK**.
5. Press ▲ or ▼ to select `Change`.
   Press **OK**.

   (For MFC-680CN) Skip to step ❻.
6. Enter the IP address.
   Press **OK**.

Note

For DCP models, press ▲ or ▼ repeatedly to enter the first three-digit number for the IP address. Press ▶ to enter the second three-digit number. Repeat this step until you have entered the fourth three-digit number to complete the IP address. Press **OK**.

7. Press **Stop/Exit**.

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 administrator for the subnet mask to use.

1. Press **Menu**.
2. Press ▲ or ▼ to select `LAN`.
   Press **OK**.
3. Press ▲ or ▼ to select `TCP/IP`.
   Press **OK**.
4. Press ▲ or ▼ to select `Subnet Mask`.
   Press **OK**.
5. Press ▲ or ▼ to select `Change`.
   Press **OK**.

   (For MFC-680CN) Skip to step ❻.
6. Enter the Subnet Mask address.
   Press **OK**.

Note

For DCP models, press ▲ **or** ▼ repeatedly to enter the first three-digit number for the Subnet Mask. Press ▶ to enter the second three-digit number. Repeat this step until you have entered the fourth three-digit number to complete the Subnet Mask. Press **OK**.

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 administrator if you are unsure.

1 Press **Menu**.

2 Press ▲ or ▼ to select `LAN`.
Press **OK**.

3 Press ▲ or ▼ to select `TCP/IP`.
Press **OK**.

4 Press ▲ or ▼ to select `Gateway`.
Press **OK**.

5 Press ▲ or ▼ to select `Change`.
Press **OK**.

(For MFC-680CN) Skip to step ❻.

6 Enter the Gateway address.
Press **OK**.

Note

For DCP models, press ▲ or ▼ repeatedly to enter the first three-digit number for the Gateway address. Press ▶ to enter the second three-digit number. Repeat this step until you have entered the fourth three-digit number to complete the Gateway address. Press **OK**.

7 Press **Stop/Exit**.

Node 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 BRNxxxxxxxxxxxx for a wired network [1] (where xxxxxxxxxxxx is your machine's Ethernet address) (up to 15 characters).

[1] For DCP-560CN, the default Node Name is BRN_xxxxxx ("xxxxxx" is the last six digits of Ethernet address).

1 Press **Menu**.

2. Press ▲ or ▼ to select `LAN`.
   Press **OK**.
3. Press ▲ or ▼ to select `TCP/IP`.
   Press **OK**.
4. Press ▲ or ▼ to select `Node Name`.
   Press **OK**.
5. Press ▲ or ▼ to select `Change`.
   Press **OK**.

   (For MFC-680CN) Skip to step ❻.
6. Enter the Node Name.
   Press **OK**.

Note

DCP models cannot change the Node Name from the control panel menu.

7. Press **Stop/Exit**.

WINS Config

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

1. Press **Menu**.
2. Press ▲ or ▼ to select `LAN`.
   Press **OK**.
3. Press ▲ or ▼ to select `TCP/IP`.
   Press **OK**.
4. Press ▲ or ▼ to select `WINS Config`.
   Press **OK**.
5. Press ▲ or ▼ to select `Auto` or `Static`.
   Press **OK**.

   (For MFC-680CN) Press ◄ or ► to select `Auto` or `Static`.
   Press **OK**.
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 or DHCP for this feature to work.

Static

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

WINS Server

1. Press **Menu**.
2. Press▲ or ▼ to select `LAN`.
   Press **OK**.
3. Press ▲ or ▼ to select `TCP/IP`.
   Press **OK**.
4. Press ▲ or ▼ to select `WINS Server`.
   Press **OK**.
5. Press ▲ or ▼ to select `Primary` or `Secondary`.
   Press **OK**.
6. Press ▲ or ▼ to select `Change`.
   Press **OK**.

   (For MFC-680CN) Skip to step ❼.
7. Enter the WINS Server address.
   Press **OK**.

Note

For DCP models, press ▲ or ▼ repeatedly to enter the first three-digit number for the WINS Server address. Press ▶ to enter the second three-digit number. Repeat this step until you have entered the fourth three-digit number to complete the WINS Server address. Press **OK**.

8. 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

1. Press **Menu**.
2. Press ▲ or ▼ to select `LAN`.
   Press **OK**.
3. Press ▲ or ▼ to select `TCP/IP`.
   Press **OK**.
4. Press ▲ or ▼ to select `DNS Server`.
   Press **OK**.
5. Press ▲ or ▼ to select `Primary` or `Secondary`.
   Press **OK**.
6. Press ▲ or ▼ to select `Change`.
   Press **OK**.

   (For MFC-680CN) Skip to step ❼.
7. Enter the DNS Server address.
   Press **OK**.

