Multi-Protocol On-board Ethernet Print Server and Wireless (IEEE 802.11b/g) Ethernet Print Server

NETWORK USER'S GUIDE

HL-2150N
HL-2170W

Please read this manual thoroughly before using the printer. Keep the CD-ROM in a convenient place so you can use it quickly if you need to.

Please visit us at http://solutions.brother.com where you can get product support, the latest driver updates and utilities, and answers to frequently asked questions (FAQs) and technical questions.

Note: Not all models are available in all countries.

Version A

ENG

Definitions of warnings, cautions and notes

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

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

Improper Setup icons alert you to devices and operations that are not compatible with the printer.

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

Brother Numbers

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

In USA	1-800-276-7746
In Canada	1-877-BROTHER
In Europe	Visit http://www.brother.com for contact information on your local Brother office.

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

In USA	Printer Customer Support Brother International Corporation 26250 Enterprise Ct. # 250 Lake Forest, CA 92630
In Canada	Brother International Corporation (Canada), Ltd. - Marketing Dept. 1, rue Hôtel de Ville Dollard-des-Ormeaux, PQ, Canada H9B 3H6
In Europe	European Product & Service Support 1 Tame Street, Audenshaw, Manchester M34 5JE, UK

- Service center locator (USA)

  For the location of a Brother authorized service center, call 1-800-284-4357.
- Service center locations (Canada)

  For the location of a Brother authorized service center, call 1-877-BROTHER.

Internet addresses

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

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

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

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1 Introduction

Overview

The Brother printer can be shared on a 10/100Mb wired or IEEE 802.11b/802.11g wireless (HL-2170W only) Ethernet network using the internal network print server. The print server provides printing services for Windows® 2000/XP/XP Professional x64 Edition, Windows Vista®, Windows Server® 2003/ 2003 x64 Edition supporting the TCP/IP protocols and Macintosh OS® X 10.2.4 or greater supporting TCP/IP. The following chart shows what network features and connections are supported by each operating system.

Operating Systems	**Windows® 2000/XP** **Windows® XP Professional x64 Edition** **Windows Vista®** **Windows Server® 2003** **Windows Server® 2003 x64 Edition**	**Mac OS® X 10.2.4 or greater**	**Mac OS® X 10.3 or greater**
10/100 BASE-TX Wired Ethernet (TCP/IP)	✔	✔	✔
IEEE 802.11b/g Wireless Ethernet (TCP/IP) [1]	✔	✔	✔
Printing	✔	✔	✔
BRAdmin Light	✔	✔	✔
BRAdmin Professional [2]	✔		
Web BRAdmin [2]	✔		
Internet Printing (IPP)	✔		
Status Monitor	✔		✔
Driver Deployment Wizard	✔		

[1] IEEE 802.11b/g Wireless Ethernet (TCP/IP) is available HL-2170W only.

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

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

Network features

The Brother HL-2100 series have the following basic network features.

Network printing

The print server provides printing services for Windows® 2000/XP, Windows Vista® and Windows Server® 2003 supporting the TCP/IP protocols and Macintosh supporting TCP/IP (Mac OS® X 10.2.4 or greater).

Management utilities

BRAdmin Light

BRAdmin Light is a utility for initial setup of Brother network connected devices. This utility can search for Brother products on your network, view the status and configure basic network settings, such as IP address. The BRAdmin Light utility is available for Windows® 2000/XP, Windows Vista® and Windows Server® 2003 and Mac OS® X 10.2.4 or greater computers. For installing BRAdmin Light, please see the Quick Setup Guide provided with the printer. For Macintosh® users, BRAdmin Light will be installed automatically when you install the printer driver. If you have already installed the printer driver, you do not have to install it again.

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

BRAdmin Professional (for Windows®)

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

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

Web BRAdmin (For 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, which is designed for Windows® only, the 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

Web Based Management (web browser)

Web Based Management (web browser) is a utility for managing network connected Brother devices, using the HTTP (Hyper Text Transfer Protocol). This utility can view the status of Brother products on your network and configure the machine or network settings using a standard web browser that is installed on your computer.

For more information, see *Chapter 13: Web Based Management*.

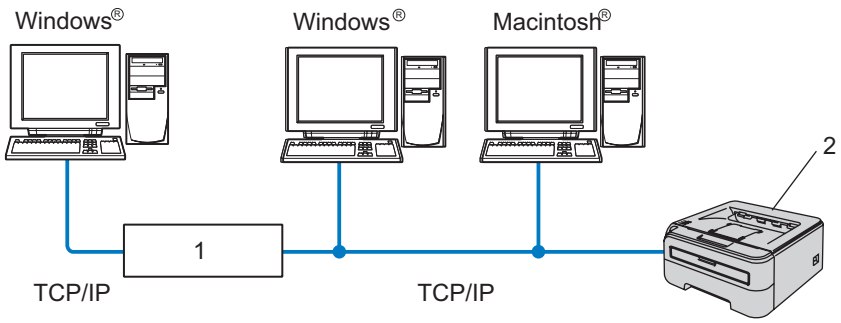
Types of network connections

Network connection example

Generally there are two types of network connections: Peer-to-Peer and Network Shared environment.

Peer-to-Peer printing using TCP/IP

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



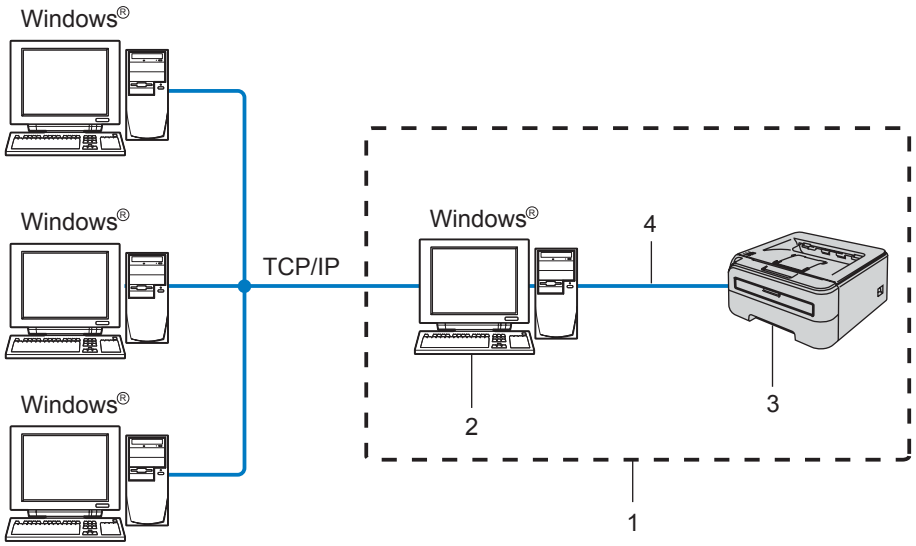
1 Router

2 Network printer

- In a smaller network of 2 or 3 computers, we recommend the Peer-to-Peer printing method as it is easier to configure than the Network Shared printing method described on the following page. See *Network Shared printing* on page 4.
- Each computer must use the TCP/IP Protocol.
- The Brother printer needs to have an appropriate IP address configuration.
- If you are using routers, the Gateway address must be configured on the computers and the Brother printer.
- The Brother printer can also communicate with Macintosh®. (TCP/IP compatible operating systems)

Network Shared printing

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



1 Network Shared

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

3 Printer

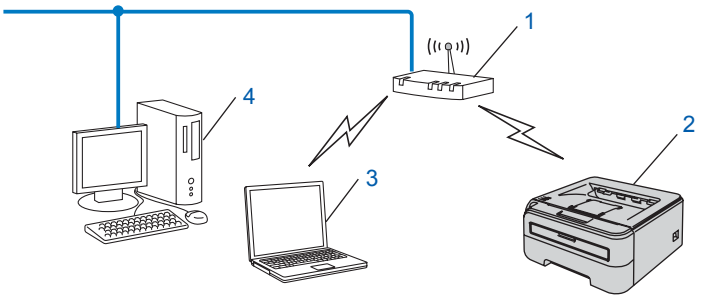
4 TCP/IP or USB

- 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 interface at the server.

Wireless network connection examples (HL-2170W)

Connected to a computer with an access point in the network (Infrastructure mode)

This type of network has a central access point at the heart of the network. The access point can also act as a bridge or a gateway to a wired network. When the Brother wireless printer (your printer) is part of this network, it receives all print jobs via an access point.



1 Access Point

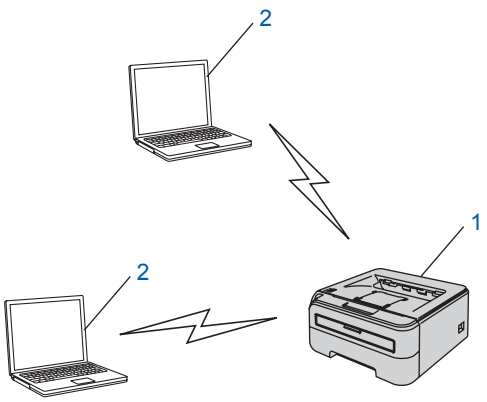
2 Wireless Network printer (your machine)

3 Wireless capable computer connected to the access point

4 Wired computer which is not wireless capable connected to the access point with the Ethernet cable

Connected to a wireless capable computer without an access point in the network (Ad-hoc mode)

This type of network does not have a central access point. Each wireless client communicates directly with each other. When the Brother wireless printer (your printer) is part of this network, it receives all print jobs directly from the computer sending the print data.



