Network User's Guide

TD-2125N

TD-2135N

TD-2125NWB

TD-2135NWB

This Network User's Guide provides useful information to configure wired and wireless network settings using your Brother printer. You can also find supported protocol information and detailed troubleshooting tips.

To download the latest manual, software, and drivers and see FAQs and Troubleshooting tips, visit the Brother support website at support.brother.com.

Version 01

ENG

Applicable Models

This User's Guide applies to the following models:

TD-2125N

TD-2135N

TD-2125NWB

TD-2135NWB

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.

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IMPORTANT NOTE

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

■ Not all models are available in all countries.

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1 Introduction

Network Features

Your Brother printer can be shared on a 10/100 Mbps wired [1] or IEEE 802.11b/g/n wireless network [2] using the internal network print server. The print server supports various functions and methods of connection on a network supporting TCP/IP, depending on the operating system you are running. The following table shows what network features and connections are supported by each operating system.

NOTE

Although your Brother printer can be used on both a wired [1] and wireless network, only one connection method can be used at a time.

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[1] A wired network connection is available on the TD-2125N/2135N/2125NWB/2135MWB.

[2] A wireless network connection is available on the TD-2125NWB/2135NWB.

Operating Systems	Windows 11 Windows 10 Windows 8.1	Windows Server 2012, 2012 R2, 2016, 2019, 2022
BRAdmin Light See page 2.	✔	✔
BRAdmin Professional [1] See page 5.	✔	✔
Web Based Management	✔	✔
Status Monitor	✔	✔
Driver Deployment Wizard	✔	✔
Printer Setting Tool	✔	✔

[1] BRAdmin Professional is available to download from support.brother.com.

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Changing Your Printer's Network Settings

Change your printer's network settings: IP address, Subnet mask. and Gateway

Using the BRAdmin Light utility

The BRAdmin Light utility is designed for the initial setup of Brother network-connectable devices. It can also search for Brother products in a TCP/IP environment, show each product's status, and configure basic network settings.

Installing BRAdmin Light

■ Windows

1 Visit the Brother support website at support.brother.com and download the installer for the software and documents.

2 Double-click the downloaded file and follow the on-screen instructions to proceed with the installation. In the dialog box for selecting which items to install, select BRAdmin Light.

NOTE

• For more advanced printer management, download the latest version of Brother BRAdmin Professional from your model's **Downloads** page at support.brother.com.

• If using a firewall, anti-spyware, or antivirus software, temporarily disable them. When you are sure that you can print, enable them again.

• The node name appears in the current BRAdmin Light window. The default node name of the print server in the printer is "BRNxxxxxxxxxxxx" or "BRWxxxxxxxxxxxx". ("xxxxxxxxxxxx" is based on your printer's MAC Address/Ethernet Address.)

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

1️⃣ Start the BRAdmin Light utility.

For Windows 10/Windows 11:
Click [**Start**] - [**Brother**] - [**BRAdmin Light**] - [**BRAdmin Light**].

For Windows 8.1:
Click [**Start**]/[**Apps**] - [**BRAdmin Light**].

2️⃣ BRAdmin Light will search for new devices automatically.

3️⃣ Double-click the unconfigured device.
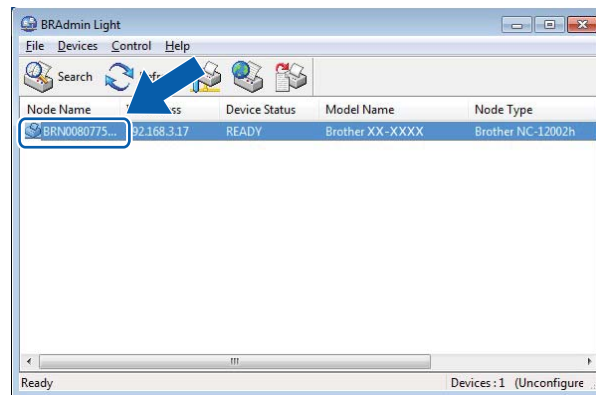
NOTE

- If you do not use a DHCP/BOOTP/RARP server, the device will appear as [**Unconfigured**] in the BRAdmin Light screen.