Note

For DCP models, press ▲ or ▼ repeatedly to enter the first three-digit number for the DNS Server address. Press ▶ to enter the second three-digit number. Repeat this step until you have entered the fourth three-digit number to complete the DNS Server address. Press **OK**.

8. 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 server cannot obtain an IP address through the BOOT Method you have set (see *BOOT Method* on page 15). Selecting Off means the IP address doesn't change, when the print server cannot obtain an IP address through the BOOT Method you have set.

1. Press **Menu**.
2. Press ▲ or ▼ to select `LAN`.
   Press **OK**.

3. Press ▲ or ▼ to select `TCP/IP`.
   Press **OK**.
4. Press ▲ or ▼ to select `APIPA`.
   Press **OK**.
5. Press ▲ or ▼ to select `On` or `Off`.
   Press **OK**.

   (For MFC-680CN) Press ◀ or ▶ to select `On` or `Off`.
   Press **OK**.
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.

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

Note

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

1. Press **Menu**.
2. Press ▲ or ▼ to select `LAN`.
   Press **OK**.
3. Press ▲ or ▼ to select `Setup Misc.`.
   Press **OK**.

   (For MFC-680CN) Skip to ❺
4. Press ▲ or ▼ to select `Ethernet`.
   Press **OK**.
5. Press ▲ or ▼ to select `Auto`/`100B-FD`/`100B-HD`/`10B-FD`/`10B-HD`.

   (For MFC-680CN) Press ◀ or ▶ to select `Auto`/`100B-FD`/`100B-HD`/`10B-FD`/`10B-HD`.
6. Press **Stop/Exit**.

Printing the Network Configuration List

Note

Node Name: Node Name appears in the Network Configuration List. The default Node Name is “BRNxxxxxxxxxxxx” [1] for a wired network (“xxxxxxxxxxxx” is your machine’s Ethernet address).

[1] For DCP-560CN, the default Node Name is BRN_xxxxxx (“xxxxxx” is the last six digits of Ethernet address).

The Network Configuration List prints a report listing all the current network configuration including the network print server settings.

1. Press **Menu**.
2. Press ▲ or ▼ to select `Print Reports`.
   Press **OK**.
3. Press ▲ or ▼ to select `Network Config`.
   Press **OK**.
4. (For US) Press **Black Start** or **Color Start**.
   (For UK) Press **Mono Start** or **Colour Start**.

Restoring the network settings to factory default

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

Note

This function restores all wired network settings to the factory default.

1. Press **Menu**.
2. Press ▲ or ▼ to select `LAN`.
   Press **OK**.
3. Press ▲ or ▼ to select `Factory Reset`.
   Press **OK**.
4. Press **1** for `Factory Reset`.
5. Press **1** for Reboot.

Note

For DCP model, press **+** for Factory Reset and then press **+** for Reboot.

6. The machine will re-start. You can now reconnect the network cable and configure the network settings to work with your network.

4 Driver Deployment Wizard (Windows® only)

Overview

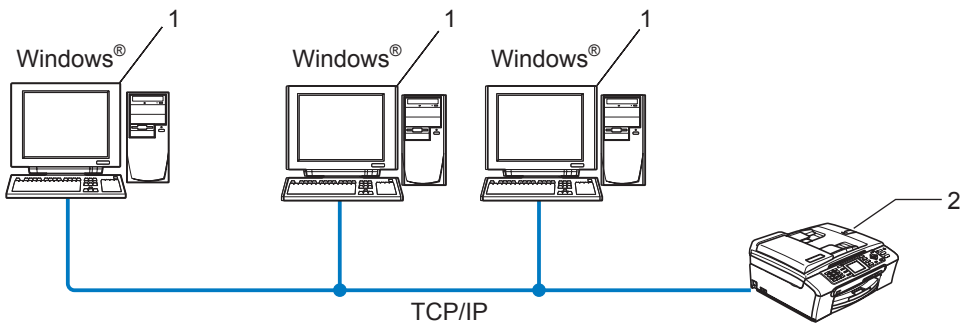
The Driver Deployment Wizard software can be used to ease the installation or even automate the installation of a network connected printers.The Driver Deployment Wizard can also be used to create self running executable files which when run on a remote PC, completely automate the installation of a printer driver. The remote PC does not have to be connected to a network.

Connection methods

The Driver Deployment Wizard supports the two connection methods.

Peer-to-Peer

The device is connected to the network but each user prints directly to the printer WITHOUT printing through a central queue.