1 Wireless Network printer (your machine)

2 Wireless capable computer

Protocols

TCP/IP protocols and functionalities

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

The print server used on this Brother product supports the TCP/IP (Transmission Control Protocol/Internet Protocol) 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®, Macintosh® and Linux.

The following TCP/IP protocols are available on this Brother product.

Note

- You can configure the protocol settings by using the HTTP (web browser). See *How to configure the print server settings using Web Based Management (web browser)* on page 107.
- For security features, see *Security methods for E-mail notification* on page 102.

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 applications) or automatically (using a DHCP/BOOTP/RARP server), the Automatic Private IP Addressing (APIPA) protocol will automatically assign an IP address from the range 169.254.1.0 to 169.254.254.255.

DNS client

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

LPR/LPD

Commonly used printing protocols on a TCP/IP network.

Port9100

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

SMTP client

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

IPP

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

mDNS

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

TELNET

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

SNMP

The Simple Network Management Protocol (SNMP) is used to manage network devices including computers, printers and terminals in a TCP/IP network.

Web server (HTTP)

The Brother print server is equipped with a web server that allows you to monitor its status or change some of its configuration settings.

Note

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

LLTD

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

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®.

Web Services

The Web Services protocol enables Windows Vista® users to install the Brother printer driver by right clicking the machine icon from the **Start** / **Network** selection. (See *Installation when using Web Services (For Windows Vista® users)* on page 124). The Web Services also lets you check the current status of the machine from your computer.

2 Configuring your printer for a network

Overview

Before using your Brother printer in a network environment, you must configure the TCP/IP settings. In this chapter, you will learn the basic steps required to print over the network using the TCP/IP protocol.

We recommend that you use the Brother installer application on the CD-ROM we have provided with the printer. By using this application, you can easily connect your printer to your network and install the network software and printer driver which you need to complete the network configuration. You will be guided by the on-screen instructions until you are able to use your Brother network printer. Please follow the instructions in the supplied Quick Setup Guide.

IP addresses, subnet masks and gateways

To use the printer in a networked TCP/IP environment, you need to configure the 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 computer 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 numbers.

- 192.168.1.1
- 192.168.1.2
- 192.168.1.3

How the IP address is assigned to your print server:

If you have a DHCP/BOOTP/RARP server in your network (typically a UNIX®/Linux, Windows® 2000/XP, Windows Vista®, or Windows Server® 2003 network) the print server will automatically obtain its IP address from the server and register its name with any RFC 1001 and 1002-compliant dynamic name services.

Note

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

For more information on DHCP, BOOTP and RARP, see *Using DHCP to configure the IP address* on page 120, *Using BOOTP to configure the IP address* on page 120 and *Using RARP to configure the IP address* on page 121.

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 122.

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

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:255.255.255.0

- Computer 2

  IP Address:192.168.1.3

  Subnet Mask:255.255.255.0

Note

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

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

Gateway (and router)

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

Step by Step chart

1 Configure the TCP/IP settings.

■ Configure the IP address → See page 10

■ Configure the subnet mask → See page 10

■ Configure the gateway → See page 10

2 Change the print server settings.

■ Using the BRAdmin Light utility → See page 12

■ Using the BRAdmin Professional utility → See page 13

■ Using the Web Based Management (web browser) → See page 14

■ Using other methods → See page 14

Setting the IP address and subnet mask

Using the BRAdmin Light utility to configure your network printer

BRAdmin Light

The BRAdmin Light utility is designed for initial setup of Brother network connected devices. It can also search for Brother products in a TCP/IP environment, view the status and configure basic network settings, such as IP address. The BRAdmin Light utility is available for Windows® 2000/XP, Windows Vista®, Windows Server® 2003 and Mac OS® X 10.2.4 or greater.

Note

- Please use the BRAdmin Light utility version that was supplied on the CD-ROM with your Brother product. You can also download the latest version of BRAdmin Light utility from http://solutions.brother.com
- If you require more advanced printer management, use the latest version of BRAdmin Professional utility that is available as a download from http://solutions.brother.com This utility is only available for Windows® users.
- If you are using Personal Firewall software (e.g. Windows Firewall), disable it. Once you are sure that you can print, re-start your Personal Firewall software.
- Node name: The Node name for each Brother device on the network appears in BRAdmin Light. The default Node name of the network card in the printer is “BRNxxxxxxxxxxxx” for a wired network or “BRWxxxxxxxxxxxx” for a wireless network.
- The default password for Brother print servers is `access`.

1. Start the BRAdmin Light utility.

   - For Windows® 2000/XP, Windows Vista® and Windows Server® 2003 users

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

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

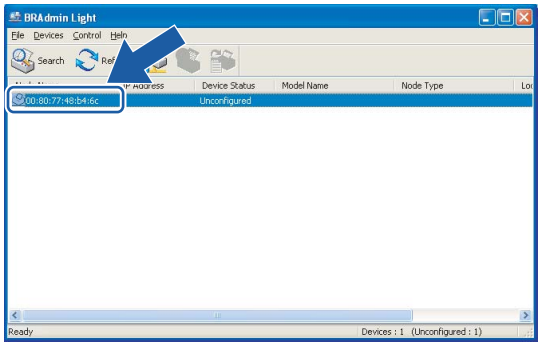
   - For Mac OS® X 10.2.4 or greater users

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

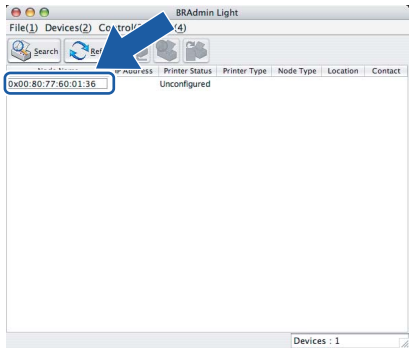
2. BRAdmin Light will search for new devices automatically.

3 Double-click the unconfigured device.

Windows®



Macintosh®

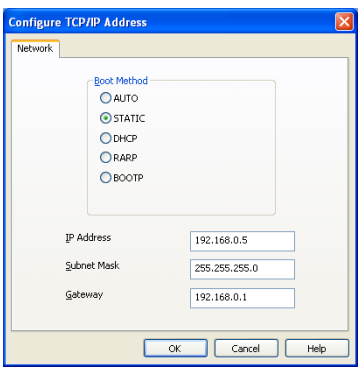


Note

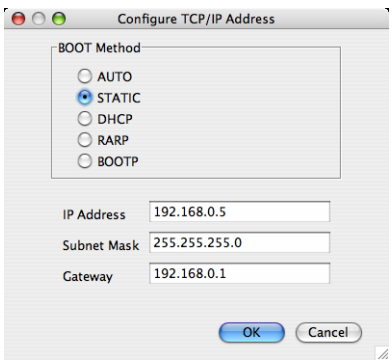
- If the print server is set to its factory default settings without using a DHCP/BOOTP/RARP server, the device will appear as **Unconfigured** in the BRAdmin Light utility screen.
- You can find the node name and Ethernet address by printing out the Printer Settings Page. See *Printing the Printer Settings Page* on page 100.

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

Windows®



Macintosh®



5 Click **OK**.

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

Using other methods to configure your printer for a network

You can configure your network printer using other methods. See *Other ways to set the IP address (for advanced users and administrators)* on page 120.

Changing the print server settings

Note

For the wireless network users, you need to configure the wireless settings to change the printer settings. See *Configuring the wireless network settings (For HL-2170W)* on page 15.

Using the BRAdmin Light utility to change the print server settings

1. Start the BRAdmin Light utility.
   - For Windows® 2000/XP, Windows Vista® and Windows Server® 2003 users

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

     [1] **Programs** for Windows® 2000 users
   - For Mac OS® X 10.2.4 or greater users

     Double-click **Macintosh HD** (Startup Disk) / **Library** / **Printers** / **Brother** / **Utilities** / **BRAdmin Light.jar** file.
2. Select the print server which you want to change the settings.
3. Select **Network Configuration** from the **Control** menu.
4. Enter a password. The default Password is `access`.
5. You can now change the print server settings.

Note

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

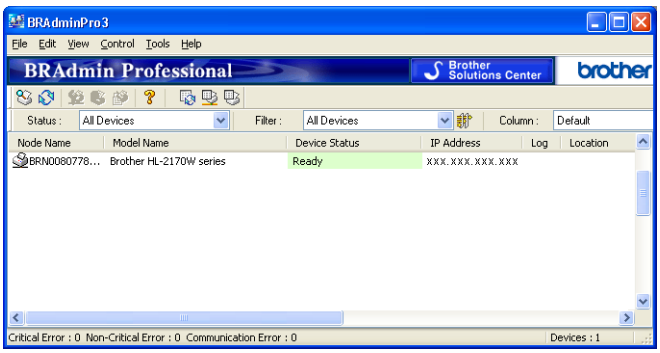
Using the BRAdmin Professional utility to change print server settings (for Windows®)

Note

- Please use the latest version of the BRAdmin Professional utility that is available as a download from http://solutions.brother.com This utility is only available for Windows® users.
- Node name: The Node name for each Brother device on the network appears in BRAdmin Professional. The default Node name is “BRNxxxxxxxxxxxx” for a wired network or “BRWxxxxxxxxxxxx” for a wireless network.

1. Start the BRAdmin Professional utility (from Windows® 2000/XP, Windows Vista® and Windows Server® 2003), by clicking **Start** / **All Programs** [1] / **Brother Administrator Utilities** / **Brother BRAdmin Professional 3** / **BRAdmin Professional 3**.

   [1] **Programs** for Windows® 98/Me, Windows NT® 4.0, and Windows® 2000 users



2. Select the print server which you want to configure.
3. Select **Configure Device** from the **Control** menu.
4. Enter a password. The default Password is `access`.
5. You can now change the print server settings.

