brother ®

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

NETWORK USER'S GUIDE

This Network User's Guide provides useful information of wired network settings, security settings and Internet fax settings using your Brother machine. You can also find supported protocol information and detailed troubleshooting tips.

To find basic information about network and advanced network features of your Brother machine, see the *Network Glossary*.

To download the latest manual, please visit the Brother Solutions Center at (http://solutions.brother.com/). You can also download the latest drivers and utilities for your machine, read FAQs and troubleshooting tips or learn about special printing solutions from the Brother Solutions Center.

Definitions of notes

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

❶ IMPORTANT	IMPORTANT indicates a potentially hazardous situation which, if not avoided, may result in damage to property or loss of product functionality.
📝 Note	Notes tell you how you should respond to a situation that may arise or give tips about how the operation works with other features.

IMPORTANT NOTE

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

- Windows Server® 2003 in this document represents Windows Server® 2003 and Windows Server® 2003 x64 Edition.

- Windows Server® 2008 in this document represents Windows Server® 2008 and Windows Server® 2008 R2.

- Windows Vista® in this document represents all editions of Windows Vista®.

- Windows® 7 in this document represents all editions of Windows® 7.

Table of Contents

1 Introduction

Network features

Your 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. The following chart shows what network features and connections are supported by each operating system.

Operating Systems	Windows® 2000/XP Windows Vista® Windows® 7	Windows Server® 2003/2008	Mac OS X 10.4.11 - 10.6.x
Printing	✔	✔	✔
Scanning See *Software User's Guide*.	✔		✔
PC Fax Send See *Software User's Guide*.	✔		✔
PC Fax Receive See *Software User's Guide*.	✔		
BRAdmin Light See page 3.	✔	✔	✔
BRAdmin Professional 3 [1] See page 6.	✔	✔	
Web BRAdmin [1] See page 7.	✔	✔	
Web Based Management (web browser) See page 23.	✔	✔	✔
Remote Setup See *Software User's Guide*.	✔		✔
Status Monitor See *Software User's Guide*.	✔		✔
Driver Deployment Wizard	✔	✔	
Vertical Pairing See *Network Glossary*.	✔ [2]		

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

[2] Windows® 7 only.

Other Network features

Internet fax (available as a download)

Internet fax (IFAX) allows you to send and receive fax documents using the Internet as the transport mechanism. (See *Internet fax (available as a download)* on page 29.)

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 see *Internet fax (available as a download)* on page 29.

Security

Your Brother machine employs some of the latest network security and encryption protocols available. (See *Security features* on page 41.)

Fax to Server (available as a download)

The Fax to Server feature allows the machine to scan a document and send it over the network to a separate fax server. (See *Fax to Server (available as a download)* on page 15.)

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 see *Internet fax (available as a download)* on page 29.

Secure Function Lock 2.0

Secure Function Lock 2.0 increases security by restricting the use of functions. (See *Secure Function Lock 2.0* on page 25.)

2 Changing your machine's network settings

How to change your machine's network settings (IP address, Subnet mask and Gateway)

Using the control panel

You can configure your machine for a network using the control panel `Network` menu. (See *Control panel setup* on page 8.)

Using the BRAdmin Light utility

The BRAdmin Light utility is designed for initial setup of 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.

Installing BRAdmin Light

■ Windows®

① Please make sure that your machine is ON.

② Turn on your computer. Close any applications running before configuration.

③ Put the supplied CD-ROM into your CD-ROM drive. The opening screen will appear automatically. If the model name screen appears, choose your machine. If the language screen appears, choose your language.

④ The CD-ROM main menu will appear. Click **Network Utilities**.

⑤ Click **BRAdmin Light** and follow the on-screen instructions.

■ Macintosh

The BRAdmin Light software will be installed automatically when you install the printer driver. If you have already installed the printer driver, you do not have to install BRAdmin Light again.

Setting the IP address, Subnet Mask and Gateway using BRAdmin Light

📝 **Note**

- You can download Brother's latest BRAdmin Light utility from http://solutions.brother.com/.

- If you require more advanced machine management, use the latest version of the BRAdmin Professional 3 utility that is available as a download from http://solutions.brother.com/. This utility is only available for Windows® users.

- If you are using a firewall function of anti-spyware or antivirus applications, temporarily disable them. Once you are sure that you can print, re-enable the application.

- Node name: The Node name appears in the current BRAdmin Light window. The default node name of the print server in the machine is "BRNxxxxxxxxxxxx". ("xxxxxxxxxxxx" is your machine's MAC Address / Ethernet Address.)

- The default password for Brother print servers is "**access**".

1️⃣ Start the BRAdmin Light utility.

   ■ Windows®

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

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

   ■ Macintosh

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

2️⃣ BRAdmin Light will search for new devices automatically.

③ Double-click the unconfigured device.

Windows®
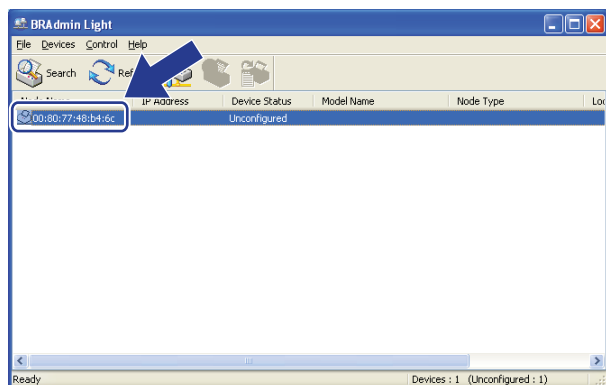
Macintosh
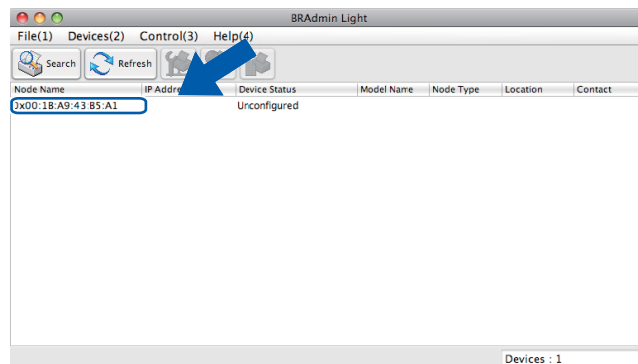
Note

- If the print server is set to its factory default settings (if you are not 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 MAC Address (Ethernet Address) by printing the Network Configuration List. (See *Printing the Network Configuration List* on page 18 for information on how to print the Network Configuration List on your print server.) You can also find the Node Name and MAC Address from the control panel. (See *Chapter 3: Control panel setup*.)

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

Windows®
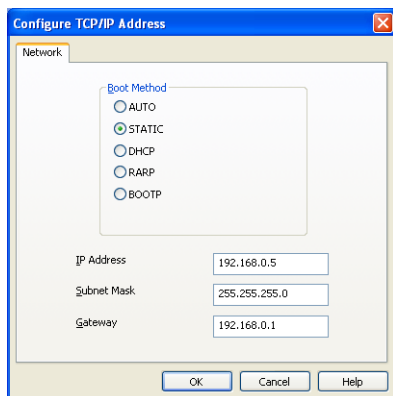
Macintosh
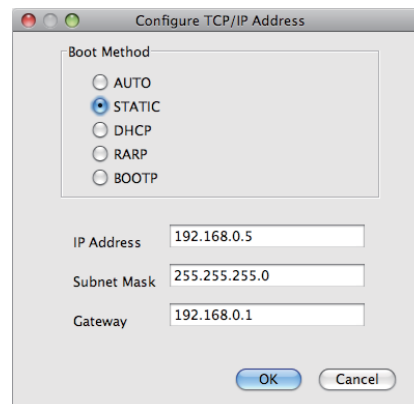
⑤ Click **OK**.

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

Other Management Utilities

Your Brother machine has the following management utilities other than the BRAdmin Light utility. You can change your network settings using these utilities.

Web Based Management (web browser)

A standard web browser can be used to change your print server settings using the HTTP (Hyper Text Transfer Protocol). (See *How to configure the machine settings using Web Based Management (web browser)* on page 23.)

BRAdmin Professional 3 utility (Windows®)

BRAdmin Professional 3 is a utility for more advanced management of network connected Brother devices. This utility can search for Brother products on your network and view the device status from an easy to read Explorer style window that changes color identifying the status of each device. You can configure network and device settings along with the ability to update device firmware from a Windows® computer on your LAN. BRAdmin Professional 3 can also log activity of Brother devices on your network and export the log data in an HTML, CSV, TXT or SQL format.

For users who want to monitor locally connected machines, install the Print Auditor Client software on the client PC. This utility allows you to monitor machines that are connected to a client PC via the USB or parallel interface from BRAdmin Professional 3.

For more information and to download the software, visit us at http://solutions.brother.com/.

Note

• Please use the latest version of the BRAdmin Professional 3 utility that is available as a download from http://solutions.brother.com/. This utility is only available for Windows® users.

• If you are using a firewall function of anti-spyware or antivirus applications, temporarily disable them. Once you are sure that you can print, configure the software settings following the instructions.

• Node name: The Node name for each Brother device on the network appears in BRAdmin Professional 3. The default Node name is "BRNxxxxxxxxxxxx". ("xxxxxxxxxxxx" is your machine's MAC Address / Ethernet Address.)

Web BRAdmin (Windows®)

Web BRAdmin is a utility for managing network connected Brother devices. This utility can search for Brother products on your network, view the status and configure the network settings.

Unlike BRAdmin Professional 3, which is designed for Windows® only, Web BRAdmin is a server based utility that 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 computer running IIS [1], administrators can connect to the Web BRAdmin server using a web browser, which then communicates with the device itself.

For more information and to download the software, visit us at http://solutions.brother.com/.

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

BRPrint Auditor (Windows®)

The BRPrint Auditor software brings the monitoring power of Brother network management tools to locally connected machines. This utility allows a client computer to collect usage and status information from a Brother machine connected via the parallel or USB interface. The BRPrint Auditor can then pass this information to another computer on the network running BRAdmin Professional 3 or Web BRAdmin 1.45 or greater. This allows the administrator to check items such as page counts, toner and drum status and the firmware version. In addition to reporting to Brother network management applications this utility can E-mail the usage and status information directly to a predefined E-mail address in a CSV or XML file format (SMTP Mail support required). The BRPrint Auditor utility also supports E-mail notification for reporting warning and error conditions.

3 **Control panel setup**

Network menu

The `Network` menu selections of the control panel allow you to set up the Brother machine for your network configuration. (For more information on how to use the control panel, see the *Basic User's Guide*.) Press **Menu**, then press ▲ or ▼ to choose `Network`. Proceed to the menu selection you wish to configure. (For additional information on the menu, see *Function table and default factory settings* on page 19.)

Please note that the machine is supplied with the BRAdmin Light utility, Web Based Management or Remote Setup applications, which also can be used to configure many aspects of the network. (See *Other Management Utilities* on page 6.)