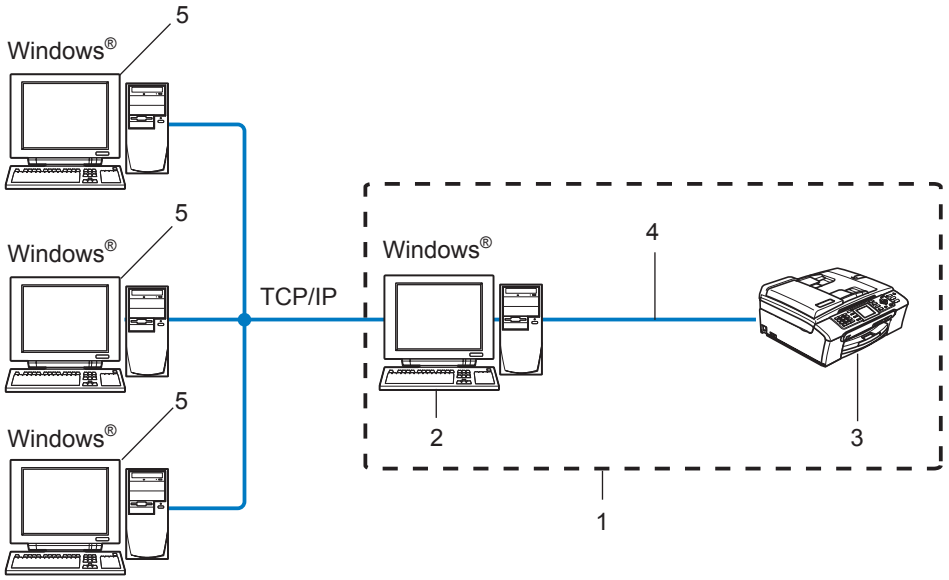


1 Client Computer

2 Network Printer (your machine)

Network Shared Printer

The device is connected to a network and a central print queue is used to manage all print jobs.



1 Network Shared

2 Print server

3 Printer (your machine)

4 TCP/IP or USB (where available)

5 Client Computer

How to install the Driver Deployment Wizard software

1. Put the supplied CD-ROM into your CD-ROM drive. The opening screen will appear automatically.
2. Select your language. Then click **Install Other Drivers or Utilities**.
3. Select the **Driver Deployment Wizard** installation program.

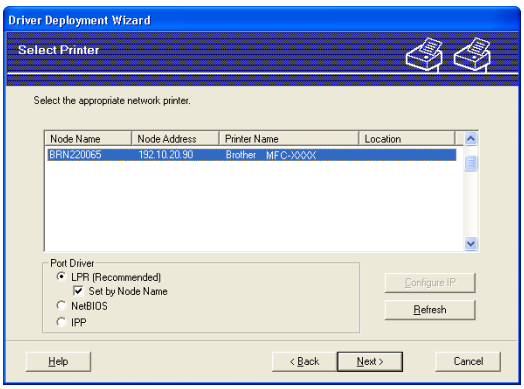
Note

For Windows Vista™, when the **User Account Control** screen appears, click **Continue**.

4. Click **Next** in response to the Welcome message.
5. Read the license agreement carefully. Then follow the on-screen instructions.
6. Click **Finish**. Now the Driver Deployment Wizard software has been installed.

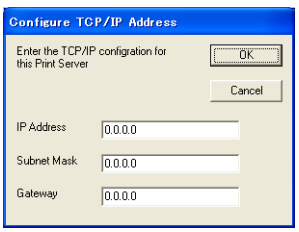
Using the Driver Deployment Wizard software

1. When you run the Wizard for the first time you will see a welcome screen. Click **Next**.
2. Choose **Printer**, and then click **Next**.
3. Choose your connection type to the printer that you want to print to.
4. Choose the option you require, and follow the on-screen instructions.
   If you choose **Brother Peer-to-Peer Network Printer**, the following screen is displayed.

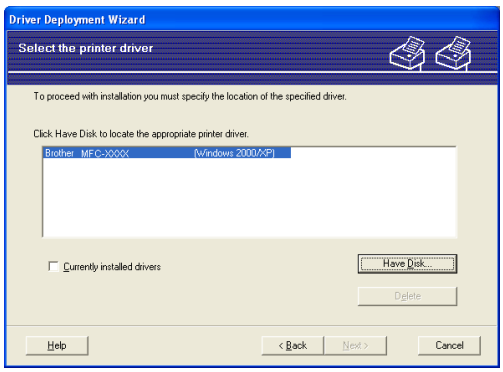


■ Setting the IP Address

If the printer does not have an IP address, the Wizard will allow you to change the IP address by selecting the printer from the list and by selecting the **Configure IP** option. A dialogue box then appears which allows you to specify information such as the IP address, subnet mask and also the gateway address.

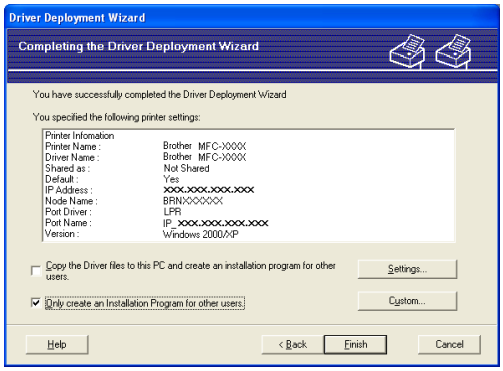


5. Choose the printer you wish to install, and then click **Next**. If the driver you wish to use is not installed on your computer, click **Have Disk** and then specify the path of the printer driver.