Note

- If the print server is set to its factory default settings without using a DHCP/BOOTP/RARP server, the device will appear as APIPA in the BRAdmin Professional utility screen.
- You can find the node name and Ethernet address (**Node Address**) by printing out the Network Configuration List. See *Printing the Printer Settings Page* on page 100 for information on how to print the Network Configuration List on your print server.

Using Web Based Management (web browser) to change the print server settings

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 print server settings using Web Based Management (web browser)* on page 107.

Using other methods to change print server settings

You can configure your network printer using other methods. See *Other ways to set the IP address (for advanced users and administrators)* on page 120.

3 Configuring the wireless network settings (For HL-2170W)

Overview

To connect your printer to your wireless network, you need to follow the steps in the Quick Setup Guide or the Network User's Guide. We recommend that you use the Brother installer application on the CD-ROM which we have provided with the printer. By using this application, you can easily connect your printer to your wireless network and install the network software and printer driver which you need to complete the configuration of your printer for a wireless network. You will be guided by the on-screen instructions until you are able to use your Brother wireless network printer.

If you want to configure your printer without using the Brother installer application, please read this chapter for more details on how to configure the wireless network settings. For information on TCP/IP settings, see *Setting the IP address and subnet mask* on page 10. For *Wireless configuration using the one-push wireless setting mode (For HL-2170W)*, see *Chapter 6*. For *Wireless configuration using the PIN Method of Wi-Fi Protected Setup™ (For HL-2170W)*, see *Chapter 7*.

Note

- To achieve optimum results with normal everyday document printing, place the Brother printer as close to the network access point (router) as possible with minimal obstructions. Large objects and walls between the two devices as well as interference from other electronic devices can affect the data transfer speed of your documents.

  Due to these factors, wireless may not be the best method of connection for all types of documents and applications. If you are printing large files, such as multi-page documents with mixed text and large graphics, you may want to consider choosing wired Ethernet for a faster data transfer, or USB for the fastest throughput speed.

- Although Brother HL-2170W can be used in a both wired and wireless network, only one of the connection methods can be used at a time.

Wireless network terms and concepts

When you configure the wireless network printer, you must ensure that your wireless network printer is configured to match the settings of the existing wireless network. This section provides some of the main terms and concepts of these settings, which may be helpful when you configure the wireless network printer.

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. For further information, see *Ethernet wireless network* on page 127.

Authentication and encryption

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

■ Authentication methods

The Brother printer supports the following methods:

- Open system

  Wireless devices are allowed 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 printer uses the WEP keys 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 printer to associate with access points using TKIP for WPA-PSK or AES for WPA-PSK and WPA2-PSK (WPA-Personal).

- LEAP

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

■ Encryption methods

Encryption is used to secure the data that is sent over the wireless network. The Brother printer supports the following 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 Wi-Fi® authorized strong encryption standard.

- CKIP

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

■ Network Key

There are some rules for each security method:

- 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. “WLLAN” (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 more than 8 and less than 63 characters in length.

- LEAP

  Uses User ID and Password.

  - User ID: less than 64 characters in length.
  - Password: less than 32 characters in length.

Step by step chart

For Infrastructure mode

1 **Confirm your network environment.** See page 20

■ **Infrastructure mode**
Connected to a computer with an access point

or

■ **Ad-hoc mode** → See page 19
Connected to a wireless capable computer without an access point

2 **Confirm your wireless network setup method.** See page 21

Using the **Brother installer application** (Recommended)

Using the **one-push** wireless setting mode

Using the **PIN Method** of Wi-Fi Protected Setup™

Temporarily using a network cable

Using automatic wireless (one-push) method

3 **Configure your printer for a wireless network.** See page 23

Configuring your printer for a wireless network

(For Windows®) See page 24 (For Macintosh®) See page 47	(For Windows®) See page 31 (For Macintosh®) See page 54	See page 69	See page 80

Installing the printer driver

(For Windows®) See page 44 (For Macintosh®) See page 66	(For Windows®) See page 72 (For Macintosh®) See page 76	(For Windows®) See page 83 (For Macintosh®) See page 87

OK! **Wireless configuration and installing printer driver have been completed.**

For Ad-hoc mode

1 **Confirm your network environment.** See page 20

■ **Ad-hoc mode**	or	■ **Infrastructure mode** ➡ See page 18
Connected to a wireless capable computer without an access point		Connected to a computer with an access point

2 **You need to configure the wireless network settings by using the Brother installer application.**

Using the **Brother installer application**

3 **Configure your printer for a wireless network.** See page 23

Configuring your printer for a wireless network

(For Windows®) See page 36
(For Macintosh®) See page 59

Installing the printer driver

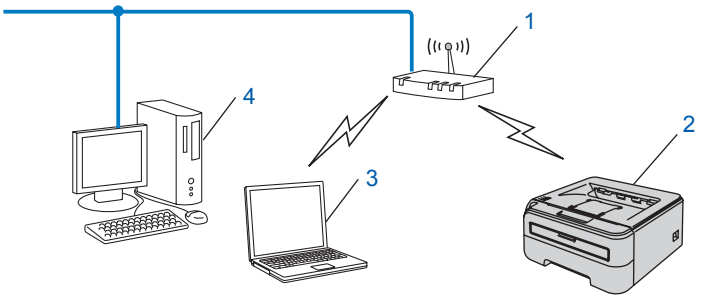
(For Windows®) See page 44
(For Macintosh®) See page 66

Wireless configuration and installing printer driver have been completed.

1. Confirm your network environment

Connected to a computer with an access point in the network (Infrastructure mode)

This type of network has a central access point at the heart of the network. The access point can also act as a bridge or a gateway to a wired network. When your Brother wireless printer is part of this network, it receives all print jobs via the access point.



1 Access Point

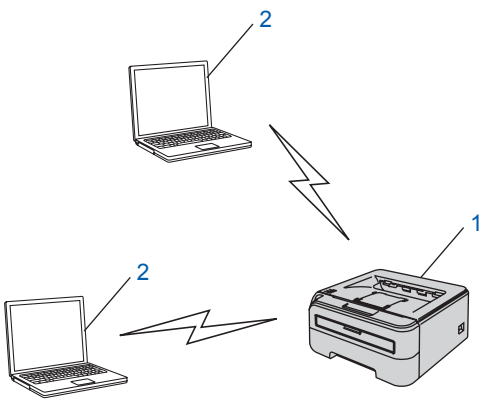
2 Wireless Network printer (your machine)

3 Wireless capable computer connected to the access point

4 Wired computer which is not wireless capable connected to the access point with an Ethernet cable

Connected to a wireless capable computer without an access point in the network (Ad-hoc mode)

This type of network does not have a central access point. Each wireless client communicates directly with each other. When the Brother wireless printer (your printer) is part of this network, it receives all print jobs directly from the computer sending the print data.



1 Wireless Network printer (your machine)

2 Wireless capable computer

2. Confirm your wireless network setup method in infrastructure mode

There are three methods to configure your wireless network printer; by using the Brother installer application on the CD-ROM (recommended), using the one-push wireless setting mode and using the PIN Method of Wi-Fi Protected Setup™. The setup process will be different depending on your network environment.

Note

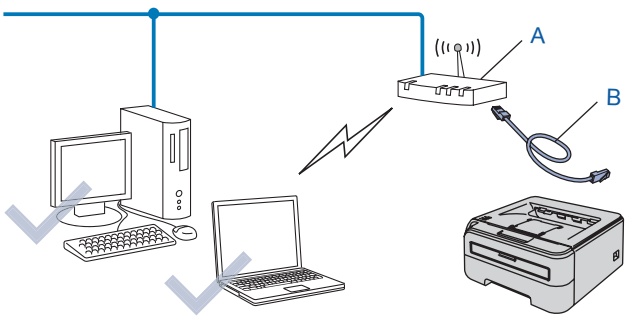
If you configure the wireless network settings in Ad-hoc mode, use the Brother installer application on the CD-ROM we have provided with the printer.

Configuration using the Brother installer application on the CD-ROM to configure your wireless network printer

We recommend that you use the Brother installer application on the CD-ROM we have provided with the printer. By using this application, you can easily connect your printer to your wireless network and install the network software and printer driver which you need to complete the configuration of your printer for a wireless network. You will be guided by the on-screen instructions until you are able to use your Brother wireless network printer. You must know your wireless network settings before you proceed with this installation.

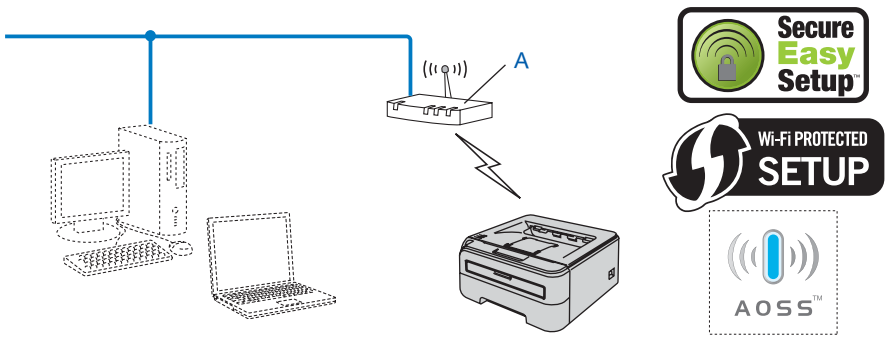
Configuration temporarily using a network cable

If there is an Ethernet Hub or Router in the same network as the wireless access point (A) of your printer, you can temporarily connect the Hub or Router to the printer using an Ethernet cable (B), this is an easy way to configure the printer. You can then remotely configure the printer from a computer on the network.