TCP/IP

This menu has ten sections: `Boot Method`, `IP Address`, `Subnet Mask`, `Gateway`, `Node Name`, `WINS Config`, `WINS Server`, `DNS Server`, `APIPA` and `IPv6`.

Boot Method

This selection controls how the machine obtains an IP 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 set using the APIPA protocol. After the machine 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.

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, Web Based Management or Remote Setup.

IP Address

This field displays the current IP address of the machine. If you have chosen 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 chosen 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.

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.

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.

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". ("xxxxxxxxxxxx" is your machine's MAC Address / Ethernet Address.)

WINS Config

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

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

Primary WINS Server IP Address

This field specifies the IP address of the primary WINS (Windows® Internet Name 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

Primary DNS Server IP Address

This field specifies the IP address of the primary DNS (Domain Name System) 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. If you have a primary DNS server, but no secondary DNS server, simply leave this field blank.

APIPA

With this setting On the print server 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 8.) Choosing Off means the IP address does not change, when the print server cannot obtain an IP address through the Boot Method you have set.

IPv6

This machine is compatible with IPv6, the next generation Internet protocol. If you want to use the IPv6 protocol, choose On. The default setting for IPv6 is Off. For more information on the IPv6 protocol, visit http://solutions.brother.com/.

Note

• If you set IPv6 to On, turn off the power switch and then turn it back on to enable this protocol.

• After you choose IPv6 On, this setting will be applied to the wired LAN interface.

Ethernet

Ethernet link mode. Auto allows the print server to operate in 100BASE-TX full or half duplex, or in 10BASE-T full or half duplex mode by auto negotiation.

Note

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

Status

This field displays the current wired network status.

MAC Address

The MAC address is a unique number assigned for the machine's network interface. You can check your machine's MAC address from the control panel.

E-mail / IFAX (if you download IFAX)

This menu has five selections: `Mail Address`, `Setup Server`, `Setup Mail RX`, `Setup Mail TX` and `Setup Relay`. As this section requires you to enter a lot of text characters, you may find that it is more convenient to use Web Based Management and your favorite web browser to configure these settings. (See *Web Based Management* on page 23.) These settings must be configured for the IFAX feature to work. (For more details about Internet fax, see *Internet fax (available as a download)* on page 29.)

You can also access the character you want by repeatedly pressing the appropriate number key using the machine's control panel. (For entering text, see the *Quick Setup Guide*.)

Mail Address

You can set your machine's E-mail address.

Setup Server

SMTP Server

This field displays the node name or IP address of an SMTP mail server (outgoing E-mail server) on your network.

(Ex, "mailhost.brothermail.net" or "192.000.000.001")

SMTP Port

This field displays the SMTP port number (for outgoing E-mails) on your network.

Auth. for SMTP

You can specify the security method for E-mail notification. (For details on the security methods for E-mail notification, see *Sending an E-mail securely* on page 41.)

POP3 Server

This field displays the node name or IP address of the POP3 server (incoming E-mail server) used by the Brother machine. This address is necessary for the Internet fax features to function correctly.

(Ex, "mailhost.brothermail.net" or "192.000.000.001")

POP3 Port

This field displays the POP3 port number (for incoming E-mails) used by the Brother machine.

Mailbox Name

You can specify a mailbox name on the POP3 server where the Internet print jobs are to be retrieved.

Mailbox Pwd

You can specify the password for the POP3 server account where the Internet print jobs are to be retrieved.

Note

To set for no password, enter a single space.

APOP

You can enable or disable the APOP (Authenticated Post Office Protocol).

Setup Mail RX

Auto Polling

When set to On, the machine automatically checks the POP3 server for new messages.

Poll Frequency

Sets the interval for checking for new messages on the POP3 server (default is 10 Min).

Header

This selection allows the contents of the mail header to be printed when the received message is printed.

Del Error Mail

When set to On, the machine automatically deletes error mails that the machine cannot receive from the POP server.

Notification

The notification feature allows a confirmation of receipt message to be transmitted to the sending station when the Internet Fax has been received.

This feature only works on Internet Fax machines that support the "MDN" specification.

Setup Mail TX

Sender Subject

This field displays the subject that is attached to the Internet fax data being sent from the Brother machine to a computer (default is Internet Fax Job).

Size Limit

Some E-mail servers do not allow you to send large E-mail documents (the System Administrator will often place a limit on the maximum E-mail size). With this function enabled, the machine will display `Out of Memory` when trying to send E-mail documents over 1 Mbyte in size. The document will not be sent and an error report will be printed. The document you are sending should be separated into smaller documents that will be accepted by the mail server. (For your information, a 42 page document based on the ITU-T Test Chart #1 test chart is approximately 1 Mbyte in size.)

Notification

The notification feature allows a confirmation of receipt message to be transmitted to the sending station when the Internet Fax has been received.

This feature only works on Internet Fax machines that support the "MDN" specification.

Setup Relay

Relay Broadcast

This function allows the machine to receive a document over the Internet, and then relay it to other fax machines through conventional analog landlines.

Relay Domain

You can register the Domain Names (Max. 10) that are allowed to request a Relay Broadcast.

Relay Report

A Relay Broadcast Report can be printed at the machine that will act as a Relay Station for all Relay Broadcasts.

Its primary function is to print reports of any relayed broadcasts that have been sent through the machine. Please note: In order to use this function, you must assign the relay domain in the "Trusted Domains" section of the Relay function settings.

Note

For more information on Relay Broadcast, see *Relay broadcasting* on page 34.

How to set a new default for Scan to E-mail (E-mail server) (if you download IFAX)

You can choose the default color and file type for the Scan to E-mail (E-mail server) function. (For the details on how to operate Scan to E-mail (E-mail server), see *Internet fax (available as a download)* on page 29.)

Scan to FTP

You can choose the default color and file type for the Scan to FTP function. (For how to operate Scan to FTP, see *Network Scanning* in the *Software User's Guide*.)

3

Fax to Server (available as a download)

The Fax to Server feature allows the machine to scan a document and send it over the network to a separate fax server. The document will then be sent from the server as fax data to the destination fax number over standard phone lines. When the Fax to Server feature is set to `On` all automatic fax transmissions from the machine will be sent to the fax server for fax transmission. You can continue to send a fax directly from the machine using the manual fax feature.

To send a document to the fax server the correct syntax for that server must be used. The destination fax number must be sent with a prefix and a suffix that match the parameters used by the fax server. In most cases the syntax for the prefix is "fax=" and the syntax for the suffix would be the domain name of the fax server E-mail gateway. The suffix must also include the "@" symbol at the beginning of the suffix. The prefix and the suffix information must be stored in the machine before you can use the fax to server function. Destination fax numbers can be saved in the One Touch or Speed Dial locations or entered using the dial pad (up to 20 digit numbers). For example if you wanted to send a document to a destination fax number of 123-555-0001 the following syntax would be used.

Prefix   Suffix

fax=123-555-0001@faxserver.companyname.com

Destination fax number

Note

Your fax server application must support an E-mail gateway.

Setting Fax to Server to On

You can store the prefix/suffix address for the fax server in the machine.

1. Press **Menu**.

2. Press ▲ or ▼ to choose `Network`.
   Press **OK**.

3. Press ▲ or ▼ to choose `Fax to Server`.
   Press **OK**.

4. Press ▲ or ▼ to choose `On`.
   Press **OK**.

5. Press ▲ or ▼ to choose `Prefix`.
   Press **OK**.

6. Enter the prefix using the dial pad.

7. Press **OK**.

8. Press ▲ or ▼ to choose `Suffix`.
   Press **OK**.

⑨ Enter the suffix using the dial pad.

⑩ Press **OK**.

⑪ Press **Stop/Exit**.

Note

You can enter the prefix and suffix address using up to a total of 40 characters.

How to operate Fax to Server

① Place the document in the ADF or on the scanner glass.

② Enter the fax number.

③ Press **Start**.

④ The machine will send the message over a TCP/IP network to the fax server.

Time Zone

This field displays your country time zone. The time shown is the time difference between your country and Greenwich Mean Time. For example, the Time Zone for Eastern Time in the USA and Canada is UTC-05:00.

a Press **Menu**.

b Press ▲ or ▼ to choose Initial Setup.
Press **OK**.

c Press ▲ or ▼ to choose Date&Time.
Press **OK**.

d Press ▲ or ▼ to choose Time Zone.
Press **OK**.

e Press ▲ or ▼ to choose your time zone.
Press **OK**.

f Press **Stop/Exit**.

Windows® Time Zone setting

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

a For Windows Vista® and Windows® 7:

Click the ![Windows button] button, **Control Panel**, **Date and Time**, and then **Change time zone**.

For Windows® XP and Windows Server® 2003:
Click the **Start** button, **Control Panel**, **Date and Time**, and then choose **Time Zone**.

For Windows® 2000:
Click the **Start** button, **Settings**, **Control Panel**, **Date/Time**, and then choose **Time Zone**.

b Change the data and time. Verify your time zone settings from the pull-down menu (this menu displays the time difference from GMT).

Reset the network settings to the 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).

> 📝 **Note**
>
> • This function resets all wired network settings to the factory default.
>
> • You can also reset the print server back to its factory default settings using the BRAdmin applications or Web Based Management. (For more information, see *Other Management Utilities* on page 6.)

a Press **Menu**.

b Press ▲ or ▼ to choose Network.
Press **OK**.

c Press ▲ or ▼ to choose Network Reset.
Press **OK**.

d Press **1** to choose Reset.

e Press **1** to choose Yes for reboot.

f The machine will re-start.

Printing the Network Configuration List

> 📝 **Note**
>
> Node name: The Node name appears on the Network Configuration List. The default node name is "BRNxxxxxxxxxxxx". ("xxxxxxxxxxxx" is your machine's MAC Address / Ethernet Address.)

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

a Press **Menu**.

b Press ▲ or ▼ to choose Print Reports.
Press **OK**.

c Press ▲ or ▼ to choose Network Config.
Press **OK**.

d Press **Start**.

> 📝 **Note**
>
> If the **IP Address** on the Network Configuration List shows **0.0.0.0**, wait for one minute and try again.

Function table and default factory settings

The factory settings are shown in Bold with an asterisk.