6. Click **Next** after you choose the correct driver.

7 A summary screen will appear. Confirm the settings of the driver.



■ Creating an executable file

The Driver Deployment Wizard software can also be used to create self running .EXE files. These self-running .EXE files can be saved to the network, copied to a CD-ROM, a floppy disc or even E-mailed to another user. Once run, the driver and its settings are automatically installed without any user intervention.

- **Copy the Driver files to this PC and create an installation program for other users.**

  Select this option if you wish to install the driver onto your computer and also create a self-running executable file for use with another computer using the same operating system as your own.

- **Only Create an Installation Program for other users.**

  Select this option if the driver is already installed on your computer and you wish to create a self-running executable file without again installing the driver on your own computer.

Note

If you work in a "queue" based network and you create an executable file for another user who does not have access to the same printer queue that you define into the executable file, the driver when installed on the remote computer will default to LPT1 printing.

8 Click **Finish**. The driver is automatically installed to your computer.

5 Network printing from Windows® basic TCP/IP Peer-to-Peer printing

Overview

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

Note

- You must configure the IP address on your machine before you proceed with this chapter. If you have not configured the IP address, see *Setting up the IP address and subnet mask* on page 10 first.
- Verify the host computer and print server are either on the same subnet, or that the router is properly configured to pass data between the two devices.
- If you are connecting to a Network Print Queue or Share (printing only), see *Installation when using a Network Print Queue or Share (printer driver only)* on page 46 for installation details.

For Windows® 2000/XP and Windows Vista™ users

By default, Windows® 2000/XP and Windows Vista™ systems install the necessary print software to enable you to print. This section describes the most commonly used configuration, Standard TCP/IP Port printing.

If you have already installed the printer driver, jump to *Printer driver already installed* on page 32.

Configuring the standard TCP/IP port

Printer driver not yet installed

1. Start the CD-ROM installation menu program according to the Quick Setup Guide.
2. Select the model name and your language (if necessary), and then click **Install Other Drivers or Utilities**.
3. Click **Printer Driver (Only, for network)**.
4. Click **Next** in response to the Welcome message. Follow the on-screen instructions.
5. Select **Standard Installation** and click **Next**.
6. Select **Brother Peer-to-Peer Network Printer**, and then click **Next**.
7. Follow the on-screen instruction, and then click **OK**.

Note

Contact your administrator if you are not sure about the location and name of the printer in the network.

8. Continue through the Wizard clicking **Finish** when complete.

Printer driver already installed

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

1. For Windows Vista™:
   Click the **Start** button, **Control Panel**, **Hardware and Sound**, and then **Printers**.
   For Windows® XP:
   Click the **Start** button and select **Printers and Faxes** windows.
   For Windows® 2000.
   Click the **Start** button and select **Settings** and then **Printers**.
2. Right click on the printer driver you wish to configure, and then select **Properties**.
3. Click the **Ports** tab 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.
6. Enter the IP address of your network printer. Click **Next**.
7. Click **Finish**.
8. Close **Printer Ports** and **Properties** dialog box.

Other sources of information

See *Configuring your network printer* on page 8 to learn how to configure the IP address of the printer.

6 Network printing from a Macintosh®

Overview

This chapter explains how to print from Macintosh® on a Network using the Simple Network Configuration capabilities on Mac OS® X 10.2.4 or greater.

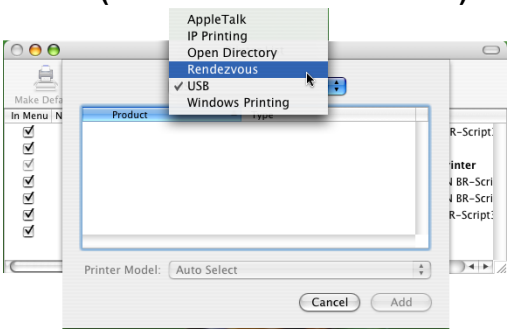
For updated information on printing from a Macintosh®, visit the Brother Solutions Center at: http://solutions.brother.com.

How to select the print server (TCP/IP)

1. Switch the machine ON.
2. From the **Go** menu, select **Applications**.
3. Open the **Utilities** folder.
4. Double click the **Printer Setup Utility** Icon. (Mac OS® X 10.2.x users, click the **Print Center** icon.)
5. Click **Add**.
   (For Mac OS® X 10.2.4 to 10.3.x) Go to ❻.
   (For Mac OS® X 10.4) Go to ❼.