- You can find the node name and MAC Address by printing the Printer Settings. (See *Printing the Printer Setup Information* on page 10.)

④ Select "STATIC" as the boot method. Enter the IP address, subnet mask and gateway (if needed) of your print server.

```
Configure BRN00807750CDE6                              [×]

 General  Control  Network

          Boot Method
          ◯ AUTO
          ⦿ STATIC
          ◯ DHCP
          ◯ RARP
          ◯ BOOTP
          ☑ APIPA


          IP Address        XXX.XXX.X.XX

          Subnet Mask       XXX.XXX.XXX.X

          Gateway           XXX.XXX.X.X


                        OK      Cancel      Help
```
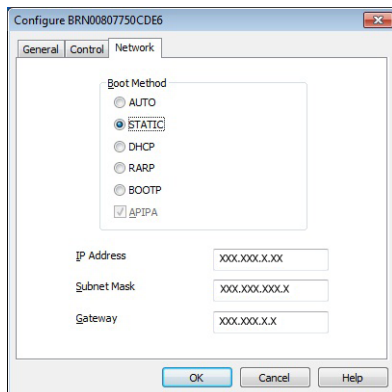
⑤ Click [**OK**].

⑥ Once your IP address has been saved, you will see the Brother print server on the device list.

Other Management Utilities

You can use the following management utilities in addition to BRAdmin Light utility to manage your printer and change your network settings.

Using Web Based Management (web browser)

Use a standard web browser to change your print server settings with Hyper Text Transfer Protocol (HTTP). For more information, see *Change Printer Settings Using Web Based Management* on page 12.

Using BRAdmin Professional (Windows)

BRAdmin Professional can search for Brother products on your network and show the status of each device. You can configure network settings and device settings, and update device firmware from a Windows computer on your Local Area Network (LAN). BRAdmin Professional can also log activity of Brother devices on your network and export the log data in HTML, CSV, TXT, or SQL format.

For more information and downloads, visit us at support.brother.com.

NOTE

- Use the latest version of the BRAdmin Professional software, which is available on your model's **Downloads** page at support.brother.com.

- If you are using a firewall, anti-spyware, or antivirus software, temporarily disable them. Once you are sure that you can print, enable them again.

- The node name appears in the current BRAdmin Professional window. The default node name is "BRNxxxxxxxxxxxx" or "BRWxxxxxxxxxxxx". ("xxxxxxxxxxxx" is based on your printer's MAC Address/Ethernet Address.)

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Configuring Your Machine for a Wireless Network (TD-2125NWB/TD-2135NWB only)

Overview

To connect your machine to your wireless network, follow the steps in your model's *User's Guide*.

This chapter provides more details on how to configure your wireless network settings. For information on TCP/IP settings, see *Change your printer's network settings: IP address, Subnet mask. and Gateway* on page 2.

NOTE

- Make sure there are minimal obstructions between the wireless router and the printer. Large objects, walls, and other electronic devices can affect the transmission speed of the print data.

- Use a USB flash drive for the fastest throughput speed for all types of documents and applications.

- Make sure you know your SSID and Network Key before configuring wireless settings.

- Although your Brother machine can be used on both a wired and wireless network, only one connection method can be used at a time.

Confirm your network environment

Connected to a computer with a wireless router on the network (Infrastructure mode)
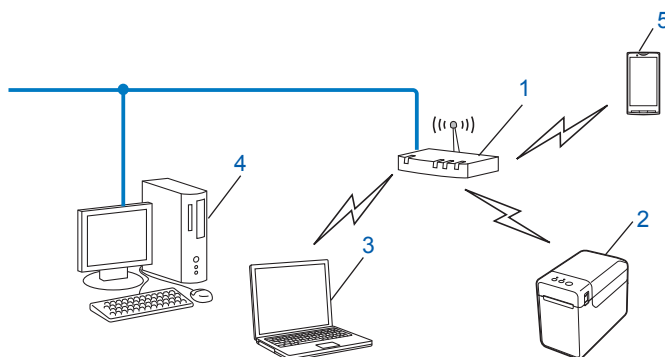
1 Wireless router

2 Wireless network printer (your printer)

3 Wireless-capable computer connected to the wireless router

4 Wired computer (not wireless-capable) connected to the wireless router with an Ethernet cable

5 Smartphone

Installation method

The following instructions will detail the methods for installing your Brother printer in a wireless network environment. Choose the method you prefer for your environment.