MFC-7860DN

Main menu	Submenu	Menu selections	Options	
6.Network	1.TCP/IP	1.Boot Method	**Auto*** Static RARP BOOTP DHCP (If you choose Auto, RARP, BOOTP or DHCP, you will be asked to enter how many times the machine tries to obtain the IP address.)	
		2.IP Address	[000-255].[000-255].[000-255].[000-255] **[000].[000].[000].[000]*** [1]	
		3.Subnet Mask	[000-255].[000-255].[000-255].[000-255] **[000].[000].[000].[000]*** [1]	
		4.Gateway	[000-255].[000-255].[000-255].[000-255] **[000].[000].[000].[000]***	
		5.Node Name	BRNxxxxxxxxxxxx (up to 32 characters)	
		6.WINS Config	**Auto*** Static	
		7.WINS Server	Primary	[000-255].[000-255].[000-255].[000-255] **[000].[000].[000].[000]***
			Secondary	[000-255].[000-255].[000-255].[000-255] **[000].[000].[000].[000]***
		8.DNS Server	Primary	[000-255].[000-255].[000-255].[000-255] **[000].[000].[000].[000]***
			Secondary	[000-255].[000-255].[000-255].[000-255] **[000].[000].[000].[000]***
		9.APIPA	**On*** Off	
		0.IPv6	On **Off***	

Main menu	Submenu	Menu selections	Options	
6.Network (continued)	**2.Ethernet**	—	**Auto*** 100B-FD 100B-HD 10B-FD 10B-HD	
	3.Status	—	Active 100B-FD Active 100B-HD Active 10B-FD Active 10B-HD Inactive Wired OFF	
	4.MAC Address	—	—	
	5.Scan To FTP	—	**Color 100 dpi*** Color 200 dpi Color 300 dpi Color 600 dpi Gray 100 dpi Gray 200 dpi Gray 300 dpi B&W 200 dpi B&W 200x100 dpi	(If you choose Color option) **PDF*** Secure PDF JPEG XPS (If you choose Gray option) **PDF*** Secure PDF JPEG XPS (If you choose B&W option) **PDF*** Secure PDF TIFF
	0.Network Reset	—	**Reset**	
		—	**Exit**	

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

MFC-7860DN (if you download IFAX)

Main menu	Submenu	Menu selections		Options
6.Network	**5.E-mail/IFAX**	**1.Mail Address**		(up to 60 characters)
		2.Setup Server	**1.SMTP Server**	[000-255].[000-255].[000-255].[000-255] **[000].[000].[000].[000]***
			2.SMTP Port	[00001-65535] **[00025]***
			3.Auth. for SMTP	**None*** SMTP-AUTH POP bef.SMTP
			1.POP3 Server	[000-255].[000-255].[000-255].[000-255] **[000].[000].[000].[000]***
			2.POP3 Port	[00001-65535] **[00110]***
			3.Mailbox Name	(up to 60 characters)
			4.Mailbox Pwd	Password:******
			5.APOP	On **Off***
		3.Setup Mail RX	**1.Auto Polling**	**On*** Off
			2.Poll Frequency	[01-60] Min **[10] Min***
			3.Header	All Subject+From+To **None***
			4.Del Error Mail	**On*** Off
			5.Notification	On MDN **Off***
		4.Setup Mail TX	**1.Sender Subject**	**Internet Fax Job***
			2.Size Limit	On **Off***
			3.Notification	On **Off***

Main menu	Submenu	Menu selections		Options
6.Network (continued)	**5.E-mail/IFAX** (continued)	**5.Setup Relay**	**1.Rly Broadcast**	On **Off***
			2.Relay Domain	RelayXX: Relay01:******
			3.Relay Report	On **Off***
	6.Scan To E-mail	—	**Color 100 dpi*** Color 200 dpi Color 300 dpi Color 600 dpi Gray 100 dpi Gray 200 dpi Gray 300 dpi B&W 200 dpi B&W 200x100 dpi	(If you choose Color option) **PDF*** Secure PDF JPEG XPS (If you choose Gray option) **PDF*** Secure PDF JPEG XPS (If you choose B&W option) **PDF*** Secure PDF TIFF
	7.Scan To FTP	—	**Color 100 dpi*** Color 200 dpi Color 300 dpi Color 600 dpi Gray 100 dpi Gray 200 dpi Gray 300 dpi B&W 200 dpi B&W 200x100 dpi	(If you choose Color option) **PDF*** Secure PDF JPEG XPS (If you choose Gray option) **PDF*** Secure PDF JPEG XPS (If you choose B&W option) **PDF*** Secure PDF TIFF
	8.Fax to Server	—	—	On **Off***
	0.Network Reset	—	—	**Reset**
		—	—	**Exit**

4 Web Based Management

Overview

A standard Web Browser can be used to manage your machine using the HTTP (Hyper Text Transfer Protocol). You can get the following information from a machine on your network using a web browser.

■ Machine status information

■ Change Fax configuration items, such as General Setup, Address Book settings and Remote Fax

■ Change network settings such as TCP/IP information

■ Configure Secure Function Lock 2.0

■ Configure Scan to FTP

■ Software version information of the machine and print server

■ Change network and machine configuration details

Note

We recommend Microsoft® Internet Explorer® 6.0 (or greater) or Firefox 3.0 (or greater) for Windows® and Safari 3.0 (or greater) for Macintosh. Please also make sure that JavaScript and Cookies are always enabled in whichever browser you use.

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

How to configure the machine settings using Web Based Management (web browser)

A standard web browser can be used to change your print server settings using the HTTP (Hyper Text Transfer Protocol).

a Start your web browser.

b Type "`http://machine's IP address/`" into your browser's address bar (where "`machine's IP address`" is the machine's IP address).

 ■ For example:

   `http://192.168.1.2/`

Note

- If you are using a Domain Name System or enable a NetBIOS name, you can enter another name such as "Shared_Printer" instead of the IP address.

  - For example:

  ```
  http://Shared_Printer/
  ```

  If you enable a NetBIOS name, you can also use the node name.

  - For example:

  ```
  http://brnxxxxxxxxxxxx/
  ```

  The NetBIOS name can be seen in the Network Configuration List. (To learn how to print the Network Configuration List, see *Printing the Network Configuration List* on page 18.)

- For Macintosh users, you can have easy access to the Web Based Management System by clicking the machine icon on the **Status Monitor** screen. For more information, see the *Software User's Guide*.

c Click **Network Configuration**.

d Enter a user name and a password. The default User Name is "**admin**" and the default password is "**access**".

e Click **OK**.

f You can now change the print server settings.

Note

If you have changed the protocol settings, restart the machine after clicking **Submit** to activate the configuration.

Password information

Web Based Management offers two levels of password access. Users are able to access to the **General Setup**, **Fax Settings**, **Copy Settings** and **Printer Settings**. The default user name for User is "**user**" (case sensitive) and the default password is "**access**".

Administrators are able to access all settings. The login name for the Administrator is "**admin**" (case sensitive) and the default password is "**access**".

Secure Function Lock 2.0

Secure Function Lock 2.0 from Brother helps you to save money and increase security by restricting the functions available on your Brother machine.

Secure Function Lock allows you to configure passwords for selected users, granting them access to some or all of these functions, or limiting them to a page limit. This means that only authorized people can use them.

You can configure and change the following Secure Function Lock 2.0 settings using BRAdmin Professional 3 or Web Based Management.

- **PC Print** [1]
- **Copy**
- **Page Limit**
- **Fax TX**
- **Fax RX**
- **Scan**
- **Page Counter**

[1] If you register the PC user login names, you can restrict PC print without the user entering a password. For more detail, see *Restricting PC print by PC user login name* on page 26.

How to configure the Secure Function Lock 2.0 settings using Web Based Management (web browser)

Basic configuration

a Click **Administrator Settings** on the machine's web page, and then click **Secure Function Lock**.

b Choose **On** from **Function Lock**.

Note

To configure Secure Function Lock for the first time through the embedded web server, you have to enter the Administrator Password (four digit number).

c Enter an alphanumeric group name or user name up to 14 characters in the **ID Number/Name** box and then enter a four-digit password in the **PIN** box.

d Uncheck the functions that you want to restrict in the **Print** box or the **Others** box. If you want to configure the maximum page count, check the **On** box in **Page Limit**, and then enter the number in the **Max.** box. Then click **Submit**.

e If you want to restrict the PC printing by PC user login name, click **PC Print Restriction by Login Name** and configure the settings. (See *Restricting PC print by PC user login name* on page 26.)

Scanning when using Secure Function Lock 2.0

The Secure Function Lock 2.0 feature allows the administrator to restrict which users are allowed to scan. When the scan feature is set to off for the public user setting, only users who have scan selected in the check box will be able to scan. To push scan from the control panel of the machine users must enter their PIN to access the scan mode. To pull scan from their computer, restricted users must also enter their PIN on the control panel of the machine before they can scan from their computer. If the PIN is not entered at the machine's control panel the user will get an error message on their computer when they attempt to pull scan.

Restricting PC print by PC user login name

By configuring this setting, the machine can authenticate by PC user login name to allow a print job from a registered computer.

1. Click **PC Print Restriction by Login Name**. The **PC Print Restriction by Login Name** screen will appear.

2. Choose **On** from **PC Print Restriction**.

3. Choose the ID Number you set in the **ID Number/Name** in step ❸ in *Basic configuration* from the **ID Number** pull-down list for each Login Name and then enter the PC user login name in the **Login Name** box.

4. Click **Submit**.

Note

- If you want to restrict PC print per group, choose the same ID Number for each PC login name you want in the group.

- If you are using the PC login name feature you must also make sure that the **Use PC Login Name** in the printer driver is selected. For more information about the printer driver, see the *Software User's Guide*.

- The Secure Function Lock feature does not support the BR-Script driver for printing.

Setting up public mode

You can set up the public mode to restrict what functions are available for public users. Public users do not need to enter a password to access the features made available through this setting.

❶ Uncheck the check box for the function that you want to restrict in the **Public Mode** box.

❷ Click **Submit**.

Other features

You can set up the following features in Secure Function Lock 2.0:

■ **Counter Auto Reset Settings**

You can automatically reset the page counters by configuring the time interval based on Daily, Weekly or Monthly settings, during the period the machine is turned on.

■ **All Counter Reset**

You can reset the page counter by clicking **All Counter Reset**.

■ **Last Counter Record**

The machine retains the page count after the counter has been reset.

■ **Export to CSV file**

You can export the current page counter including **ID Number/Name** information as a CSV file.

Changing the Scan to FTP configuration using a web browser

Scan to FTP allows you to scan a document directly to an FTP server on your local network or on the Internet.

See *Network Scanning* in the *Software User's Guide* for more details on Scan to FTP.

a Click **Administrator Settings** on the MFC-XXXX web page, and then click **FTP Scan Settings**.

b You can store two user defined file names that can be used for creating an FTP Server Profile in addition to the seven preset file names in **Create a User Defined File Name**. A maximum of 15 characters can be entered in each of the two fields.
After setting, click **Submit**.

c Click **FTP Scan Profile** on the **Administrator Settings** page.
You can choose what profile numbers (1 to 10) to use for Scan to FTP settings.
Now you can configure and change the following Scan to FTP settings using a web browser.