Configuration using the one-push wireless setting mode

If your wireless access point (A) supports either SecureEasySetup™, Wi-Fi Protected Setup™ (PBC [1]) or AOSS™, you can configure the machine without a computer.

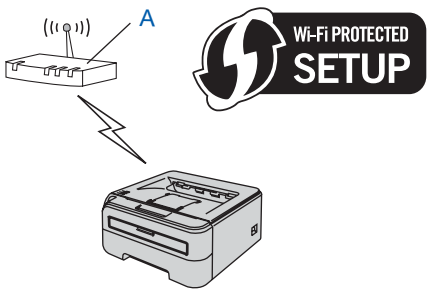


1 Push Button Configuration

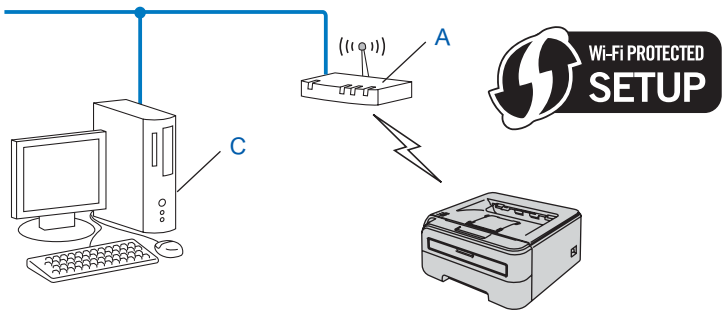
Configuration using the PIN Method of Wi-Fi Protected Setup™

If your wireless access point (A) supports Wi-Fi Protected Setup™, you can also configure using the PIN Method of Wi-Fi Protected Setup™.

■ Connection when the wireless access point (router) (A) doubles with a Registrar [1].



■ Connection when another device (C), such as a computer is used as a Registrar [1].



1 The Registrar is a device that manages the wireless LAN.

3. Configure your printer for a wireless network

Using the Brother installer application on the CD-ROM to configure your wireless network printer (Recommended)

For installation, see *Wireless configuration for Windows® using the Brother installer application (For HL-2170W)* in Chapter 4 or *Wireless configuration for Macintosh® using the Brother installer application (For HL-2170W)* in Chapter 5.

Using the one-push wireless setting mode to configure your printer for a wireless network

For installation, see *Wireless configuration using the one-push wireless setting mode (For HL-2170W)* in Chapter 6.

Using the PIN Method of Wi-Fi Protected Setup™

For installation, see *Wireless configuration using the PIN Method of Wi-Fi Protected Setup™ (For HL-2170W)* in Chapter 7.

4 Wireless configuration for Windows® using the Brother installer application (For HL-2170W)

Configuration in Infrastructure mode

Before configuring the wireless settings

IMPORTANT

- If you are going to connect the printer to your network, we recommend that you contact your system administrator prior to installation. You must know your wireless network settings before you proceed with this installation.
- If you have previously configured the wireless settings of the printer, you must reset the print server back to the default factory settings (see *Restoring the network settings to factory default* on page 100).
- If you are using Personal Firewall software (e.g. Windows Firewall), disable it. Once you are sure that you can print, restart your Personal Firewall software.
- You need to temporarily use an Ethernet cable during configuration.

Configure the wireless settings

1. Turn on your computer. (You must be logged on with Administrator rights.)
   Close any applications running before configuration.
2. Put the supplied CD-ROM into your CD-ROM drive. The opening screen will appear automatically.
   Choose your printer model and the language.
3. Click **Install Printer Driver** on the menu screen.

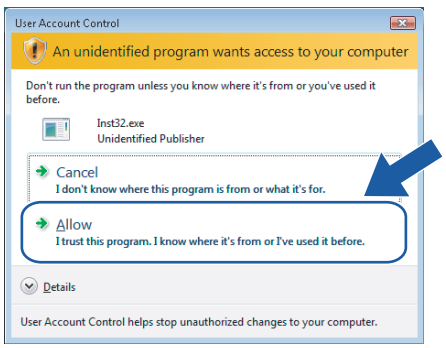
Note

Choose the **Install Printer Driver** icon for your region.

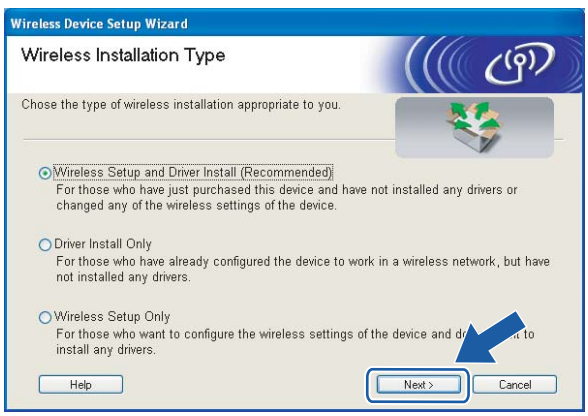
4 Click **Wireless Network users**.

Note

For Windows Vista®, when the **User Account Control** screen appears, click **Allow**.

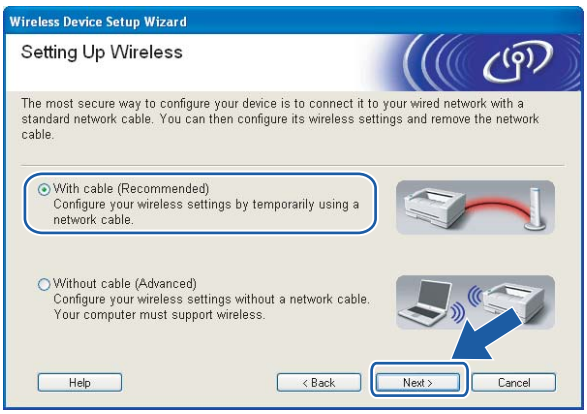


5 Choose **Wireless Setup and Driver Install (Recommended)** or **Wireless Setup Only**, and then click **Next**.



6 Choose **Step by Step install (Recommended)** and then click **Next**.

7 Choose **With cable (Recommended)** and then click **Next**.



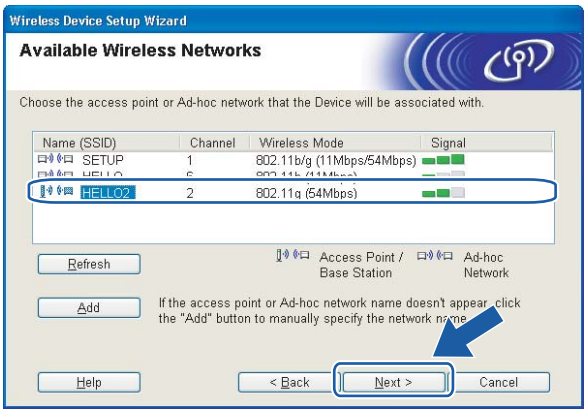
8 Connect the Brother wireless device to your access point using a network cable and click **Next**.

9 Choose the printer you wish to configure, and click **Next**. If the list is blank, check if the access point and the printer are powered on, and then click **Refresh**.

Note

The default Node name is “BRNxxxxxxxxxxxx”.

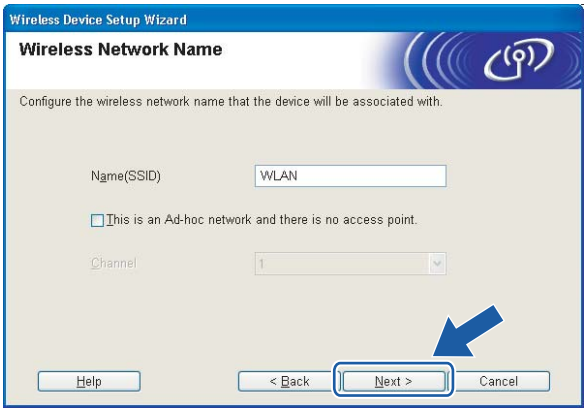
10 The wizard will search for wireless networks available from your printer. Choose the access point you wish to associate the printer with, and then click **Next**.



Note

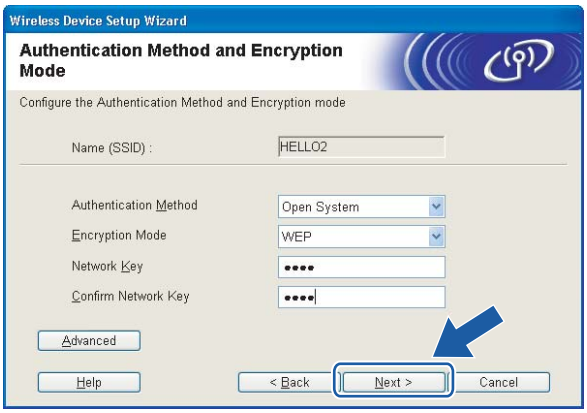
- "SETUP" is the default SSID of the printer. Do not choose this SSID.
- If the list is blank, check that the access point has power and is broadcasting the SSID, and then see if the printer and the access point are within range for wireless communication. Then, click **Refresh.**

- If your access point is set to not broadcast the SSID you can manually add it by clicking the **Add** button. Follow the on-screen instructions for entering the **Name (SSID)**, and then click **Next**.



⓫ If your network is not configured for Authentication and Encryption, the following screen will appear. To continue configuration, click **OK** and go to ⓭.