■ Wireless configuration temporarily using a USB cable (Recommended for Windows users)

See *Wireless configuration temporarily using a USB cable (Recommended for Windows users)* on page 8.

■ One push wireless configuration using WPS

See *One-push configuration using Wi-Fi Protected Setup™* on page 9.

Wireless configuration temporarily using a USB cable (Recommended for Windows users)

It is recommended that you use a PC wirelessly connected to your network for this method.

You can remotely configure the printer from the computer on the network using a USB cable (A) [1].
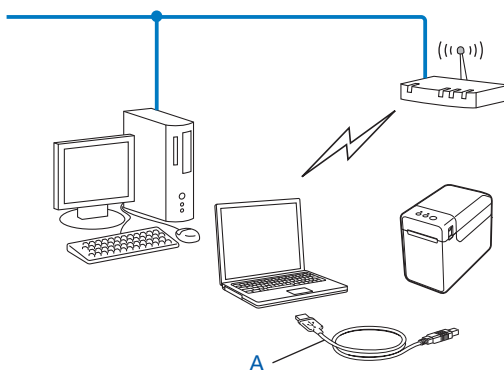
[1] You can configure the wireless settings of the printer using a USB cable temporarily connected to a wired or wireless computer.

See the installation procedure in the User's Guide.

One-push configuration using Wi-Fi Protected Setup™

You can use WPS to configure your wireless network settings easily if your wireless router (A) supports Wi-Fi Protected Setup™ (PBC [1]).
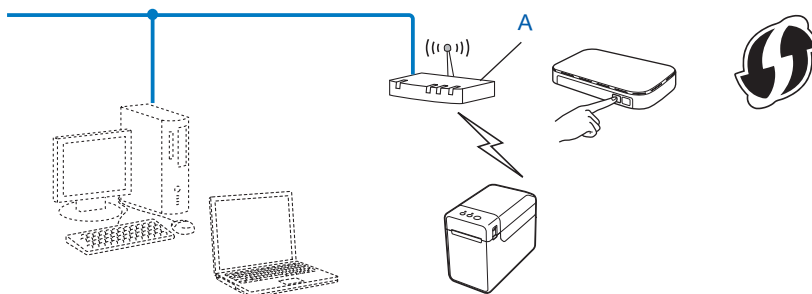
[1]   Push Button Configuration

See the installation procedure in your model's User's Guide.

Printing the Printer Setup Information

Print the Printer Setup Information

The Printer Settings Page is a report listing the network settings. You can print the Printer Settings Page using your printer's 圁 (Print) button. The following details and items can be printed:

• Program version

• Printer usage history

• Missing dot test pattern

• List of transferred data

• Communication settings

NOTE

• You can use the utility to set, in advance, which items will be printed. See *Printing the printer setup information* in your model's User's Guide.

• The node name appears in the Printer Settings Page. The default node name is "BRNxxxxxxxxxxxx" or "BRWxxxxxxxxxxxx". ("xxxxxxxxxxxx" is based on your printer's MAC Address/Ethernet Address.)

① Load a roll of media and confirm that the Media Roll compartment top cover is closed. We recommend using the 2.25" (57 mm) or wider receipt paper.

② Turn on the printer.

③ Press and hold the 圁 (Print) button for more than one second.

NOTE

To reset the network settings and set the automatic private IP address (APIPA), follow the procedure below:

- To reset network settings and turn APIPA ON

  ① Press and hold the ⏻ (Power) button to turn the printer off.

  ② Press and hold the ⭲ (Feed) button and the ⏻ (Power) button until the POWER indicator turns orange and the STATUS indicator flashes green.

  ③ While holding down the ⏻ (Power) button, press the ⭲ (Feed) button 2 times.

  ④ Release the ⏻ (Power) button.

  All the network settings will be reset.

- To reset network settings and turn APIPA OFF

  ① Press and hold the ⏻ (Power) button to turn the printer off.

  ② Press and hold the ⭲ (Feed) button and the ⏻ (Power) button until the POWER indicator lights in orange and the STATUS indicator flashes green.