- **Profile Name** (Up to 14 characters)
- **Host Address** (FTP server address)
- **Username**
- **Password**
- **Store Directory**
- **File Name**
- **Quality**
- **File Type**
- **File Size**
- **Passive Mode**
- **Port Number**

You can set **Passive Mode** to **Off** or **On** depending on your FTP server and network firewall configuration. By default this setting is **On**, you can also change the port number used to access the FTP server. The default for this setting is port 21. In most cases these two settings can remain as default.
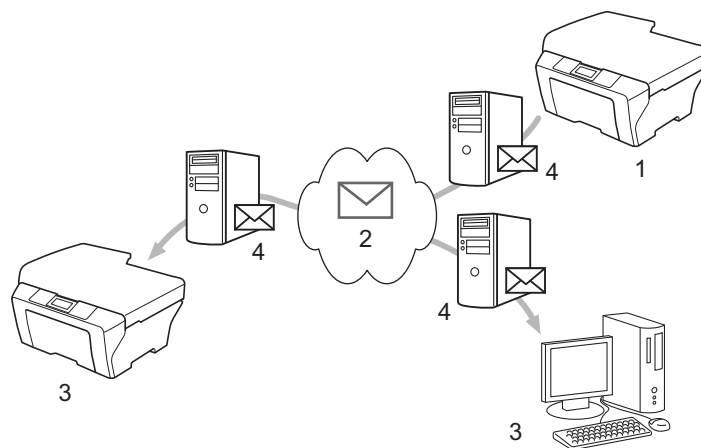
Note

Scan to FTP is available when FTP server profiles are configured using Web Based Management.

5

Internet fax (available as a download)

Internet fax Overview

Internet faxing (IFAX) allows you to send and receive fax documents using the Internet as the transport mechanism. Documents are transmitted in E-mail messages as attached TIFF-F files. This means that computers are also able to receive and send documents, providing that the computer has as an application that can generate and view TIFF-F files, you can use any TIFF-F viewer application. Any documents sent via the machine will automatically be converted into a TIFF-F format. If you wish to send and receive messages to and from your machine, your mail application on the computer must be able to support the MIME format.

1 Sender

2 Internet

3 Receiver

4 E-mail server

Note

• In order to use this function, please download the necessary software from the Brother Solutions Center.

(http://solutions.brother.com/)

• You can send/receive I-Fax documents in Letter or A4 format and in Black & White only.

• If your document is in a Ledger or A3 format, it will automatically be reduced to Letter or A4 format when it is sent.

■ Forwarding received E-mail and fax messages

You can forward received E-mail or standard fax messages to another E-mail address or fax machine. For more information see *Forwarding received E-mail and fax messages* on page 34.

■ Relay broadcast

If you want to fax the document long distance such as abroad, "relay broadcast" function allows you to save the communication fee.This function allows the Brother machine to receive the document over the Internet, and then relay it to other fax machine through conventional telephone lines. For more information, see *Relay broadcasting* on page 34.
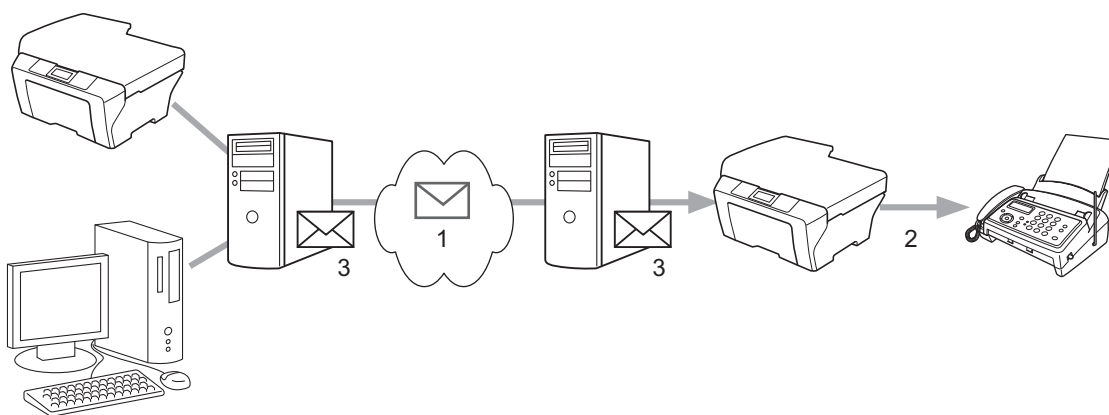
1 Internet

2 Telephone line

3 E-mail server

Important information on Internet fax

Internet fax communication on a LAN system is basically the same as communication via E-mail; however, it is different from fax communication using standard phone lines. The following is important information for using Internet fax:

■ Factors such as the receiver's location, structure of the LAN system, and how busy the circuit (such as the Internet) is, may cause the system to take a long time to send back an error mail. (normally 20 sec. to 30 sec.).

■ In the case of transmission through the Internet, due to its low level of security, we recommend that you use standard phone lines to send confidential documents.

■ If the receiver's mail system is not compatible with the MIME format, you cannot transmit a document to the receiver. Depending on the receiver's server, there may be some cases in which the error mail will not be sent back.

■ If the size of a document's image data is too large, there is a possibility of unsuccessful transmission.

■ You cannot change the font or character size of Internet mail that you received.

How to Internet fax

Before using Internet fax you must configure your Brother machine to communicate with your network and mail server. You must ensure the following items are configured on your machine. You can configure these items from the control panel, Web Based Management, Remote Setup or BRAdmin Professional 3. If you are unsure of any of these items, please contact your systems administrator.

- IP address (If you are already using your machine on your network, the machine's IP address has been configured correctly.)
- E-mail address
- SMTP, POP3 server address/port /Authentication method
- mailbox name and password

Sending an Internet fax

Before sending an Internet fax

To send an Internet fax, you can configure the following items from the control panel, Web Based Management or Remote Setup.

- Sender Subject (if needed)
- Size Limit (if needed)
- Notification (if needed) (For more information, see *TX Verification Mail* on page 37.)

How to send an Internet fax

Sending an Internet fax is the same as sending a normal fax (For more information, see *Sending a fax* in the *Basic User's Guide*). If you have already programmed the addresses of the destination Internet fax machines as One Touch or Speed-Dial locations, you can send the Internet fax by loading the document into the machine. If you want to change the resolution, use the Fax **Resolution** key to set the preferred resolution, choose a Speed Dial or One Touch number, and press **Start** (S.Fine is not supported for Internet fax).

Note

- If you wish to manually enter the Internet fax address, load the document into the machine and press **Shift** and **1** simultaneously to change into the "alphabet" dialing mode. Enter the address and then press **Start**.

  For more information to manually enter the Internet fax address, see the *Quick Setup Guide*.

- You can register the E-mail address information from Web Based Management or Remote Setup.

After the document is scanned, it is transmitted to the recipient Internet fax machine automatically via your SMTP server. You can cancel the send operation by pressing the **Stop/Exit** key during scanning. After the transmission is finished, the machine will return to standby mode.

Note

Some E-mail servers do not allow you to send large E-mail documents (the System Administrator will often place a limit on the maximum E-mail size). With this function enabled, the machine will display `Out of Memory` when trying to send E-mail documents over 1 Mbyte in size. The document will not be sent and an error report will be printed. The document you are sending should be separated into smaller documents that will be accepted by the mail server. (For your information, a 42 page document based on the ITU-T Test Chart #1 test chart is approximately 1 Mbyte in size.)

Receiving E-mail or Internet fax

Before receiving an Internet fax

To receive an Internet fax, you should configure the following items from the control panel, Web Based Management or Remote Setup:

■ Auto Polling (if needed)

■ Poll Frequency (if needed)

■ Header (if needed)

■ Delete Error Mail (if needed)

■ Notification (if needed) (For more information, see *TX Verification Mail* on page 37.)

How to receive an Internet fax

There are 2 ways you can receive E-mail messages:

■ POP3 receiving at regular intervals

■ POP3 receiving (manually initiated)

Using POP3 receiving the machine must poll the E-mail server to receive the data. This polling can occur at set intervals (for example, you can configure the machine to poll the E-mail server at 10 minute intervals) or you can manually poll the server by pressing the **Shift** + **Start** keys.

If your machine starts to receive E-mail data, the LCD panel will reflect this activity. For example, you will see `Receiving` on the LCD panel followed by `xx E-mail(s)`. If you press the **Shift** + **Start** keys to manually poll the E-mail server for E-mail data and there are no mail documents waiting to be printed, the machine will display `No Mail` on the LCD panel for two seconds.

Note

• If your machine is out of paper when receiving data, the received data will be held in the machine's memory. This data will be printed automatically after paper is re-inserted into the machine.

• If the received mail is not in a plain text format or an attached file is not in the TIFF-F format, the following error message will be printed: "ATTACHED FILE FORMAT NOT SUPPORTED. FILE NAME:XXXXXX.doc". If the received mail is too large, the following error message will be printed: "E-MAIL FILE TOO LARGE.". If Delete POP Receive Error Mail is ON (default) then the error mail is automatically deleted from the E-mail server.

Receiving an Internet fax to your computer

When a computer receives an Internet fax document, the document is attached to a mail message that informs the computer that it has received a document from an Internet fax. This is notified in the subject field of the received mail message.

Note

If the computer to which you wish to send a document is not running Windows® 2000/XP, Windows Server® 2003/2008, Windows Vista® or Windows® 7 operating system, please inform the computer's owner that they must install some software that can view TIFF-F files.

5

Additional Internet Fax options

Forwarding received E-mail and fax messages

You can forward received E-mail or standard fax messages to another E-mail address or fax machine. Received messages can be forwarded via E-mail to a computer or Internet fax. They can also be forwarded via standard phone lines to another machine.

The setting can be enabled using a web browser or through the control panel of the machine. The steps for configuring fax forward can be found in the *Advanced User's Guide* supplied with your machine.

Please see the *Advanced User's Guide* supplied with the machine to check that this feature is supported.

Relay broadcasting

This function allows the Brother machine to receive a document over the Internet, and then relay it to other fax machines through conventional telephone lines.

Before relaying broadcast

To relay broadcast, you must configure following items from the control panel, Web Based Management or Remote Setup:

■ Relay Broadcast

You must enable the relay broadcast.

■ Relay Domain

You must configure your machine's domain name on the machine that will broadcast the document to the conventional fax machine. If you wish to use your machine as a relay broadcast device, you must specify the domain name that you trust at the machine, in other words, the portion of the name after the "@" sign. Use care in selecting a trusted domain since any user on a trusted domain will be able to send a relay broadcast.

You can register up to 10 domain names.

■ Relay Report

Relay broadcast from a machine
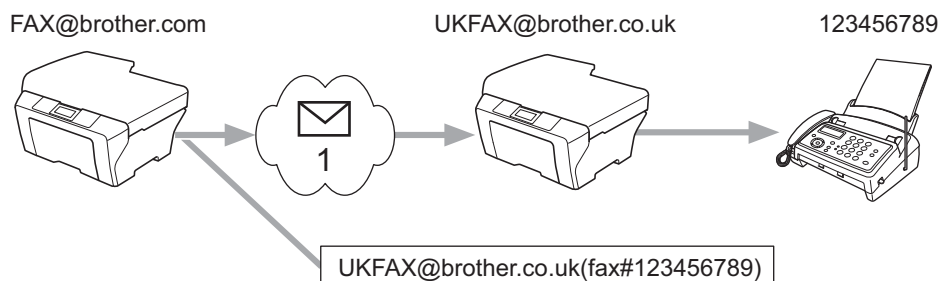
1 Internet

In this example, your machine has an E-mail address of FAX@brother.com, you wish to send a document from this machine to another machine in England with an E-mail address of UKFAX@brother.co.uk, this machine will then forward the document to a standard fax machine using a conventional telephone line. If your E-mail address is FAX@brother.com, you must configure a trusted domain name of brother.com on the machine in England that will broadcast the document to the conventional fax machine. If you do not enter the domain name information, then the machine in the middle (the machine that will broadcast the document) will not trust any Internet jobs that it receives from the machine in the @brother.com domain.