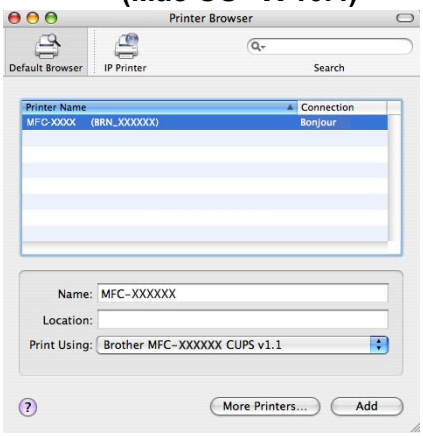
6 (For Mac OS®X 10.2.4 to 10.3.x) Make the following selection.

(Mac OS® X 10.2.4 - 10.3.x)



7 Select **Brother MFC-XXXX** (XXXX is your model name), and then click **Add**.

(Mac OS® X 10.4)



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

Changing the print server settings

Changing the configuration using the Remote Setup (Not available for DCP models)

From a Macintosh®, you can change the printer or print server parameters using the Remote Setup application. See *Using the Remote Setup to change the print server settings (Not available for DCP models)* on page 14.

Using the BRAdmin Light utility to change the print server settings

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

Note

- Please use the BRAdmin Light utility that was supplied on the CD-ROM of your Brother product. You can also download the latest version of the BRAdmin Light utility from http://solutions.brother.com.
- Node Name: Node Name appears in current BRAdmin Light. The default Node Name is BRNxxxxxxxxxxxx [1] for a wired network (where xxxxxxxxxxxx is your machine's Ethernet address).

[1] For DCP560CN, the default Node Name is BRN_xxxxxx (where xxxxxx is the last digits of the Ethernet address).

1. Start the BRAdmin Light utility, by double clicking the **Macintosh HD** icon on your desk top and clicking **Library** / **Printers** / **Brother** / **Utilities**. And then, double click the **BRAdmin Light.jar** file.
2. Select the print server which you want to change the settings.
3. Select **Configure Print Server** from the **Control** menu.
4. Enter a password if you have set it. You can now change the print server settings

Other sources of information

1. Visit http://solutions.brother.com for more information on network printing.
2. See *Setting up the IP address and subnet mask* on page 10 to learn how to configure the IP address of the printer.

7 Troubleshooting

Overview

This chapter explains how to resolve typical network problems you may encounter when using the machine. If, after reading this chapter, you are unable to resolve your problem, please visit the Brother Solutions Center at: http://solutions.brother.com

This chapter is divided into the following sections:

- General problems
- Network print software installation problems
- Printing problems
- Scanning and PC-FAX problems
- Protocol-specific troubleshooting

General problems

CD-ROM is inserted, but does not start automatically

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

How to reset the Brother print server to factory default

You can reset the print server back to its default factory settings (resetting all information such as the password and IP address information). See *Restoring the network settings to factory default* on page 25.

My computer cannot find the machine/print server
My machine/print server does not appear in the window of Remote Setup, BRAdmin Light or BRAdmin Professional

- For Windows®

  Firewall on your computer may be blocking the necessary network connection to the machine. In this case, you will need to disable the Firewall on your computer and re-install the drivers.

  Windows® XP SP2 users:

  1. Click the **Start** button, **Control Panel**, **Network and Internet Connections**.
  2. Double click **Windows Firewall**.
  3. Click the **General** tab. Make sure that **Off (not recommended)** is selected.
  4. Click **OK**.

Note

After the Brother software package is installed, enable again your Firewall.

Windows Vista™ users:

1. Click the **Start** button, **Control Panel**, **Network and Internet**, **Windows Firewall** and click **Change settings**.
2. When the **User Account Control** screen appears, do the following.
   - Users who have administrator rights: Click **Continue**.
   - For users who do not have administrator rights: Enter the administrator password and click **OK**.
3. Click the **General** tab. Make sure that **Off (not recommended)** is selected.
4. Click **OK**.

Note

After the Brother software package is installed, enable again your Firewall.

- For Macintosh®

  Re-select your machine in the Device Selector application located in **Macintosh HD**/**Library**/**Printers**/**Brother**/**Utilities** or from the model pull-down list of ControlCenter2.

Network print software installation problems

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

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

- For a network with an Ethernet cable connection

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

Check the following:

1. Make sure that the machine is powered on, is on-line and ready to print.
2. Check to see if the LCD momentarily displays `LAN Active` after being connected to the network.
   The LCD displays `LAN Active`: The print server is connected to the network.
   The LCD does not display LAN Active: The print server is not connected to the network.
3. Print the Network Configuration List and check if the settings such as IP address settings are correct for your network. The problem may be the result of mismatched or duplicate IP address. Verify that the IP address is correctly loaded into the print server. And make sure that no other nodes on the network have this IP address. For information on how to print the Network Configuration List, see *Printing the Network Configuration List* on page 24.