  ③ While holding down the ⏻ (Power) button, press the ⭲ (Feed) button 4 times.

  ④ Release the ⏻ (Power) button.

  All the network settings will be reset.

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Web Based Management

Change Printer Settings Using Web Based Management

You can use a standard web browser to change your printer's settings using Hyper Text Transfer Protocol (HTTP) or Hyper Text Transfer Protocol over Secure Socket Layer (HTTPS).

When using Web Based Management, the following operations are available:

■ Viewing your printer status information
■ Changing network settings
■ Viewing your printer's software version information
■ Changing network and printer configuration details

NOTE

• We recommend Microsoft Edge for Windows, Google Chrome™ for Android™, and Google Chrome™/ Safari for iOS. Make sure that JavaScript and Cookies are always enabled in whichever browser you use.

• The default login password to manage printer settings is located on your printer and marked "Pwd". We recommend you change it to protect your printer from unauthorized access.

To use Web Based Management, your network must use TCP/IP, and the printer and computer must have valid IP addresses.

① Start your web browser.

② Type "`https://printer's IP address`" in your browser's address bar.

■ For example:

`https://192.168.1.2`

NOTE

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

For example:

`https://SharedPrinter`

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

For example:

`https://brnxxxxxxxxxxxx`

③ If required, type the password in the **Login** field, and then click **Login**.

④ Change the printer settings as needed.

Every time you access Web Based Management, type the password in the **Login** field, and then click **Login**.

After configuring the settings, click **Logout**.

Set or Change a Login Password for Web Based Management

The default login password to manage printer settings is located on your printer and marked "**Pwd**".
We recommend immediately changing the default password to protect your printer from unauthorised access.

1️⃣ Start your web browser.

2️⃣ Type "https://printer's IP address" in your browser's address bar.

For example:

`https://192.168.1.2`

NOTE

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

For example:

`https://SharedPrinter`

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

For example:

`https://brnxxxxxxxxxxxx`

3️⃣ Do one of the following:

- If you have previously set your own password, type it, and then click **Login**.
- If you have not previously set your own password, type the default login password, and then click **Login**.

4️⃣ Go to the navigation menu, and then click **Administrator** > **Login Password**.

NOTE

Start from ≡ if the navigation menu is not shown on the left side of the screen.

5️⃣ Following the on-screen **Login Password** guidelines, type your new password in the **Enter New Password** field.

6️⃣ Retype the new password in the **Confirm New Password** field.

7️⃣ Click **Submit**.

NOTE

You can also change the lockout settings in the **Login Password** menu.

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Troubleshooting

Overview

This chapter explains how to resolve typical network problems you may encounter when using your Brother printer. If, after reading this chapter, you are unable to resolve your problem, please visit the Brother support website for further support at: support.brother.com.

First check the following:
The power cord is connected correctly and the Brother printer is turned on.
The wireless router is turned on and the link LED is flashing.
All protective packaging has been removed from the machine.
The front and top covers are fully closed.
The media roll is inserted correctly in the roll compartment.
(For wired networks) A network cable is securely connected to the Brother printer and the router or hub.
(For wireless networks) The network cable is not connected to the printer.

I cannot complete the wireless network setup configuration.

Question	Interface	Solution

Are your security settings (SSID/Network Key) correct?	wireless	■ Confirm your security settings and network.
		   • The manufacturer's name or model number of the wireless router may be the default security settings.
		   • See the instructions supplied with your wireless router for information on how to find the security settings.
		   • Ask the manufacturer of your wireless router or ask your Internet provider or network administrator.

Is your wireless router in stealth mode? (not broadcasting the SSID)	wireless	■ Enter the correct SSID (Network Name) name during the installation or when using "**Communication settings**" in the Printer Setting Tool. ■ Check the SSID (Network Name) in the instructions supplied with your wireless router and reconfigure the wireless network setup.
I have checked and tried all of the above, but still cannot complete the wireless configuration. Is there anything else I can do?	wireless	Use "**Communication settings**" in the Printer Setting Tool.
Is your Brother printer correctly connected to the wireless router?	wireless	If the STATUS indicator is lit, the network is correctly connected. If the STATUS indicator is flashing, the network is not connected correctly, and the wireless network setup must be reconfigured.