After the trusted domain is set, you can send the document from your machine [e.g. FAX@brother.com] by entering the E-mail address of the machine [e.g. UKFAX@brother.co.uk] that will forward the document followed by the phone number of the fax that will receive the document. The following is an example of how to enter the E-mail address and phone number.
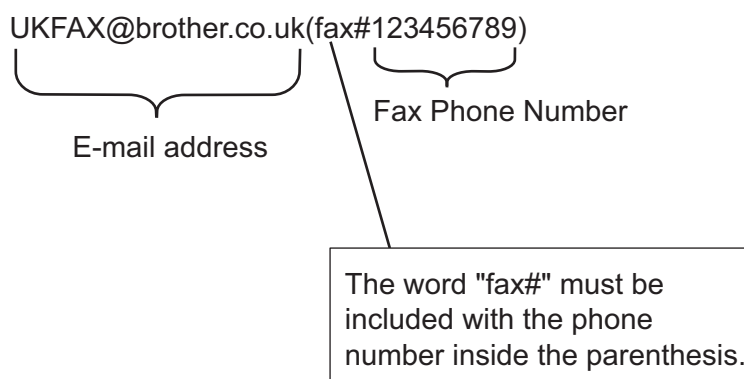
Sending to multiple phone numbers:

If you want to have the document relayed to more than one standard fax machine the address can be entered using the following method:

1️⃣ Enter the phone number of the first Fax machine UKFAX@brother.co.uk(fax#123).

2️⃣ Press **OK**.

3️⃣ Enter the phone number of the second Fax machine UKFAX@brother.co.uk(fax#456).

4️⃣ Press **Start**.

Relay broadcast from a computer
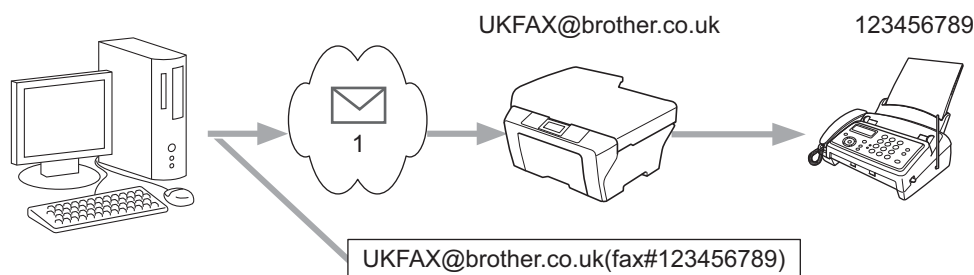
1 Internet

You can also send E-mail from your computer and have it relayed to a conventional fax machine. The method of entering the phone number of the conventional fax machine that will receive the relayed E-mail will vary depending on the mail application you are using. The following are some examples of different mail applications:

Some E-mail applications do not support sending to multiple phone numbers. If your E-mail application cannot support multiple phone numbers you will only be able to relay to one fax machine at a time.

Enter the address of the relay machine and phone number of the fax in the "TO" box using the same method used when sending from a machine.

UKFAX@brother.co.uk(fax#123456789)

Note

For Microsoft® Outlook® 97 or greater, the address information must be entered into the address book as follows:

Name: fax#123456789

E-mail address: UKFAX@brother.co.uk

TX Verification Mail

Transmission Verification Mail supports two separate functions. Verification Mail for sending allows you to request notification from the receiving station that the Internet Fax or E-mail was received and processed. Verification Mail for receiving allows you to transmit a default report back to the sending station after successfully receiving and processing an Internet Fax or E-mail.

To use this feature you must set the `Notification` option within the `Setup Mail RX` and `Setup Mail TX` options. You can configure these settings from the control panel of the machine.

Setup Mail TX

You can set the `Notification` option in the `Setup Mail TX` option to either `On` or `Off`. When switched to `On` an additional field of information is sent with the image data. This field is named "MDN".

MDN (Message Disposition Notification):
This field requests the status of the Internet Fax/E-mail message after delivery through the SMTP (Simple Mail Transfer Protocol) transport system. Once the message has arrived at the receiver, this data is used when the machine or user reads or prints the received Internet Fax or E-mail. For example, if the message is opened for reading or is printed the receiver sends back a notification to the original sending machine or user.

The receiver must support the MDN field in order to be able to send a notification report, otherwise the request will be ignored.

Setup Mail RX

There are three possible settings for this option `On`, `MDN` or `Off`.

Receive Notification "`On`"

When switched to "`On`" a fixed message is sent back to the sender to indicate successful reception and processing of the message. These fixed messages depend on the operation requested by the sender.

Report messages consist of:

`SUCCESS : Received From` <mail address>

Receive Notification "`MDN`"

When switched to "`MDN`" a report as described above is sent back to the sender if the originating station sent the "`MDN`" field to request confirmation.

Receive Notification "`Off`"

Off switches all forms of receive notification `Off`, no message is sent back to the sender regardless of the request.

Note

To receive the TX verification mail properly, you must configure the following settings.

- Sender
  - Switch Notification in the Setup Mail TX to on.
  - Switch Header in the Setup Mail RX to All or Subject+From+To.
- Receiver
  - Switch Notification in the Setup Mail RX to on.

Error mail

If there is a mail delivery error while sending an Internet fax, the mail server will send an error message back to the machine and the error message will be printed. If there is an error while receiving mail, an error message will be printed (Example: "The message being sent to the machine was not in a TIFF-F format.").

To receive the error mail properly, you must switch Header in the Setup Mail RX to All or Subject+From+To.

Scan to E-mail (E-mail server) overview

When you choose Scan to E-mail (E-mail Server) you can scan a black and white or color document and send it directly to an E-mail address from the machine. You can choose PDF or TIFF for Black and White and PDF or JPEG for color.

> **Note**
>
> Scan to E-mail (E-mail Server) requires SMTP/POP3 mail server support. (See *Sending an E-mail with user authentication* on page 42.)

How to operate Scan to E-mail (E-mail server)

1 Put the document face up in the ADF, or face down on the scanner glass.

2 Press ☒ (**SCAN**).

3 Press ▲ or ▼ to choose Scan to E-mail.
Press **OK**.

4 Press ▲ or ▼ to choose Change Setting.
Press **OK**.
If you don't have to change the quality, press ▲ or ▼ to choose Enter Address.
Press **OK** and then go to step 9.

5 Press ▲ or ▼ to choose Color 100 dpi, Color 200 dpi, Color 300 dpi, Color 600 dpi, Gray 100 dpi, Gray 200 dpi, Gray 300 dpi, B&W 200 dpi or B&W 200x100 dpi.
Press **OK**.
If you chose Color 100 dpi, Color 200 dpi, Color 300 dpi, Color 600 dpi, Gray 100 dpi, Gray 200 dpi or Gray 300 dpi, go to step 6.
If you chose B&W 200 dpi or B&W 200x100 dpi, go to step 7.

6 Press ▲ or ▼ to choose PDF, Secure PDF, JPEG or XPS. Press **OK** and go to step 8.

7 Press ▲ or ▼ to choose PDF, Secure PDF or TIFF. Press **OK** and go to step 9.

> **Note**
>
> If you choose Secure PDF, the machine will ask you to enter a 4 digit password using numbers 0-9 before choosing the file size.

8 Press ▲ or ▼ to choose Small, Middle or Large. Press **OK**.

9 The LCD prompts you to enter an address. Enter the destination E-mail address from the dial pad or use the One Touch key or Speed Dial number. Press **Start**. The machine starts the scanning process.

> **Note**
>
> You can only choose a One Touch key or Speed Dial number that has an E-mail address registered as the scan profile.

Using One Touch or Speed Dial number

You can also scan a document directly to an address you registered in a One Touch or Speed Dial number. When you scan the document, the settings you registered with the One Touch or Speed Dial will be used for the quality and the file type. Only One Touch or Speed Dials with an E-mail address registered can be used when you scan data using One Touch or Speed Dial. (Internet Fax addresses are not available for use.)

1 Put the document face up in the ADF, or face down on the scanner glass.

2 Press ⬒ (**SCAN**).

3 Choose One Touch or Speed Dial number.

4 Press **Start**. The machine starts the scanning process.

Note

You can store the scan resolution (scan profile) for each E-mail address if you store the E-mail address in a One Touch or Speed Dial number.

6 Security features

Overview

In today's world there are many security threats to your network and the data that travels over it. Your Brother machine employs some of the latest network security and encryption protocols available today. These network features can be integrated into your overall network security plan to help protect your data and prevent unauthorized access to the machine. This chapter explains how to configure them.

You can configure the following security features:

- Sending an E-mail securely (See *Sending an E-mail securely* on page 41.)

- Secure Management using BRAdmin Professional 3 (Windows®) (See *Secure Management using BRAdmin Professional 3 (Windows®)* on page 43.)

Note

We recommend to disable the FTP and TFTP protocols. Accessing the machine using these protocols is not secure. (For how to configure the protocol settings, see *How to configure the machine settings using Web Based Management (web browser)* on page 23.) If you disable FTP, the Scan to FTP function will be disabled.

Sending an E-mail securely

Configuration using Web Based Management (web browser)

You can configure secured E-mail sending with user authentication on the Web Based Management screen.

① Start your web browser.

② Type "`http://printer's IP address/`" into your browser (where "`printer's IP address`" is the printer's IP address).

- For example:

  `http://192.168.1.2/`

③ Click **Network Configuration**.

④ Enter a user name and a password. The default User Name is "**admin**" and the default Password is "**access**".

⑤ Click **OK**.

⑥ Click **Configure Protocol**.

⑦ Click **Advanced Setting** of **POP3/SMTP** and make sure that the status of **POP3/SMTP** is **Enable**.

8 You can configure the **POP3/SMTP** settings on this page.

Note
• For more information, see the Help text in Web Based Management.
• You can also confirm whether the E-mail settings are correct after configuration by sending a test E-mail.

9 After configuring, click **Submit**. The Test E-mail Send Configuration dialog appears.

10 Follow the instructions on-screen if you want to test with the current settings.

Sending an E-mail with user authentication

This machine supports POP before SMTP and SMTP-AUTH methods to send an E-mail via an E-mail server that requires a user authentication. These methods prevent an unauthorized user from accessing the E-mail server. You can use Web Based Management, BRAdmin Professional 3 and Web BRAdmin to configure these settings. You can use POP before SMTP and SMTP-AUTH methods for E-mail Notification, E-mail reports and Internet fax sending.