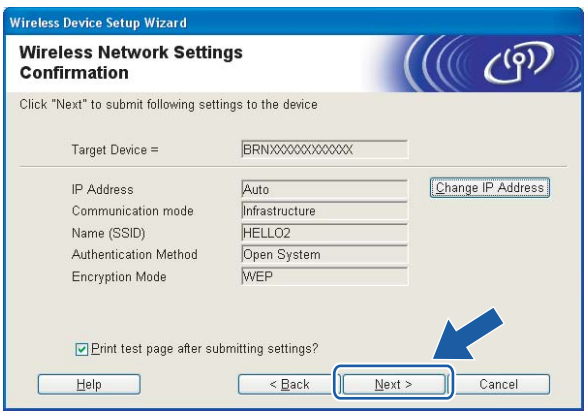
⑫ If your network is configured for Authentication and Encryption, the following screen will appear. When configuring your Brother wireless printer, you must ensure that it is configured to match the Authentication and Encryption settings of your existing wireless network. Choose the **Authentication Method** and **Encryption Mode** from the pull-downs in each setting box. Then enter the **Network key** and **Confirm Network Key**, and then click **Next**.



Note

- If you want to setup more than WEP key1, click **Advanced**.
- If you do not know the Authentication or Encryption settings for your network, contact your network administrator.
- If the **Authentication Method** is set to **Open System** and the **Encryption Mode** is set to **WEP**, an error indication will NOT appear if the **Network key** is incorrect.

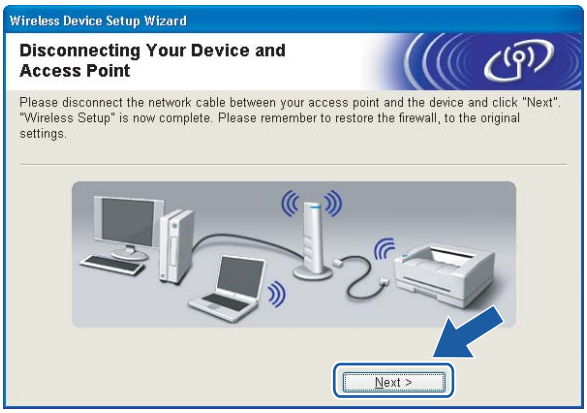
⑬ Click **Next**. The settings will be sent to your printer. The settings will remain unchanged if you click **Cancel**.



Note

If you want to manually enter the IP address settings of your printer, click **Change IP Address** and enter the necessary IP address settings for your network.

14 Disconnect the network cable between your access point (hub or router) and the printer, and click **Next**.



OK! **You have completed the wireless setup. If you chose to install the printer driver in step ❺, Go to *Installing the printer driver* on page 44.**

Configuration using the automatic wireless (one-push) method

IMPORTANT

If you are going to connect the printer to your network, we recommend that you contact your system administrator prior to installation.

1. Make sure that the power cord is plugged in.
2. Turn on your printer and wait until the printer is in the Ready state.
3. Turn on your computer. (You must be logged on with Administrator rights.)
   Close any applications running before configuration.
4. Put the supplied CD-ROM into your CD-ROM drive. The opening screen will appear automatically.
   Choose your printer model and the language.
5. Click **Install Printer Driver** on the menu screen.

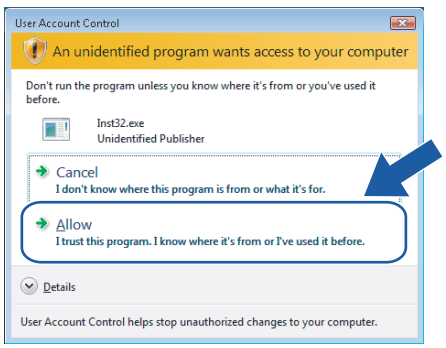
Note

Choose the **Install Printer Driver** icon for your region.

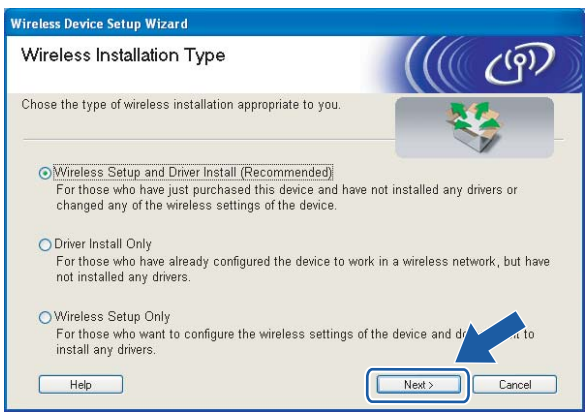
6 Click **Wireless Network users**.

Note

For Windows Vista®, when the **User Account Control** screen appears, click **Allow**.



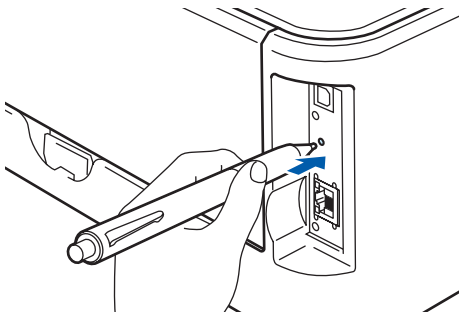
7 Choose **Wireless Setup and Driver Install (Recommended)** or **Wireless Setup Only**, and then click **Next**.



8 Choose **Automatic install (Advanced)** and click **Next**.

9 Confirm the on-screen message and click **Next**.

10 Press the wireless setup button located at the back of the machine for less than 2 seconds as show in the illustration below. This will put the printer in one-push wireless setting mode. This feature will automatically detect which mode your access point uses for one-push configuration (SecureEasySetup™, Wi-Fi Protected Setup™ or AOSS™) of your printer.



Note

- Use a pointy object such as a ballpoint pen to press the button.
- If you press the button for 3 seconds or more, the printer will change to the PIN Method of the Wi-Fi Protected Setup™ mode. See *How to configure your wireless printer, using the PIN Method of Wi-Fi Protected Setup™* on page 80.

⓫ The printer starts the one-push wireless setting mode.
The printer searches for an access point that supports SecureEasySetup™, Wi-Fi Protected Setup™ or AOSS™ for 2 minutes.

⓬ Put your access point in the SecureEasySetup™ mode, the Wi-Fi Protected Setup™ mode or the AOSS™ mode, depending on what is supported by your access point. Please refer to the instruction manual that came with your access point.

⓭ Wait for the **Ready** LED (**Go** button) of your printer indicates connection succeeded. The **Ready** LED will turn on for 5 minutes. (See the table below) This indication means the machine has successfully connected to your router or access point. You can now use your printer in a wireless network.

If the LED indicates connection failed (See the table below), the machine has not successfully connected to your router or access point. Try starting from ⓾ again. If the same message is indicated again, reset the machine back to the default factory settings and try again. For resetting, see *Restoring the network settings to factory default* on page 100.

If the LED indicates session overlap (See the table below), the machine has detected more than 2 routers or access points on your network that have the Wi-Fi Protected Setup™ mode or the AOSS™ mode enabled. Make sure that only one router or access point has the Wi-Fi Protected Setup™ mode or the AOSS™ mode enabled and try starting from ⓾ again.

LED indications when using the one-push wireless setting mode

LEDs	Searching or accessing the access point [1]	Connecting and downloading settings from the access point [1]	Connection succeeded [2]	Connection failed [3]	Session overlap is detected [4]		
Toner (Yellow)							
Drum (Yellow)							
Error (Red)							
Ready (Blue)							

1 The LED will blink (turn on for 0.2 seconds and off for 0.1 second).

2 The LED will turn on for 5 minutes.

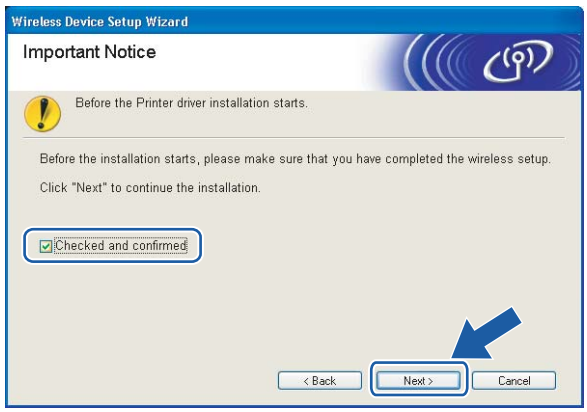
3 The LED will blink (turn on for 0.1 second and off for 0.1 second) for 30 seconds.

4 The LED will flash 10 times and then turn OFF for half a second. This pattern will repeat 20 times.

14 Click **Next** or **Finish**.

OK! **You have completed the wireless setup. If you chose to install the printer driver in step ❼, Go to the next step.**

15 Check the box after you confirm that you have completed the wireless settings, and then click **Next**. Go to *Installing the printer driver* on page 44.



Configuration in Ad-hoc mode

Before configuring the wireless settings

IMPORTANT

- If you have previously configured the wireless settings of the printer, you must reset the print server back to the default factory settings (see *Restoring the network settings to factory default* on page 100).
- If you are using Personal Firewall software (e.g. Windows Firewall), disable it. Once you are sure that you can print, restart your Personal Firewall software.

Configure the wireless settings

1. Turn on your computer. (You must be logged on with Administrator rights.)
   Close any applications running before configuration.
2. Put the supplied CD-ROM into your CD-ROM drive. The opening screen will appear automatically.
   Choose your printer model and the language.
3. Click **Install Printer Driver** on the menu screen.