4 Verify that the print server is on your network as follows:

■ **For Windows®**

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

`ping ipaddress`

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

■ **For Mac OS® X 10.2.4 or greater**

1 From the **Go** menu, select **Applications**.

2 Open the **Utilities** folder.

3 Double click the **Terminal** icon.

4 Try pinging the print server from the Terminal window:
`ping ipaddress`
Where `ipaddress` is the print server IP address (note that in some instances it can take up to two minutes for the print server to load its IP address after setting the IP address).

5 If you have tried ❶ to ❹ above and it does not work, then reset the print server back to the default factory settings and try from the initial setup again. For information how to reset to the default factory settings, see *Restoring the network settings to factory default* on page 25.

6 Check the following:
If the installation failed, the Firewall on your computer may be blocking the necessary network connection to the machine. In this case, you will need to disable the Firewall on your computer and re-install the drivers. For more information, see *General problems* on page 36. If you are using a personal Firewall software, see the User's Guide for your software or contact the software manufacturer.

Printing problems

Print job is not printed

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

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

   ■ **For Windows®**

   1. Try pinging the print server from the host operating system command prompt with the command:
      `ping ipaddress`
      Where `ipaddress` is the print server IP address (note that in some instances it can take up to two minutes for the print server to load its IP address after setting the IP address).
   2. If a successful response is received, then proceed to Windows® Peer-to-Peer print (LPR) troubleshooting. Otherwise, proceed to ❹.

   ■ **For Mac OS® X 10.2.4 or greater**

   1. From the **Go** menu, select **Applications**.
   2. Open the **Utilities** folder.
   3. Double click the **Terminal** icon.
   4. Try pinging the print server from the Terminal window:

      `ping ipaddress`

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

4. If you have tried ❶ to ❸ above and it does not work, then reset the print server back to the default factory settings and try from the initial setup again. For information how to reset to the default factory settings, see *Restoring the network settings to factory default* on page 25.

Error during printing

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

Scanning and PC Fax problems

The network scanning feature does not work in Windows®
The network PC Fax feature does not work in Windows®

Firewall settings on your PC may reject the necessary network connection for network printing, network scanning and PC Fax. If you are using the Windows® Firewall and you installed MFL-Pro Suite from the CD-ROM, the necessary Firewall settings have already been made. If you did not install from the CD-ROM follow the instructions below to configure your Windows Firewall. If you are using any other personal Firewall software, see the User's Guide for your software or contact the software manufacturer.

UDP Port number information for Firewall configuration

UDP Port	Network Scanning	Network PC-Fax	Network Scanning and Network PC-Fax [1]
External Port number	54925	54926	137
Internal Port number	54925	54926	137

[1] Add Port number 137 if you still have trouble with your network connection after you added port 54925 and 54926. Port number 137 also supports printing, PhotoCapture Center™ and Remote Setup over the network.

Windows® XP SP2 users:

1. Click the **Start** button, **Control Panel**, **Network and Internet Connection** and then **Windows Firewall**. Make sure that **Windows Firewall** on the **General** tab is set to On.
2. Click the **Advanced** tab and **Settings...** button.
3. Click the **Add** button.
4. Add port **54925** for network scanning by entering the information below:
   1. In **Description of service**: Enter any description, for example, "Brother Scanner".
   2. In **Name or IP address (for example 192.168.0.12) or the computer hosting this service on your network**: Enter "Localhost".
   3. In **External Port Number for this service**: Enter "**54925**".
   4. In **Internal Port Number for this service**: Enter "**54925**".
   5. Make sure **UDP** is selected.
   6. Click **OK**.
5. Click the **Add** button.
6. Add port **54926** for Network PC-Fax by entering the information below:
   1. In **Description of service**: Enter any description, for example, "Brother PC Fax".
   2. In **Name or IP address (for example 192.168.0.12) or the computer hosting this service on your network**: Enter "Localhost".
   3. In **External Port Number for this service**: Enter "**54926**".
   4. In **Internal Port Number for this service**: Enter "**54926**".
   5. Make sure **UDP** is selected.
   6. Click **OK**.

7. If you still have trouble with your network connection, click the **Add** button.

8. Add port **137** for both Network scanning and Network PC-Fax receiving by entering the information below:
   1. In **Description of service**: Enter any description, for example, “Brother PC Fax receiving”/.
   2. In **Name or IP address (for example 192.168.0.12) or the computer hosting this service on your network**: Enter “Localhost”.
   3. In **External Port Number for this service**: Enter “**137**”.
   4. In **Internal Port Number for this service**: Enter “**137**”.
   5. Make sure **UDP** is selected.
   6. Click **OK**.

9. Make sure that the new setting is added and is checked, and then click **OK**.

Windows Vista™ users:

1. Click the **Start** button, **Control Panel**, **Network and Internet**, **Windows Firewall** and click **Change settings**.