E-mail server settings

You need to match the settings of SMTP authentication method with the method used by your E-mail server. Contact your network administrator or your ISP (Internet Service Provider) about the E-mail server configuration.

You will also need to check **SMTP-AUTH** of **SMTP Server Authentication Method** to enable the SMTP server authentication.

SMTP settings

■ You can change the SMTP port number using Web Based Management. This is useful if your ISP (Internet Service Provider) implements the "Outbound Port 25 Blocking (OP25B)" service.

■ By changing the SMTP port number to a specific number which your ISP is using for the SMTP server (for example, port 587), you would then be able to send an E-mail via the SMTP server.

■ If you can use both POP before SMTP and SMTP-AUTH, we recommend choosing SMTP-AUTH.

■ If you choose POP before SMTP for the SMTP Server Authentication Method, you need to configure the POP3 settings. You can also use the APOP method if needed.

Secure Management using BRAdmin Professional 3 (Windows®)

Using BRAdmin Professional securely

■ We strongly recommend to use the latest version of the BRAdmin Professional 3 utility or Web BRAdmin that are available as a download from http://solutions.brother.com/. If you use an older version of BRAdmin [1] to manage your Brother machines the user authentication will not be secure.

■ If you want to avoid access to your machine from older versions of BRAdmin [1], you need to disable the access from older versions of BRAdmin [1] from **Advanced Setting** of **SNMP** on **Configure Protocol** page using Web Based Management. (See *How to configure the machine settings using Web Based Management (web browser)* on page 23.)

■ If you are managing a mixed group of older print servers [2] and the print servers with BRAdmin Professional 3, we recommend using a different password in each group. This will ensure security is maintained on the new print servers.

[1] BRAdmin Professional older than Ver. 2.80, Web BRAdmin older than Ver. 1.40, BRAdmin Light for Macintosh older than Ver. 1.10

[2] NC-2000 series, NC-2100p, NC-3100h, NC-3100s, NC-4100h, NC-5100h, NC-5200h, NC-6100h, NC-6200h, NC-6300h, NC-6400h, NC-8000, NC-100h, NC-110h, NC-120w, NC-130h, NC-140w, NC-8100h, NC-9100h, NC-7100w, NC-7200w, NC-2200w

7 Troubleshooting

Overview

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

Identifying your problem

Make sure that the following items are configured before reading this chapter.

First check the following:
The power cord is connected properly and the Brother machine is turned on.
The router or hub is turned on and its link light is blinking.
All protective packaging has been removed from the machine.
The toner cartridges and drum unit are installed properly.
The front and back covers are fully closed.
Paper is inserted properly in the paper tray.
A network cable is securely connected to the Brother machine and the router or hub.

Go to the page for your solution from the lists below

■ The Brother machine is not found on the network during the MFL-Pro Suite installation. (See page 45.)

■ The Brother machine cannot print or scan over the network. (See page 45.)

■ The Brother machine is not found on the network even after the successful installation. (See page 45.)

■ I'm using security software. (See page 47.)

■ I want to check my network devices are working properly. (See page 48.)

The Brother machine is not found on the network during the MFL-Pro Suite installation.

Question	Interface	Solution
Are you using security software?	wired	■ Choose to search for the Brother machine again on the installer dialog. ■ Allow access when the alert message of the security software appears during the MFL-Pro Suite installation. ■ For more information about security software, see *I'm using security software.* on page 47.

The Brother machine cannot print or scan over the network.
The Brother machine is not found on the network even after the successful installation.

Question	Interface	Solution
Are you using security software?	wired	See *I'm using security software.* on page 47.
Is your Brother machine assigned with an available IP address?	wired	■ Confirm the IP address and the Subnet Mask Verify that both the IP addresses and Subnet Masks of your computer and the Brother machine are correct and located on the same network. For more information on how to verify the IP address and the Subnet Mask, ask the network administrator or visit the Brother Solutions Center at http://solutions.brother.com/. ■ (Windows®) Confirm the IP address and the Subnet Mask using the Network Connection Repair Tool. Use the Network Connection Repair Tool to fix the Brother machine's network settings. It will assign the correct IP address and the Subnet Mask. To use the Network Connection Repair Tool, ask the network administrator for the details and then follow the steps below: ✎ **Note** • (Windows® 2000 Professional/XP/XP Professional x64 Edition/Windows Vista®/Windows® 7) You must log on with Administrator privileges. • Make sure that the Brother machine is turned on and is network-connected to your computer.

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The Brother machine cannot print or scan over the network.
The Brother machine is not found on the network even after the successful installation. (continued)

Question	Interface	Solution
Is your Brother machine assigned with an available IP address? (continued)	wired	1 (Windows® 2000/XP, Windows Server® 2003/2008) Click the **Start** button, **All Programs** (**Programs** for Windows® 2000), **Accessories** and **Windows Explorer**, and then **My Computer**. (Windows Vista®/Windows® 7) Click the ⊞ button and **Computer**. 2 Double-click **Local Disk (C:)**, **Program Files** or **Program Files (x86)** for 64-bit OS users, **Browny02**, **Brother**, **BrotherNetTool.exe** to run the program. 📝 **Note** If the **User Account Control** screen appears, (Windows Vista®) click **Continue**. (Windows® 7) click **Yes**. 3 Follow the on screen instructions. 4 Check the diagnosis by printing the Network Configuration List. 📝 **Note** The Network Connection Repair Tool will start automatically if you check the **Enable Network Connection Repair Tool** box using Status Monitor. Right-click on the Status Monitor screen, click **Options**, **Details** and then click the **Diagnostic** tab. This is not recommended when your network administrator has set the IP address to static, since it will automatically change the IP address. If the correct IP address and the Subnet mask are still not assigned even after using the Network Connection Repair Tool, ask the network administrator for this information, or visit the Brother Solutions Center at http://solutions.brother.com/.

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The Brother machine cannot print or scan over the network.
The Brother machine is not found on the network even after the successful installation. (continued)

Question	Interface	Solution
Did your previous printing job fail?	wired	■ If the failed printing job is still in the print queue of your computer, delete it.
		■ Double-click the printer icon in the following folder and then choose the **Cancel All Documents** in the **Printer** menu:
		(Windows® 2000)
		Start, **Settings** and then **Printers**.
		(Windows® XP)
		Start and **Printers and Faxes**.
		(Windows Vista®)
		, **Control Panel**, **Hardware and Sound** and then **Printers**.
		(Windows® 7)
		Click the button and then **Devices and Printers**.
I have checked and tried all of above, however the Brother machine does not print/scan. Is there anything else I can do?	wired	Uninstall the MFL-Pro Suite and reinstall it.

I'm using security software.

Question	Interface	Solution
Did you choose to accept the security alert dialog during the MFL-Pro Suite installation, applications' start-up process or when using the printing/scanning features?	wired	If you did not choose to accept the security alert dialog, the firewall function of your security software may be rejecting access. Some security software might block access without showing a security alert dialog. To allow access, see the instructions of your security software or ask the manufacturer.
I want to know the necessary port number for the security software settings.	wired	The following port numbers are used for Brother network features:
		■ Network scanning → Port number 54925 / Protocol UDP
		■ PC-FAX RX → Port number 54926 / Protocol UDP
		■ Network scanning/printing, PC-FAX RX, Remote Setup → Port number 137 and 161 / Protocol UDP
		■ BRAdmin Light → Port number 161 / Protocol UDP
		For details on how to open the port, see the instructions of the security software or ask the manufacturer.

I want to check my network devices are working properly.

Question	Interface	Solution
Is your Brother machine, access point/router or network hub turned on?	wired	Make sure you have confirmed all instructions in *First check the following:* on page 44.
Where can I find the Brother machine's network settings, such as IP address?	wired	Print the Network Configuration List. See *Printing the Network Configuration List* on page 18.
How can I check the link status of the Brother machine?	wired	Print the Network Configuration List and check that **Ethernet Link Status** is **Link OK**.
		If the **Link Status** shows **Link DOWN**, start over again from the *First check the following:* on page 44.
Can you "ping" the Brother machine from your computer?	wired	Ping the Brother machine from your computer using the IP address or the node name.
		■ Successful → Your Brother machine is working correctly and connected to the same network as your computer.
		■ Unsuccessful → Your Brother machine is not connected to the same network as your computer.
		(Windows®) Ask the network administrator and use the Network Connection Repair Tool to fix the IP address and the subnet mask automatically. For the details of the Network Connection Repair Tool, see *(Windows®) Confirm the IP address and the Subnet Mask using the Network Connection Repair Tool.* in *Is your Brother machine assigned with an available IP address?* on page 45.
		(Macintosh) Confirm the IP address and the Subnet Mask are set correctly. See *Confirm the IP address and the Subnet Mask* in *Is your Brother machine assigned with an available IP address?* on page 45.

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A Appendix A

Supported protocols and security features

Interface	Ethernet	10/100BASE-TX
Network (common)	Protocol (IPv4)	ARP, RARP, BOOTP, DHCP, APIPA (Auto IP), WINS/NetBIOS name resolution, DNS Resolver, mDNS, LLMNR responder, LPR/LPD, Custom Raw Port/Port9100, IPP, FTP Client and Server, HTTP server, TFTP client and server, SMTP Client, SNMPv1/v2c, ICMP, LLTD responder, Web Services (Print),
	Protocol (IPv6)	NDP, RA, DNS Resolver, mDNS, LLMNR responder, LPR/LPD, Custom Raw Port/Port9100, IPP, FTP Client and Server, HTTP server, TFTP client and server, SMTP Client, SNMPv1/v2c, ICMPv6, LLTD responder, Web Services (Print),
Network Security	Wired	APOP, POP before SMTP, SMTP-AUTH

B Index

B

Network Glossary

In this Network Glossary, you will find basic information about advanced network features of Brother machines along general networking and common terms.

The supported protocols and the network features differ depending on the model you are using. To find what features and network protocols are supported, see the *Network User's Guide* we have provided. To download the latest manual, please visit the Brother Solutions Center at (http://solutions.brother.com/).

You can also download the latest drivers and utilities for your machine, read FAQs and troubleshooting tips or learn about special printing solutions from the Brother Solutions Center.

Definitions of notes

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

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

IMPORTANT NOTE

- Your product is approved for use in the country of purchase only. Do not use this product outside the country of purchase as it may violate the wireless telecommunication and power regulations of that country.

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

- Windows Server® 2003 in this document represents Windows Server® 2003 and Windows Server® 2003 x64 Edition.

- Windows Server® 2008 in this document represents Windows Server® 2008 and Windows Server® 2008 R2.

- Windows Vista® in this document represents all editions of Windows Vista®.

- Windows® 7 in this document represents all editions of Windows® 7.

- Please go to the Brother Solutions Center at http://solutions.brother.com/ and click Manuals on your model page to download the other manuals.