The Brother printer is not found on the network during the printer installation.

Question	Interface	Solution
Are you using security software?	wired/ wireless	■ Confirm your settings in the installer dialog box. Allow access when your security software alert message appears during the printer installation. See *I'm using security software.* in this guide.
Is your Brother printer placed too far from the wireless router?	wireless	Place your Brother printer within 3.3 ft (1 m) of your wireless router when you configure the wireless network settings.
Are there any obstructions (walls or furniture, for example) between your printer and the wireless router?	wireless	Move your Brother printer to an obstruction-free area, or closer to the wireless router.
Is there a wireless computer, Bluetooth® supported device, microwave oven, or digital cordless phone near the Brother printer or the wireless router?	wireless	Move all the devices away from your Brother printer or wireless router.

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

Question	Interface	Solution
Are you using security software?	wired/ wireless	See *I'm using security software.* on page 16.
Is your Brother printer assigned to an available IP address?	wired/ wireless	Confirm the IP address and the subnet mask. Verify that both the IP addresses and subnet masks of your computer and your Brother printer are correct and located on the same network. For more information on how to verify the IP address and the subnet mask, contact your network administrator. Confirm your IP address, subnet mask and other network settings using "**Communication settings**" in the Printer Setting Tool. Refer to the User's Guide.
Did your previous printing job fail?	wired/ wireless	■ If the failed printing job is still in your computer's print queue, delete it. ■ Double-click your printer, select the [**Printer**] menu, and then select [**Cancel All Documents**].
Are you connecting the Brother printer to the network wirelessly?	wireless	■ Print the Printer settings. For more information on how to print this report, see *Printing the Printer Setup Information* on page 10. ■ See *The Brother printer is not found on the network during the printer installation.* on page 15.
I have checked and tried all the above, however the Brother printer does not print. Is there anything else I can do?	wired/ wireless	Uninstall the Brother printer driver and reinstall it.

I'm using security software.

Question	Interface	Solution
Did you choose to accept the security alert during the standard installation, BRAdmin Light installation or when using the printing features?	wired/ wireless	If you did not choose to accept the security alert, the firewall function of your security software may be rejecting access. Some security software might block access without showing a security alert dialog box. To allow access, see the instructions of your security software or ask the manufacturer.
What port numbers are required for the Brother network features?	wired/ wireless	The following port numbers are used for Brother network features: ■ BRAdmin Light → Port number 161 / Protocol UDP For details on how to open the port, see your security software user's guide or contact the manufacturer.

I want to check that my network devices are working correctly.

Question	Interface	Solution
Is your Brother printer, wireless router, or network hub turned on?	wired/ wireless	Make sure you have confirmed all instructions in *First check the following:* on page 14.
Where can I find the Brother printer's network settings, such as IP address?	wired/ wireless	Print the Printer Setup Information. (For how to print, see *Printing the Printer Setup Information* on page 10.)
Can you ping the Brother printer from your computer?	wired/ wireless	Ping the Brother printer from your computer using the IP address or the node name. ■ Ping received: Your Brother printer is working correctly and connected to the same network as your computer. ■ Ping not received: Your Brother printer is not connected to the same network as your computer. Ask your network administrator to confirm the "**Communication settings**" in the Printer Setting Tool.
Is the Brother printer connected to the wireless network?	wireless	■ Print the Printer Setup Information to confirm the status of the wireless connection. For more information on how to print, see *Printing the Printer Setup Information* on page 10. ■ Check which Indicator is lit. See the "LED indicator" in your model's User's Guide.

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Appendix A

Supported protocols and security features

Interface	Ethernet	10BASE-T/100BASE-TX
	Wireless	IEEE 802.11a/b/g/n (Infrastructure Mode) IEEE 802.11g/n (Wireless Direct Mode)
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, FTP Server, TFTP server, SNTP client, SNMPv1/v2c/v3, ICMP
Network (Security)	Wireless	SSID (32 chr), WEP 64/128 bit, EAP-FAST, PEAP, EAP-TLS, EAP-TTLS, WPA3-SAE, WPA/WPA2-PSK/WPA3-SAE

TD-2125NWB/2135NWB only

B Appendix B

In this section, you will find basic information about the advanced network features of the Brother printer, along with general networking and common terms.