2. When the **User Account Control** screen appears, do the following.
   - Users who have administrator rights: Click **Continue**.
   - For users who do not have administrator rights: Enter the administrator password and click **OK**.

3. Make sure that **Windows Firewall** on the **General** tab is set to On.

4. Click the **Exceptions** tab.

5. Click the **Add port...** button.

6. To add port **54925** for network scanning, enter the information below:
   1. In **Name**: Enter any description, for example, “Brother Scanner”.
   2. In **Port number**: Enter “**54925**”.
   3. Make sure **UDP** is selected.
   4. Click **OK**.

7. Click the **Add port...** button.

8. To add port **54926** for network PC Fax, enter the information below:
   1. In **Name**: Enter any description, for example, “Brother PC Fax”.
   2. In **Port number**: - Enter “**54926**”.
   3. Make sure **UDP** is selected.
   4. Click **OK**.

9. Make sure that the new setting is added and is checked, and then click **Apply**.

10. If you still have trouble with your network connection such as network scanning or printing, check **File and Printer Sharing** box in the **Exceptions** tab and then click **Apply**.

A Appendix A

Using services

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

Service (Example)	Definition
BINARY_P1	TCP/IP binary, NetBIOS service
TEXT_P1	TCP/IP text service (adds carriage return after each line feed)
BRNxxxxxxxxxxxx [1]	TCP/IP binary

Where xxxxxxxxxxxx is your machine's Ethernet address.

[1] For DCP560CN, BRN_xxxxxx_P1 (where xxxxxx is the last six digits of the Ethernet address).

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

For information on how to configure your machine for a network using the BRAdmin Light utility, see *Setting up the IP address and subnet mask* on page 10.

Using DHCP to configure the IP address

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

Note

If you do not want your print server configured via DHCP, BOOTP or RARP, you must set the BOOT METHOD to static so that the print server has a static IP address. This will prevent the print server from trying to obtain an IP address from any of these systems. To change the BOOT METHOD, use the BRAdmin Light utility.

Using BOOTP to configure the IP address

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

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

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

Note

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

(For DCP-560CN)

```
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:
```

(For other models)

```
BRN008077310107 1  00:80:77:31:01:07 192.189.207.3
```

and:

```
BRN008077310107: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.

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:

(For DCP-560CN) `00:80:77:31:01:07  BRN_310107`

(For other models) `00:80:77:31:01:07  BRN008077310107`

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

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

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

For AT&T UNIX®-based systems, type:

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

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

Using APIPA to configure the IP address

The Brother print server supports the Automatic Private IP Addressing (APIPA) protocol. With APIPA, DHCP clients automatically configure an IP address and subnet mask when a DHCP server is not available. The device chooses 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. If you want to disable the APIPA protocol, you can disable it using control panel of the machine. For more information, see *APIPA* on page 22.

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.

Using ARP to configure the IP address

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