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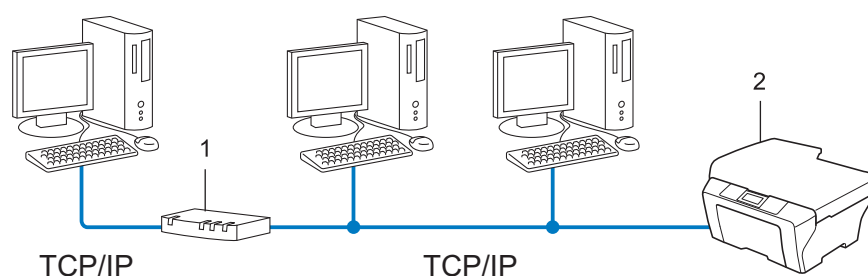# Types of network connections and protocols

Types of network connections

Wired 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 machine sharing.

TCP/IP   TCP/IP

1 **Router**
2 **Network machine (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. See *Network Shared printing* on page 2.

■ 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.
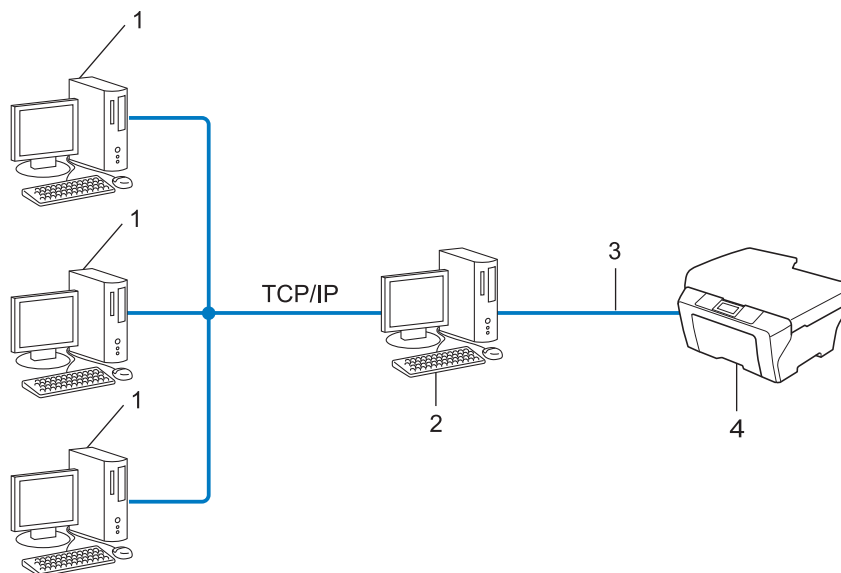
1 Client computer

2 Also known as "Server" or "Print server"

3 TCP/IP, USB or parallel (where available)

4 Network machine (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 to have an appropriate IP address configuration unless the machine is connected via the USB or the parallel interface at 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 the Brother machine supports the TCP/IP (Transmission Control Protocol/Internet Protocol) protocol.

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®, Windows Server®, Mac OS X and Linux®. The following TCP/IP protocols are available on the Brother machine.

> **Note**
> - You can configure the protocol settings by using the HTTP interface (web browser). (See the *Network User's Guide*.)
> - To find what protocols your Brother machine supports, see the *Network User's Guide*.
> - For information about supported security protocols, see *Security protocols* on page 19.

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 (for LCD models) 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.

ARP

Address Resolution Protocol performs mapping of an IP address to MAC address in a TCP/IP network.

DNS client

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

NetBIOS name resolution

Network Basic Input/Output System name resolution enables you to obtain the IP address of the other device using its NetBIOS name during the network connection.

WINS

Windows Internet Name Service is an information providing service for the NetBIOS name resolution by consolidating an IP address and a NetBIOS name that is in the local network.

LPR/LPD

Commonly used printing protocols on a TCP/IP network.

SMTP client

Simple Mail Transfer Protocol (SMTP) client is used to send E-mails via the Internet or Intranet.

Custom Raw Port (Default is Port 9100)

Another commonly used printing protocol on a TCP/IP network. It enables interactive data transmission.

IPP

The Internet Printing Protocol (IPP Version 1.0) allows you to print documents directly to any accessible machine via the internet.

Note

For the IPPS protocol, see *Security protocols* on page 19.

mDNS

mDNS allows the Brother print server to automatically configure itself to work in a Mac OS X Simple Network Configured system.

TELNET

The TELNET protocol allows you to control the remote network devices on a TCP/IP network from your computer.

SNMP

The Simple Network Management Protocol (SNMP) is used to manage network devices including computers, routers and Brother network ready machines. The Brother print server supports SNMPv1, SNMPv2c and SNMPv3.

📝 **Note**

For the SNMPv3 protocol, see *Security protocols* on page 19.

LLMNR

The Link-Local Multicast Name Resolution protocol (LLMNR) resolves the names of neighboring computers, if the network does not have a Domain Name System (DNS) server. The LLMNR Responder function works in both the IPv4 or IPv6 environment when using a computer that has the LLMNR Sender function such as Windows Vista® and Windows® 7.

Web Services

The Web Services protocol enables Windows Vista® or Windows® 7 users to install the Brother printer driver by right-clicking the machine icon from the **Network** folder. (See *Network printing Installation when using Web Services (Windows Vista® and Windows® 7)* on page 15.) The Web Services also lets you check the current status of the machine from your computer.

HTTP

The HTTP protocol is used to transmit the data between a web server and a web browser.

📝 **Note**

For the HTTPS protocol, see *Security protocols* on page 19.

FTP (For the Scan to FTP feature)

The File Transfer Protocol (FTP) allows the Brother machine to scan black and white or color documents directly to an FTP server located locally on your network or on the internet.

SNTP

The Simple Network Time Protocol is used to synchronize computer clocks on a TCP/IP network. You can configure the SNTP settings using Web Based Management (web browser). (For the details, see the *Network User's Guide*.)

CIFS

The Common Internet File System is the standard way that computer users share files and printers in Windows®.

LDAP

The Lightweight Directory Access Protocol (LDAP) allows the Brother machine to search for information such as fax numbers and E-mail addresses from an LDAP server.

IPv6

IPv6 is the next generation internet protocol. For more information on the IPv6 protocol, visit the model page for the machine you are using at http://solutions.brother.com/.

Other protocol

LLTD

The Link Layer Topology Discovery protocol (LLTD) lets you locate the Brother machine easily on the Windows Vista®/Windows® 7 **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 Web Based Management (web browser) (See the *Network User's Guide*.), and the BRAdmin Professional 3 utility software. Visit the download page for your model at http://solutions.brother.com/ to download BRAdmin Professional 3.

2

Configuring your machine for a network

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.`<u>`1`</u>

- • `192.168.1.`<u>`2`</u>

- • `192.168.1.`<u>`3`</u>

How the IP address is assigned to your print server:

If you have a DHCP/BOOTP/RARP server in your network the print server will automatically obtain its IP address from that server.

> **Note**
> ───────────────────────────────────────
> On smaller networks, the DHCP server may also be the Router.
> ───────────────────────────────────────

For more information on DHCP, BOOTP and RARP, see:
Using DHCP to configure the IP address on page 21.
Using BOOTP to configure the IP address on page 23.
Using RARP to configure the IP address on page 22.

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 23.

Subnet mask

Subnet masks restrict network communication.

■ Example: Computer 1 can talk to Computer 2

 • Computer 1

 IP Address: 192.168. 1. 2

 Subnet Mask: 255.255.255.000

 • Computer 2

 IP Address: 192.168. 1. 3

 Subnet Mask: 255.255.255.000

Where the 0 is in the Subnet mask, there is no limit to communication at this part of the address. What this means in the above example is, we can communicate with any device that has an IP address that begins with 192.168.1.x. (where x. are numbers between 0 and 255).

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 on 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.

IEEE 802.1x Authentication

IEEE 802.1x is an IEEE standard for wired and wireless network that limits an access from unauthorized network devices. Your Brother machine (supplicant) sends an authentication request to a RADIUS server (Authentication server) through your access point (Authenticator). After your request has been verified by the RADIUS server, your machine can have an access to the network.

Authentication methods

■ LEAP (For wireless network)

Cisco LEAP (Light Extensible Authentication Protocol) has been developed by Cisco Systems, Inc. which uses a user ID and password for authentication.

■ EAP-FAST

EAP-FAST (Extensible Authentication Protocol-Flexible Authentication via Secured Tunnel) has been developed by Cisco Systems, Inc. which uses a user ID and password for authentication, and symmetric key algorithms to achieve a tunneled authentication process.

The Brother machine supports the following inner authentications:

- EAP-FAST/NONE
- EAP-FAST/MS-CHAPv2
- EAP-FAST/GTC

■ EAP-MD5 (For wired network)

EAP-MD5 (Extensible Authentication Protocol-Message digest algorithm 5) uses a user ID and password for challenge-response authentication.

■ PEAP

PEAP (Protected Extensible Authentication Protocol) has been developed by Microsoft Corporation, Cisco Systems and RSA Security. PEAP creates an encrypt SSL (Secure Sockets Layer)/TLS (Transport Layer Security) tunnel between a client and an authentication server, for sending a user ID and password. PEAP provides mutual authentication between the server and the client.

The Brother machine supports the following inner authentications:

- PEAP/MS-CHAPv2
- PEAP/GTC

■ EAP-TTLS

EAP-TTLS (Extensible Authentication Protocol Tunneled Transport Layer Security) has been developed by Funk Software and Certicom. EAP-TTLS creates a similar encrypt SSL tunnel to PEAP, between a client and an authentication server, for sending a user ID and password. EAP-TTLS provides mutual authentication between the server and the client.

The Brother machine supports the following inner authentications:

- EAP-TTLS/CHAP
- EAP-TTLS/MS-CHAP
- EAP-TTLS/MS-CHAPv2
- EAP-TTLS/PAP

■ EAP-TLS

EAP-TLS (Extensible Authentication Protocol Transport Layer Security) requires digital certificate authentication both at a client and an authentication server.

3 Wireless network terms and concepts

Specifying your network

SSID (Service Set Identifier) and channels

You need to configure the SSID and a channel to specify the wireless network you want to connect to.

■ SSID

Each wireless network has its own unique network name and it is technically referred to as SSID or ESSID (Extended Service Set Identifier). The SSID is a 32-byte or less value and is assigned to the access point. The wireless network devices you want to associate to the wireless network should match the access point. The access point and wireless network devices regularly send wireless packets (referred to as a beacon) which has the SSID information. When your wireless network device receives a beacon, you can identify the wireless network that is close enough for the radio waves to reach your device.

■ Channels

Wireless networks use channels. Each wireless channel is on a different frequency. There are up to 14 different channels that can be used when using a wireless network. However, in many countries the number of channels available are restricted.

Security terms

Authentication and encryption

Most wireless networks use some kind of security settings. These security settings define the authentication (how the device identifies itself to the network) and encryption (how the data is encrypted as it is sent on the network). **If you do not correctly specify these options when you are configuring your Brother wireless machine, it will not be able to connect to the wireless network.** Therefore care must be taken when configuring these options. Please refer to the information in the *Network User's Guide* to see which authentication and encryption methods your Brother wireless machine supports.