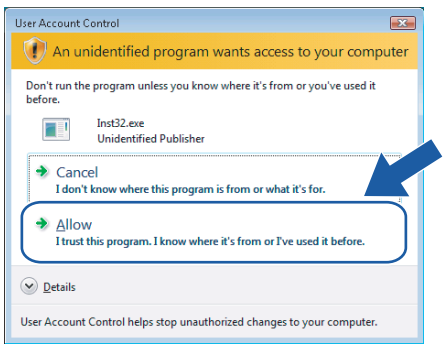
Note

Choose the **Install Printer Driver** icon for your region.

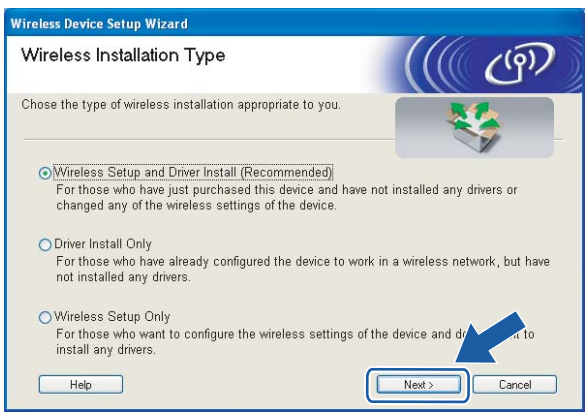
4 Click **Wireless Network users**.

Note

For Windows Vista®, when the **User Account Control** screen appears, click **Allow**.

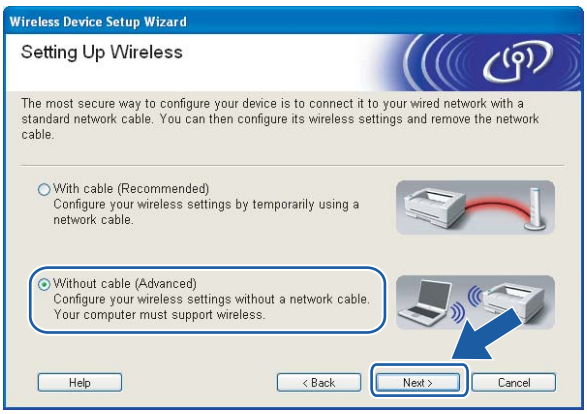


5 Choose **Wireless Setup and Driver Install (Recommended)** or **Wireless Setup Only**, and then click **Next**.

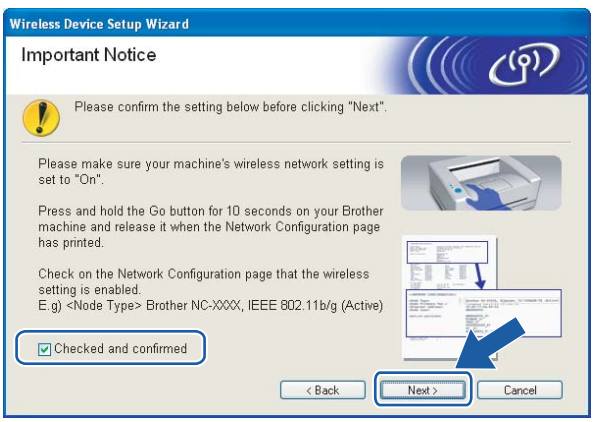


6 Choose **Step by Step install (Recommended)** and then click **Next**.

7 Choose **Without cable (Advanced)** and then click **Next**.

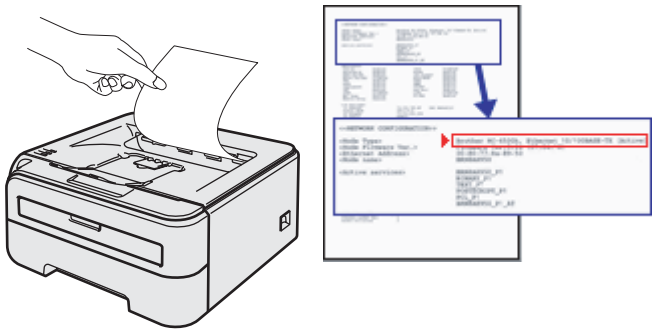


8 Read the **Important Notice** to enable the wireless interface. Hold down the **Go** button for 10 seconds, and then release the **Go** button when the printer prints a Network Configuration page.
Check the box after you confirm the wireless setting is enabled, and then click **Next**.

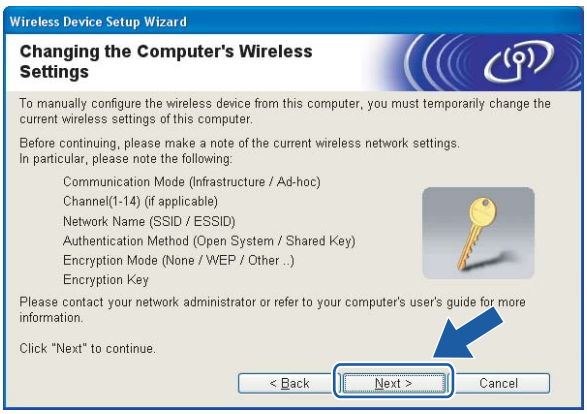


Note

To confirm the wireless setting is enabled, check the text to the right side of **IEEE 802.11b/g** in the **Node Type** section on the Network Configuration page. **Active** means that the wireless setting is enabled and **Inactive** means that the wireless setting is disabled. If the wireless setting is disabled, press the **Go** for 10 seconds again.



9 You need to temporarily change your computer's wireless settings. Follow the on-screen instructions. Make sure you take notes on all the settings such as SSID or channel of your computer. You will need them to return your computer back to its original wireless settings, and then click **Next**.



Item	Record the current wireless computer settings
Communication mode: (Infrastructure / Ad-hoc)	
Channel: (1-14)	
Network name: (SSID / ESSID)	
Authentication method: (Open system / Shared key / WPA/WPA2-PSK / LEAP)	
Encryption mode: (None / WEP / TKIP / AES/ CKIP)	
Encryption key:	

⑩ To communicate with the un-configured wireless printer, temporarily change the wireless settings on your computer to match your printer's default settings shown on this screen. Check the box after you confirm these settings, and then click **Next**.

Note

- If a message to restart your computer appears after the wireless settings have been changed, restart your computer and then go back to step ❷ and continue with the install skipping steps ❾ and ⑩.
- For Windows Vista® users:

  You can temporarily change the wireless settings on your computer, following the steps below:

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

  2 Click **Network and Internet** and then the **Network and Sharing Center** icon.

  3 Click **Connect to a network**.

  4 You can see the SSID of the wireless printer in the list. Select **SETUP** and click **Connect**.

  5 Click **Connect Anyway** and then **Close**.

  6 Click **View status** of **Wireless Network Connection (SETUP)**.

  7 Click **Details...**. and check the **Network Connection Details**. It may take a few minutes to change from 0.0.0.0 to 169.254.x.x IP address to be shown on screen (where x.x. are numbers between 1 and 254).

- For Windows® XP SP2 users:

  You can temporarily change the wireless settings on your computer, following the steps below:

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

  2 Click the **Network and Internet Connections** icon.

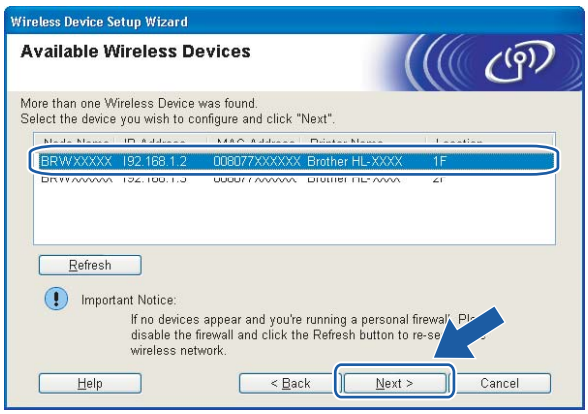
  3 Click the **Network Connections** icon.

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

  5 You can see the SSID of the wireless printer in the list. Select **SETUP** and click **Connect**.

6 Check the **Wireless Network Connection** status. It may take a few minutes to change from 0.0.0.0 to 169.254.x.x IP address to be shown on screen (where x.x. are numbers between 1 and 254).

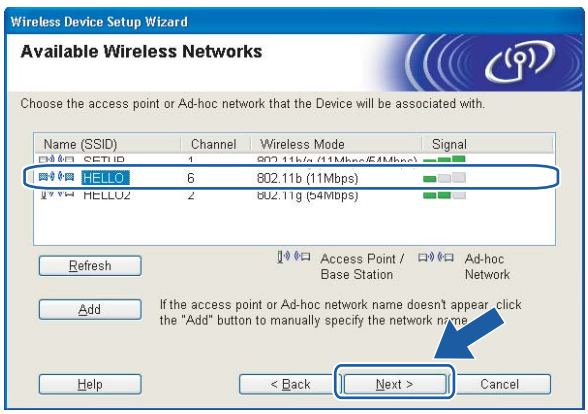
⓫ Choose the printer you wish to configure, and click **Next**. If the list is blank, check if the printer is powered on, and then click **Refresh**.



Note

The default Node name is “BRWxxxxxxxxxxxx”.

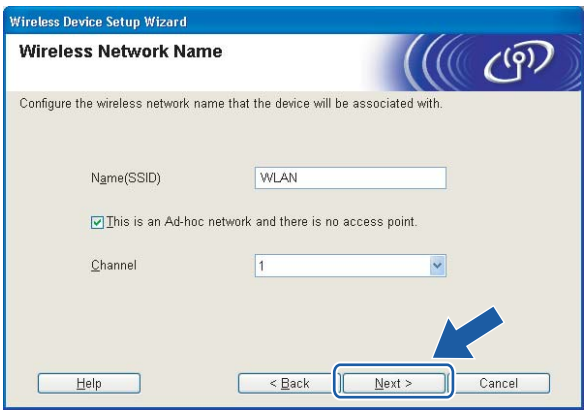
⓬ The wizard will search for wireless networks available from your printer. Choose the Ad-hoc network you wish to associate the printer with, and then click **Next**.