The supported protocols and network features differ depending on the model you are using.

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 printer sharing.

TCP/IP   TCP/IP   Network printer (your printer)
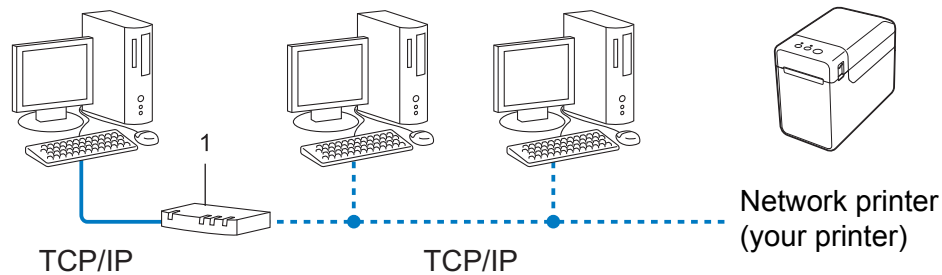
1 Router

■ 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 20.

■ Each computer must use the TCP/IP Protocol.

■ The Brother printer needs an appropriate IP address configuration.

■ If you are using a router, the Gateway address must be configured on the computers and the Brother printer.

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.
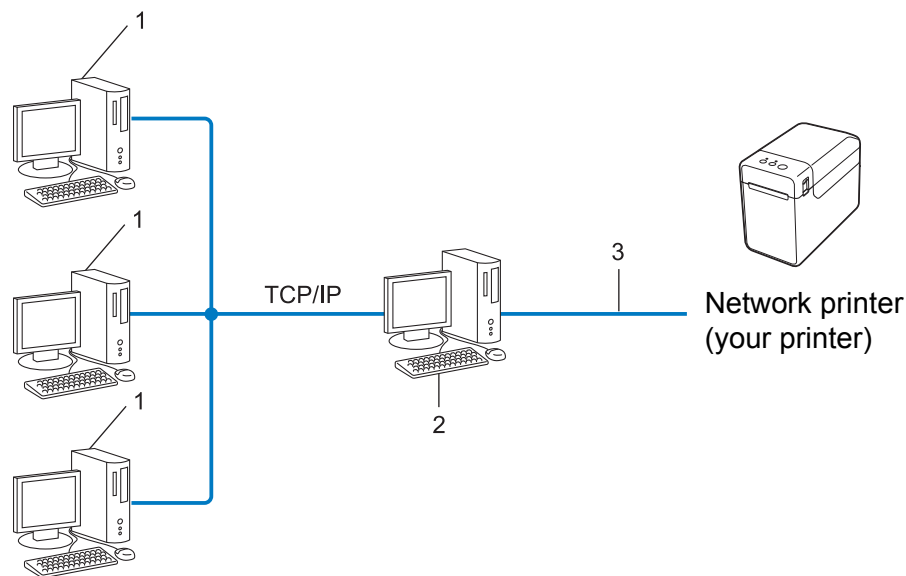
1 **Client computer**

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

3 **TCP/IP or USB**

- 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 printer needs to have an appropriate IP address configuration, unless the printer is connected via the USB or serial 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 printer 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, and Linux®.

NOTE
- You can configure the protocol settings by using the HTTP interface (web browser). (See *Change Printer Settings Using Web Based Management* on page 12.)
- To find what protocols your Brother printer supports, see *Supported protocols and security features* on page 18.

The following TCP/IP protocols are available on the Brother printer:

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 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 169.254.0.1 to 169.254.254.254.

ARP

Address Resolution Protocol performs mapping of an IP address to a MAC Address on 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 a service providing information for NetBIOS name resolution, by consolidating an IP address and a NetBIOS name that is on the local network.

LPR/LPD

Commonly used printing protocols on a TCP/IP network.

Custom Raw Port (Default is Port 9100)

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

mDNS

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

SNMP

The Simple Network Management Protocol (SNMP) is used to manage network devices including computers, routers and Brother network ready printers. The Brother print server supports SNMPv1 and SNMPv2.