Authentication and Encryption methods for a personal wireless network

Personal wireless network is a small network, for example using your machine in a wireless network at home, without IEEE 802.1x support.

If you want to use your machine in an IEEE 802.1x supported wireless network, see *Authentication and Encryption methods for an enterprise wireless network* on page 13.

Authentication methods

■ Open system

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

■ Shared key

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

The Brother wireless machine uses the WEP key as the pre-determined key.

■ WPA-PSK/WPA2-PSK

Enables a Wi-Fi Protected Access Pre-shared key (WPA-PSK/WPA2-PSK), which enables the Brother wireless machine to associate with access points using TKIP for WPA-PSK or AES for WPA-PSK and WPA2-PSK (WPA-Personal).

Encryption methods

■ None

No encryption method is used.

■ WEP

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

■ TKIP

TKIP (Temporal Key Integrity Protocol) provides per-packet key mixing a message integrity check and rekeying mechanism.

■ AES

AES (Advanced Encryption Standard) is the Wi-Fi® authorized strong encryption standard.

Network key

■ Open system/Shared key with WEP

This key is a 64-bit or 128-bit value that must be entered in an ASCII or hexadecimal format.

- 64 (40) bit ASCII:

  Uses 5 text characters. e.g. "WSLAN" (this is case sensitive).

- 64 (40) bit hexadecimal:

  Uses 10 digits of hexadecimal data. e.g. "71f2234aba"

- 128 (104) bit ASCII:

  Uses 13 text characters. e.g. "Wirelesscomms" (this is case sensitive)

- 128 (104) bit hexadecimal:

  Uses 26 digits of hexadecimal data. e.g. "71f2234ab56cd709e5412aa2ba"

■ WPA-PSK/WPA2-PSK and TKIP or AES

Uses a Pre-Shared Key (PSK) that is 8 or more characters in length, up to a maximum of 63 characters.

Authentication and Encryption methods for an enterprise wireless network

Enterprise wireless network is a large network, for example using your machine in a business enterprise wireless network, with IEEE 802.1x support. If you configure your machine in an IEEE 802.1x supported wireless network, you can use following authentication and encryption methods.

Authentication methods

■ LEAP

For LEAP, see *LEAP (For wireless network)* on page 9.

■ EAP-FAST

For EAP-FAST, see *EAP-FAST* on page 9.

■ PEAP

For PEAP, see *PEAP* on page 9.

■ EAP-TTLS

For EAP-TTLS, see *EAP-TTLS* on page 10.

■ EAP-TLS

For EAP-TLS, see *EAP-TLS* on page 10.

Encryption methods

■ TKIP

   For TKIP, see *TKIP* on page 12.

■ AES

   For AES, see *AES* on page 12.

■ CKIP

   The original Key Integrity Protocol for LEAP by Cisco Systems, Inc.

User ID and password

The following security methods use the user ID less than 64 characters and the password less than 32 characters in length.

■ LEAP

■ EAP-FAST

■ PEAP

■ EAP-TTLS

■ EAP-TLS (For user ID)

4 Additional network settings from Windows®

Types of additional network settings

Following features are available to use if you want to configure additional network settings.

■ Web Services (Windows Vista® and Windows® 7)

■ Vertical Paring (Windows® 7)

Note

Verify the host computer and the machine are either on the same subnet, or that the router is properly configured to pass data between the two devices.

Network printing Installation when using Web Services (Windows Vista® and Windows® 7)

The Web Services feature allows you to monitor its machine information which is connected to the network. This also enables the printer driver installation from the printer icon and the Web Services port (WSD port) will be made.

Note

• You must configure the IP address on your machine before you configure this setting.

• For Windows Server® 2008, you must install Print Services.

• Only printer support is installed with Web Services.

❶ Insert the installation CD-ROM.

❷ Choose your CD-ROM drive/**install**/**driver**/**gdi**/**32** or **64**.

❸ Choose your language and then double-click **DPInst.exe**.

Note

If the **User Account Control** screen appears,

(Windows Vista®) Click **Allow**.

(Windows® 7) Click **Yes**.

d (Windows Vista®)
Click ![Windows logo] , then choose **Network**.
(Windows® 7)

Click ![Windows logo] , **Control Panel**, **Network and Internet**, and then **View network computers and devices**.

e 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 MAC Address (Ethernet Address) of your machine (e.g. Brother MFC-XXXX (model name) [XXXXXXXXXXXX] (MAC Address / Ethernet Address).

f From the pull down menu, click **Install**.

4

Network printing installation for Infrastructure mode when using Vertical Pairing (Windows® 7)

Windows® Vertical Pairing is a technology to allow your Vertical Pairing supported wireless machine to connect to your Infrastructure network using the PIN Method of Wi-Fi Protected Setup and the Web Services feature. This also enables the printer driver installation from the printer icon that is in the **Add a device** screen.

If you are in Infrastructure mode, you can connect your machine to the wireless network and then install the printer driver using this feature. Follow the steps below:

> **Note**
> - If you have set your machine's Web Services feature to Off, you must set back to On. The default setting of the Web Services for the Brother machine is On. You can change the Web Services setting by using the Web Based Management (web browser) or BRAdmin Professional 3.
> - Make sure your WLAN access point/router includes the Windows® 7 compatibility logo. If you are not sure about the compatibility logo, contact your access point/router manufacturer.
> - Make sure your computer includes Windows® 7 compatibility logo. If you are not sure about the compatibility logo, contact your computer manufacturer.
> - If you are configuring wireless network using an external wireless NIC (Network Interface Card), make sure the wireless NIC includes Windows® 7 compatibility logo. For more information, contact your wireless NIC manufacturer.
> - To use a Windows® 7 computer as a Registrar, you need to register it to your network in advance. See the instruction supplied with your WLAN access point/router.

1. Turn on your machine.

2. Set your machine in Wi-Fi Protected Setup (PIN Method).
   See Wi-Fi Protected Setup (PIN Method) wireless configuration in the *Network User's Guide*, on how to set your machine in the PIN Method.

3. Click the 🏁 button and then **Devices and Printers**.

4. Choose **Add a device** on the **Devices and Printers** dialog.

5. Choose your machine and input the PIN which your machine has indicated.

6. Choose the Infrastructure network that you want to connect to, and then click **Next**.

7. When your machine appears in the **Devices and Printers** dialog, the wireless configuration and the printer driver installation are successfully completed.

5

Security terms and concepts

Security features

Security terms

■ CA (Certificate Authority)

A CA is an entity that issues digital certificates (especially X.509 certificates) and vouches for the binding between the data items in a certificate.

■ CSR (Certificate Signing Request)

A CSR is a message sent from an applicant to a CA in order to apply for issue of a certificate. The CSR contains information identifying the applicant, the public key generated by the applicant and the digital signature of the applicant.

■ Certificate

A Certificate is the information that binds together a public key with an identity. The certificate can be used to verify that a public key belongs to an individual. The format is defined by the x.509 standard.

■ CA Certificate

A CA Certificate is the certification that identifies the CA (Certificate Authority) itself and owns its private key. It verifies a certificate issued by the CA.

■ Digital signature

A Digital signature is a value computed with a cryptographic algorithm and appended to a data object in such a way that any recipient of the data can use the signature to verify the data's origin and integrity.

■ Public key cryptosystem

A Public key cryptosystem is a modern branch of cryptography in which the algorithms employ a pair of keys (a public key and a private key) and use a different component of the pair for different steps of the algorithm.

■ Shared key cryptosystem

A Shared key cryptosystem is a branch of cryptography involving algorithms that use the same key for two different steps of the algorithm (such as encryption and decryption).

Security protocols

> 📝 **Note**
>
> You can configure the protocol settings using Web Based Management (web browser). For the details, see the *Network User's Guide*.

SSL (Secure Socket Layer) / TLS (Transport Layer Security)

These security communication protocols encrypt data to prevent security threats.

HTTPS

The internet protocol that the Hyper Text Transfer Protocol (HTTP) uses SSL.

IPPS

The printing protocol that the Internet Printing Protocol (IPP Version 1.0) uses SSL.

SNMPv3

The Simple Network Management Protocol version 3 (SNMPv3) provides user authentication and data encryption to manage network devices securely.

Security methods for E-mail Sending and Receiving

📝 Note

You can configure the security methods settings using Web Based Management (web browser). For the details, see the *Network User's Guide*.

POP before SMTP (PbS)

The user authentication method for sending E-mail from a client. The client is given permission to use the SMTP server by accessing the POP3 server before sending the E-mail.

SMTP-AUTH (SMTP Authentication)

SMTP-AUTH expands SMTP (the Internet E-mail sending protocol) to include an authentication method that ensures the true identity of the sender is known.

APOP (Authenticated Post Office Protocol)

APOP expands POP3 (the Internet receiving protocol) to include an authentication method that encrypts the password when the client receives E-mail.

SMTP over SSL

SMTP over SSL feature enables sending encrypted E-mail using SSL.

POP over SSL

POP over SSL feature enables receiving encrypted E-mail using SSL.

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
TEXT_P1	TCP/IP text service (adds carriage return after each line feed)
PCL_P1	PCL service (switches PJL-compatible machine to PCL mode)
BRNxxxxxxxxxxxx	TCP/IP binary
BRNxxxxxxxxxxxx_AT	PostScript® service for Macintosh
POSTSCRIPT_P1	PostScript® service (switches PJL-compatible machine to PostScript® mode)

Where "xxxxxxxxxxxx" is your machine's MAC Address (Ethernet Address).

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

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 the 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 machine's control panel Network menu (for LCD models), BRAdmin applications, Remote Setup or Web Based Management (web browser).

Using RARP to configure the IP address

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

`00:80:77:31:01:07    BRN008077310107` (or `BRW008077310107` for a wireless network)

Where the first entry is the MAC Address (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 machine is powered on.

A

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), MAC Address (Ethernet Address) and the IP address, subnet mask and gateway of the print server. Unfortunately, the exact format for doing this is not standardized, so you will need to refer to your system documentation to determine how to enter this information (many UNIX systems also have template examples in the bootptab file that you can use for reference). Some examples of typical `/etc/bootptab` entries include: ("BRN" below is "BRW" for a wireless network.)

`BRN310107 1  00:80:77:31:01:07 192.168.1.2`

and:

`BRN310107:ht=ethernet:ha=008077310107:\ip=192.168.1.2:`

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 machine 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 LCD models), BRAdmin Light or Web Based Management (web browser).

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
ping ipaddress
```

Where `ethernetaddress` is the MAC Address (Ethernet 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 MAC Address (Ethernet Address).

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

■ **UNIX/Linux systems**

Typically, UNIX and Linux systems require the colon ":" character between each digit of the MAC Address (Ethernet Address).

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

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 Based Management (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).

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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 the print server.

Type `TELNET <command line>` at the command prompt of the system prompt, where `<command line>` is the IP address of the print server. When you are connected, push the Return or Enter key to get the "#" prompt. Enter the password "**access**" (the password will not appear on the screen).

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.

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