Note

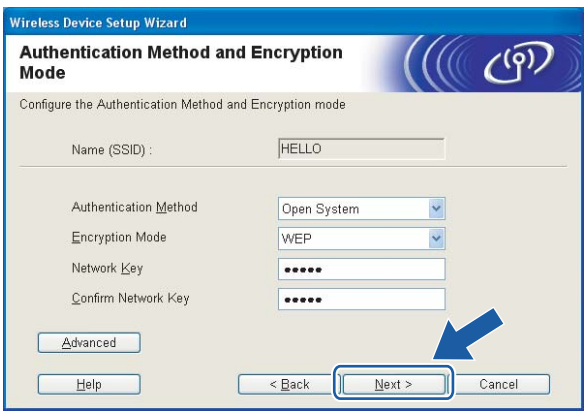
- If the list is blank, check if the printer is within range for wireless communication. Then, click **Refresh**.

- If your target Ad-hoc network does not appear on the list, you can manually add it by clicking the **Add** button. Check **This is an Ad-hoc network and there is no access point.**, and then enter the **Name (SSID)** and the **Channel** number, and then click **Next**.



13 If your network is not configured for Authentication and Encryption, the following screen will appear. To continue configuration, click **OK** and go to ⓯.

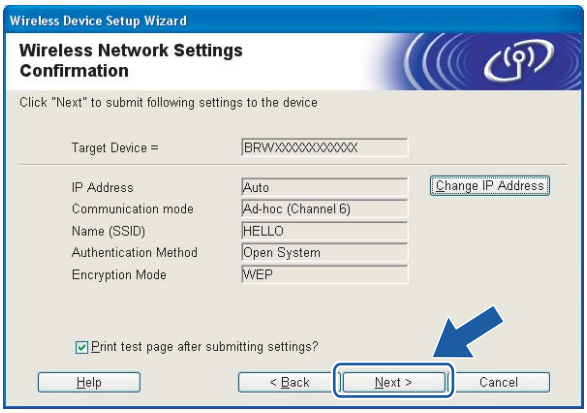
14 If your network is configured for Authentication and Encryption, the following screen will appear. When configuring your Brother wireless printer, you must ensure that it is configured to match the Authentication and Encryption settings of your existing wireless network. Choose the **Authentication Method** and **Encryption Mode** from the pull-downs in each setting box. Then enter the **Network key** and **Confirm Network Key**, and then click **Next**.



Note

- If you want to setup more than WEP key1, click **Advanced**.
- If you do not know the Authentication or Encryption settings for your network, contact your network administrator.
- If the **Authentication Method** is set to **Open System** and the **Encryption Mode** is set to **WEP**, an error indication will NOT appear if the **Network key** is incorrect.

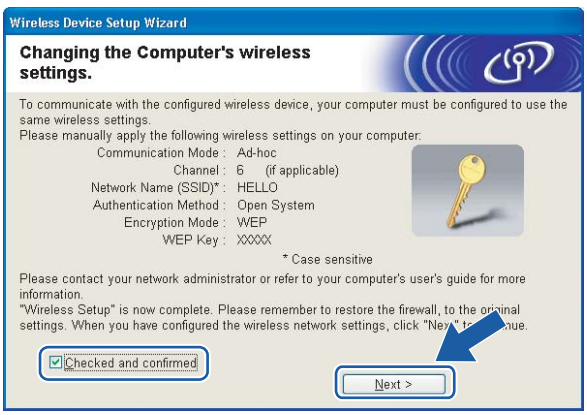
15 Click **Next**. The settings will be sent to your printer. The settings will remain unchanged if you click **Cancel**.



Note

If you want to manually enter the IP address settings of your printer, click **Change IP Address** and enter the necessary IP address settings for your network.

16 To communicate with the configured wireless device, you must configure your computer to use the same wireless settings. Manually change the wireless settings on your computer to match the printer's wireless settings shown on this screen. Check the box after these settings, and then click **Next** or **Finish**. (The settings shown on this screen are for example only. Your settings will not be the same.)



OK! **You have completed the wireless setup. If you chose to install the printer driver in step ❺, Go to *Installing the printer driver* on page 44.**

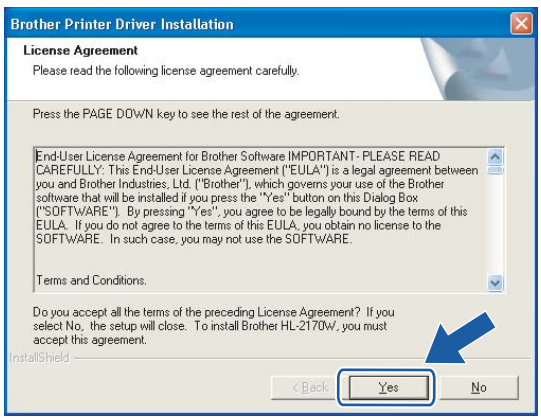
Installing the printer driver

Improper Setup

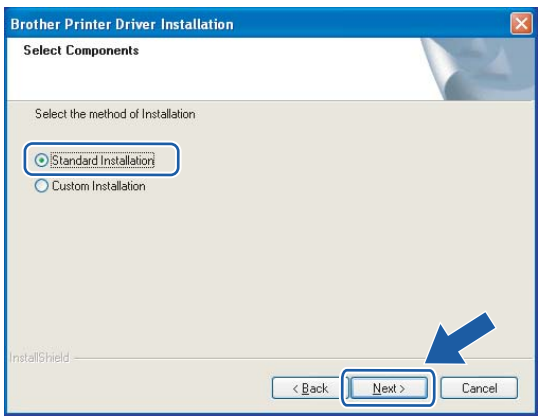
DO NOT try to cancel any of the screens during this installation.

If your wireless settings fail, an error message will appear during the installation of the printer driver and the installation will be terminated. If you encounter this failure, please go back to step 1 and setup the wireless connection again.

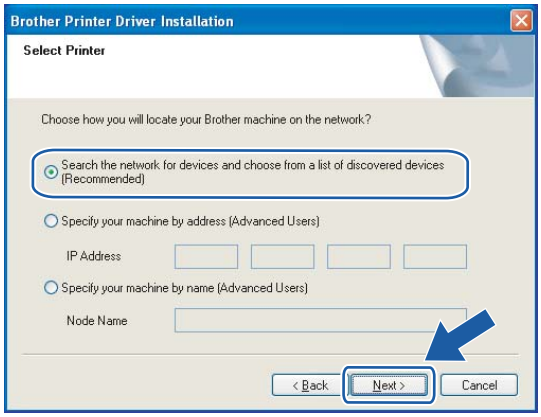
1. The driver installation starts. When the **License Agreement** window appears, click **Yes** if you agree to the License Agreement.



2. Choose **Standard Installation**, and then click **Next**.



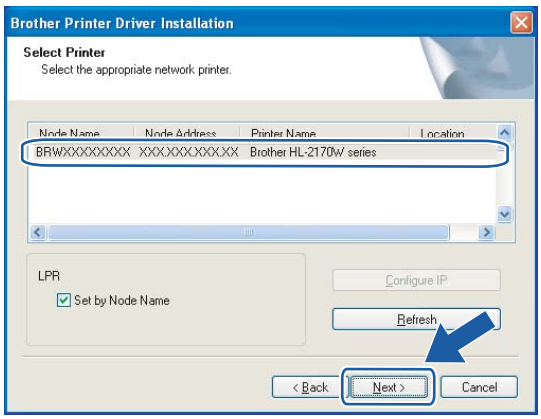
3 Choose **Search the network for devices and choose from a list of discovered devices (Recommended)**. Or enter your printer's IP address or its node name. Click **Next**.



Note

You can find your printer's IP address and the node name by printing out the Printer Settings Page. See Printing the Printer Settings Page on page 100.

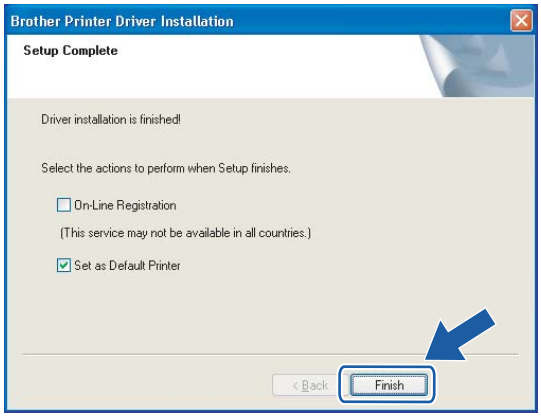
4 Choose your printer, and then click **Next**.



Note

If your printer takes a long time to appear on the list, 1 minute or more, then click **Refresh**. If your printer still fails to appear, reset the print server back to the default factory settings (see *Restoring the network settings to factory default* on page 100) and try the wireless setup again.

5 Click **Finish**.



Note

- If you want to register your product on-line, check **On-Line Registration**.
- If you do not want to set your printer as Default printer, uncheck **Set as Default Printer**.
- If you disable the Personal Firewall software (e.g. Windows Firewall), Turn it back on.