```
arp -s ipaddress ethernetaddress
```

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

- **Windows® systems**

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

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

- **UNIX®/Linux systems**

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

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

Note

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

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

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

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

Using the TELNET console to configure the IP address

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

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

Type `TELNET` ipaddress at the command prompt of the system prompt, where ipaddress is the IP address of the print server. When you are connected, push the Return or Enter key to get the "#" prompt. Enter a password if you have set it.

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

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

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

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

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

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

255.0.0.0 for class A networks

255.255.0.0 for class B networks

255.255.255.0 for class C networks

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

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

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

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

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

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

Installation when using a Network Print Queue or Share (printer driver only)

Note

- You must configure the IP address on your machine before you proceed with this section. If you have not configured the IP address, see *Configuring your network printer* on page 8 first.
- Verify the host computer and print server are either on the same subnet, or that the router is properly configured to pass data between the two devices.
- Before installation, if you are using Personal Firewall software (e.g. the Internet Connection Firewall available in Windows® XP), disable it. Once you are sure that you can print, re-start your Personal Firewall software.

1. Start the CD-ROM installation menu program according to the Quick Setup Guide.
2. Select the model name and your language (if necessary), and then click **Install Other Drivers or Utilities**.
3. Click **Printer Driver (Only)**.
4. Click **Next** in response to the Welcome message. Follow the on-screen instructions.
5. Select **Standard Installation** and click **Next**.
6. Select **Network Shared Printer**, and then click **Next**.
7. Select your printer's queue, and then click **OK**.

Note

Contact your administrator if you are not sure about the location and name of the printer in the network.

8. Click **Finish**.

Installation when using Web Services (For Windows Vista™ users)

Note

- Not available for DCP-560CN.
- You must configure the IP address on your machine before you proceed with this section. If you have not configured the IP address, see *Configuring your network printer* on page 8 first.
- Verify the host computer and print server are either on the same subnet, or that the router is properly configured to pass data between the two devices.

1. Click **Start**, then choose **Network**.
2. The machine's Web Services Name will be shown with the printer icon. Right click the machine you want to install.

Note

The Web Services Name for the Brother machine is your model name and the Ethernet address of your machine (e.g. Brother MFC-XXXX [XXXXXXXXXXXX]).

3. From the pull down menu, click **Install**.
4. When the **User Account Control** screen appears, do the following.
   - Users who have administrator rights: Click **Continue**.
   - For users who do not have administrator rights: Enter the administrator password and click **OK**.
5. Select **Locate and install driver software**.
6. Insert Brother CD-ROM.
7. Select **Don't search online** and then **Browse my computer for driver software** on your computer.
8. Select your CD-ROM drive then select the **driver**, and then **win2kxpvista** folder.
9. Select your language and then click **OK** to begin installation.

B Appendix B

Print server specifications

Ethernet wired network

Model name	NC-150h [1]	
Operating system support	Windows® 2000/XP/XP Professional x64 Edition, Windows Vista™	
	Mac OS® X 10.2.4 or greater	
Protocol support	TCP/IP	ARP, RARP, BOOTP, DHCP, APIPA (Auto IP), NetBIOS Name Resolution, WINS, DNS Resolver, LPR/LPD, Custom Raw Port/Port9100, FTP Server, mDNS, TELNET, SNMP, TFTP, LLTD [2], Web Services [2]
Network type	10/100BASE-TX Ethernet network	
Network printing	Windows® 2000/XP/XP Professional x64 Edition, Windows Vista™	
	Macintosh® printing (Mac OS® 10.2.4 or greater supporting TCP/IP)	
Network PC-FAX	Windows® 2000/XP/XP Professional x64 Edition, Windows Vista™	
	Mac OS® 10.2.4 or greater (Send only)	
Network scanning	Windows® 2000/XP/XP Professional x64 Edition, Windows Vista™	
	Mac OS® 10.2.4 or greater	
Network PhotoCapture Center™	Windows® 2000/XP/XP Professional x64 Edition, Windows Vista™	
	Mac OS® 10.2.4 or greater	
Windows® Computer requirements (for drivers, BRAdmin Light, Peer-to-Peer software)	Processor Minimum Speed	Pentium® II or equivalent for Windows® 2000 Professional/XP AMD Opteron™, AMD Athlon™64, Intel® Xeon™ with Intel® EM64T, Intel® Pentium® 4 with Intel® EM64T for Windows® XP Professional x64 Edition, 1GHz 32-bit (x86) or 64-bit (x64) processor for Windows Vista™
	Minimum RAM	64MB for Windows® 2000 Professional 128MB for Windows® XP 256MB for Windows® XP Professional x64 Edition 512MB for Windows Vista™
	Recommended RAM	256MB for Windows® 2000 Professional 256MB for Windows® XP 512MB for Windows® XP Professional x64 Edition 1GB for Windows Vista™

Macintosh® Computer requirements	Computer	Ethernet ready Power Macintosh®
	Processor Minimum Speed	All base models meet minimum requirements
	Minimum RAM	128MB for Mac OS® X 10.2.4 or greater
	Recommended RAM	160MB for Mac OS® X 10.2.4 or greater
Management utilities	BRAdmin Light	Windows® 2000/XP/XP Professional x64 Edition, Windows Vista™ Mac OS® X 10.2.4 or greater
	Web BRAdmin [3]	Windows® 2000 Professional / Server / Advanced Server, Windows® XP Professional Windows Vista™

[1] NC-130h for DCP-560CN.

[2] LLTD and Web Services are not available for DCP-560CN.

[3] Web BRAdmin are available as a download from http://solutions.brother.com.

Function table and default factory settings

Level1	Level2	Level3	Options
LAN	TCP/IP	BOOT Method	**Auto**/Static/RARP/BOOTP/DHCP
		IP Address	[000-255].[000-255].[000-255].[000-255] * 1
		Subnet Mask	[000-255].[000-255].[000-255].[000-255] * 1
		Gateway	[000-255].[000-255].[000-255].[000-255]
		Node Name	**BRNxxxxxxxxxxxx**= (your machine's Ethernet address) 2 (up to 15 characters)
		WINS Config	**Auto**/Static
		WINS Server	(Primary) [000-255].[000-255].[000-255].[000-255] (Secondary) [000-255].[000-255].[000-255].[000-255]
		DNS Server	(Primary) [000-255].[000-255].[000-255].[000-255] (Secondary) [000-255].[000-255].[000-255].[000-255]
		APIPA	**On**/Off
	Setup Misc.	Ethernet	**Auto**/100B-FD/100B-HD/10B-FD/10B-HD
	Factory Reset		

■ The factory settings are shown in bold.

1 On connection to the network, the machine will automatically set the IP address and Subnet Mask to value appropriate for your network.

2 For DCP560CN, the default Node Name is BRN_xxxxxx (where xxxxxx is the last six digits of the Ethernet address).

C Index