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 an operating system that has the LLMNR Sender function such as Windows 8.

Configure your printer for a network

IP addresses, subnet masks and gateways

To use the printer 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 correctly 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 254.

■ For 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 on 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 30.
Using BOOTP to configure the IP address on page 31.
Using RARP to configure the IP address on page 30.

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 169.254.0.1 to 169.254.254.254. For more information on APIPA, see *Using APIPA to configure the IP address* on page 31.

Subnet mask

Subnet masks restrict network communication.

■ For example, Computer 1 can talk to Computer 2

- Computer 1

  IP Address: 192.168.1.2

  Subnet Mask: 255.255.255.0

- Computer 2

  IP Address: 192.168.1.3

  Subnet Mask: 255.255.255.0

The 0 in the Subnet mask signifies that there is no limit to communication at this part of the address. In the above example, this means, we can communicate with any device with an IP address that begins with 192.168.1.x. (where x is a number between 0 and 254).

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.

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 which is technically referred to as an SSID (Service Set Identifier) 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 with the wireless network should match the access point. The access point and wireless network devices regularly send wireless packets (referred to as beacons) containing the SSID information. When your wireless network device receives a beacon, you can identify wireless networks within range of 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 running a wireless network. However, in many countries the number of available channels is 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 printer, it will not be able to connect to the wireless network.** Be careful when configuring these options.

B

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 28.

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 printer uses a WEP key as the pre-determined key.

■ WPA3-SAE

Enables a Wi-Fi Protected Access Pre-shared key (WPA3-SAE), which allows the Brother wireless printer to associate with access points using AES for WPA3-SAE (WPA-Personal).

■ WPA/WPA2-PSK/WPA3-SAE

Enables a Wi-Fi Protected Access Pre-shared key (WPA/WPA2-PSK/WPA3-SAE), which enables the Brother wireless printer to associate with access points using TKIP+AES, or AES for WPA/WPA2-PSK/WPA3-SAE (WPA-Personal).

B

Encryption methods

■ None

No encryption method is used.

■ WEP

When 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.

When [Communication Mode] is set to [Infrastructure]

Authentication Method	Encryption Mode
Open System	None
	WEP
Public Key Authentication	WEP
WPA/WPA2-PSK/WPA3-SAE	TKIP+AES
	AES
WPA3-SAE	AES

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/WPA2-PSK/WPA3-SAE and TKIP+AES or AES

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

B

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 IEEE802.1x support. If you configure your machine in an IEEE802.1x supported wireless network, you can use following authentication and encryption methods.

Authentication methods

■ 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 tunnelled authentication process.

The Brother machine supports the following inner authentications:

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

■ PEAP

PEAP (Protected Extensible Authentication Protocol) has been developed by Microsoft Corporation, Cisco Systems and RSA Security. PEAP creates an encrypted 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 Tunnelled 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.

B

Encryption methods

■ TKIP

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

■ AES

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

When [Communication Mode] is set to [Infrastructure]

Authentication Method	Encryption Mode
EAP-FAST/NONE	TKIP
	AES
EAP-FAST/MS-CHAPv2	TKIP
	AES
EAP-FAST/GTC	TKIP
	AES
PEAP/MS-CHAPv2	TKIP
	AES
PEAP/GTC	TKIP
	AES
EAP-TTLS/CHAP	TKIP
	AES
EAP-TTLS/MS-CHAP	TKIP
	AES
EAP-TTLS/MS-CHAPv2	TKIP
	AES
EAP-TTLS/PAP	TKIP
	AES
EAP-TLS	TKIP
	AES

User ID and password

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

■ EAP-FAST

■ PEAP

■ EAP-TTLS

■ EAP-TLS (For user ID)

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 on 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 BRAdmin applications, or Web Based Management via your 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).

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

Using BOOTP to configure the IP address

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

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

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

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. Some examples of typical `/etc/bootptab` entries include:

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

and:

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

"BRN" will be replaced with "BRW" for a wireless network.

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

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

Using 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 169.254.0.1 through to 169.254.254.254. 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 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. 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
```

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 Web Based Management via the web browser, or factory reset the print server (which will then allow you to use the ARP command again).