OK! **Setup is now complete.**

5 Wireless configuration for Macintosh® using the Brother installer application (For HL-2170W)

Configuration in Infrastructure mode

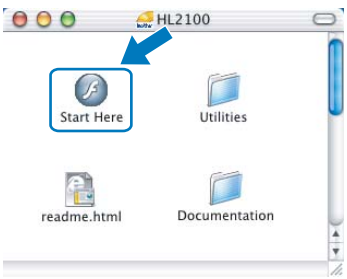
Before configuring the wireless settings

IMPORTANT

- If you are going to connect the printer to your network, we recommend that you contact your system administrator prior to installation. You must know your wireless network settings before you proceed with this installation.
- If you have previously configured the wireless settings of the printer, you must reset the print server back to the default factory settings (see *Restoring the network settings to factory default* on page 100).
- If you are using Personal Firewall software, disable it. Once you are sure that you can print, restart your Personal Firewall software.
- You need to temporarily use an Ethernet cable during configuration.

Configure the wireless settings

1. Turn on your Macintosh®.
2. Put the supplied CD-ROM into your CD-ROM drive. Double-click the **HL2100** icon on your desktop. Double-click the **Start Here** icon. Choose your printer model and the language.



3 Click **Install Printer Driver** on the menu screen.

4 Click **Wireless Network users**.

5 Choose **Wireless Setup and Driver Install (Recommended)** or **Wireless Setup Only**, and then click **Next**.

6 Choose **Step by Step install (Recommended)** and then click **Next**.

7 Choose **With cable (Recommended)** and then click **Next**.

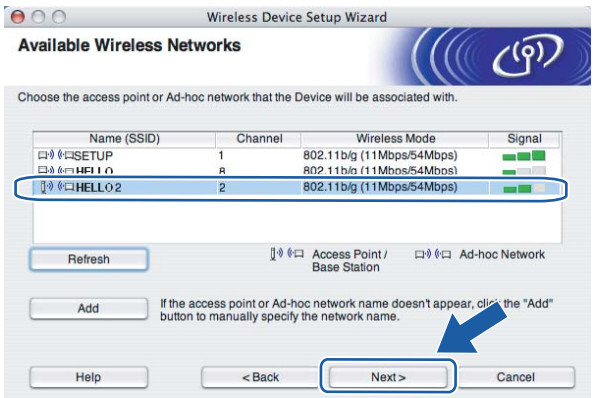
8 Connect the Brother wireless device to your access point using a network cable and click **Next**.

9 Choose the printer you wish to configure, and click **Next**. If the list is blank, check if the access point and the printer are powered on, and then click **Refresh**.

Note

The default Node name is “BRNxxxxxxxxxxx”.

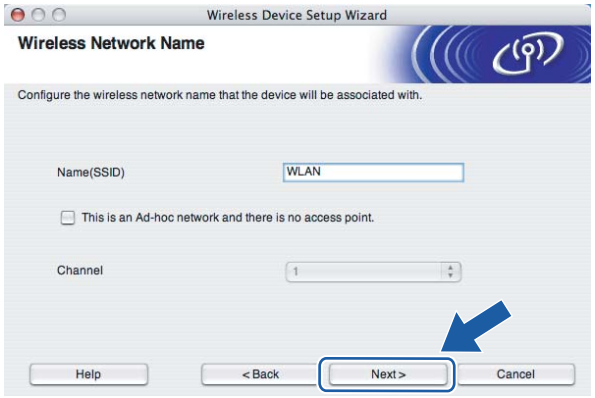
10 The wizard will search for wireless networks available from your printer. Choose the access point you wish to associate the printer with, and then click **Next**.



Note

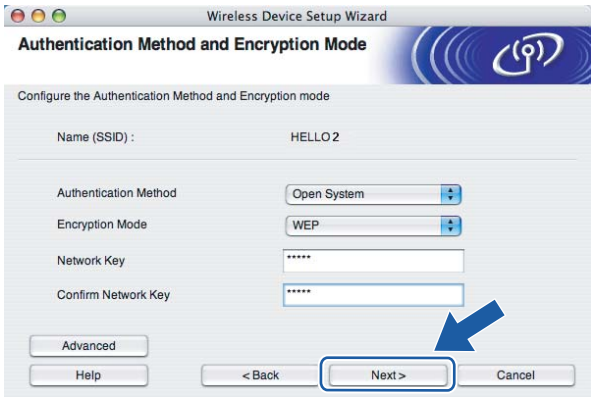
- "SETUP" is the default SSID of the printer. Do not choose this SSID.
- If the list is blank, check that the access point has power and is broadcasting the SSID, and then see if the printer and the access point are within range for wireless communication. Then, click **Refresh.**

- If your access point is set to not broadcast the SSID you can manually add it by clicking the **Add** button. Follow the on-screen instructions for entering the **Name (SSID)**, and then click **Next**.



⓫ If your network is not configured for Authentication and Encryption, the following screen will appear. To continue configuration, click **OK** and go to ⓭.

⓬ If your network is configured for Authentication and Encryption, the following screen will appear. When configuring your Brother wireless printer, you must ensure that it is configured to match the Authentication and Encryption settings of your existing wireless network. Choose the **Authentication Method** and **Encryption Mode** from the pull-downs in each setting box. Then enter the **Network key** and **Confirm Network Key**, and then click **Next**.



Note

- If you want to setup more than WEP key1, click **Advanced**.
- If you do not know the Authentication or Encryption settings for your network, contact your network administrator.
- If the **Authentication Method** is set to **Open System** and the **Encryption Mode** is set to **WEP**, an error indication will NOT appear if the **Network key** is incorrect.

⓭ Click **Next**. The settings will be sent to your printer. The settings will remain unchanged if you click **Cancel**.

Note

If you want to manually enter the IP address settings of your printer, click **Change IP Address** and enter the necessary IP address settings for your network.

14 Disconnect the network cable between your access point (hub or router) and the printer, and click **Next**.

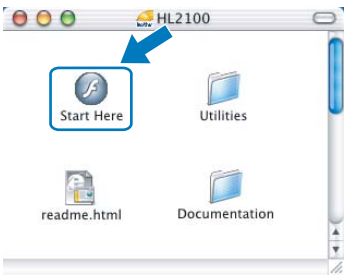
OK! **You have completed the wireless setup. If you chose to install the printer driver in step ❺, Go to *Installing the printer driver* on page 66.**

Configuration using the automatic wireless (one-push) method

IMPORTANT

If you are going to connect the printer to your network, we recommend that you contact your system administrator prior to installation.

1. Make sure that the power cord is plugged in.
2. Turn on your printer and wait until the printer is in the Ready state.
3. Turn on your Macintosh®.
4. Put the supplied CD-ROM into your CD-ROM drive. Double-click the **HL2100** icon on your desktop. Double-click the **Start Here** icon. Choose your printer model and the language.



5. Click **Install Printer Driver** on the menu screen.

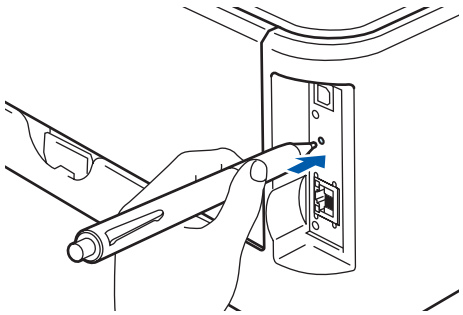
6 Click **Wireless Network users**.

7 Choose **Wireless Setup and Driver Install (Recommended)** or **Wireless Setup Only**, and then click **Next**.

8 Choose **Automatic install (Advanced)** and click **Next**.

9 Confirm the on-screen message and click **Next**.

10 Press the wireless setup button located at the back of the machine for less than 2 seconds as show in the illustration below. This will put the printer in one-push wireless setting mode. This feature will automatically detect which mode your access point uses for one-push configuration (SecureEasySetup™, Wi-Fi Protected Setup™ or AOSS™) of your printer.



Note

- Use a pointy object such as a ballpoint pen to press the button.
- If you press the button for 3 seconds or more, the printer will change to the PIN Method of the Wi-Fi Protected Setup™ mode. See *How to configure your wireless printer, using the PIN Method of Wi-Fi Protected Setup™* on page 80.

11 The printer starts the one-push wireless setting mode.
The printer searches for an access point that supports SecureEasySetup™, Wi-Fi Protected Setup™ or AOSS™ for 2 minutes.

12 Put your access point in the SecureEasySetup™ mode, the Wi-Fi Protected Setup™ mode or the AOSS™ mode, depending on what is supported by your access point. Please refer to the instruction manual that came with your access point.

⓭ Wait for the **Ready** LED (**Go** button) of your printer to indicate connection succeeded. The **Ready** LED will turn on for 5 minutes. (See the table below) This indication means the machine has successfully connected to your router or access point. You can now use your printer on the wireless network.

If the LED indicates connection failed (See the table below), the machine has not successfully connected to your router or access point. Try starting from ⓾ again. If the same message is indicated again, reset the machine back to the default factory settings and try again. For resetting, see *Restoring the network settings to factory default* on page 100.

If the LED indicates session overlap (See the table below), the machine has detected more than 2 routers or access points on your network that have the Wi-Fi Protected Setup™ mode or the AOSS™ mode enabled. Make sure that only one router or access point has the Wi-Fi Protected Setup™ mode or the AOSS™ mode enabled and try starting from ⓾ again.

LED indications when using the one-push wireless setting mode

LEDs	Searching or accessing the access point [1]	Connecting and downloading settings from the access point [1]	Connection succeeded [2]	Connection failed [3]	Session overlap is detected [4]		
Toner (Yellow)							
Drum (Yellow)							
Error (Red)							
Ready (Blue)							

1 The LED will blink (turn on for 0.2 seconds and off for 0.1 second).

2 The LED will turn on for 5 minutes.

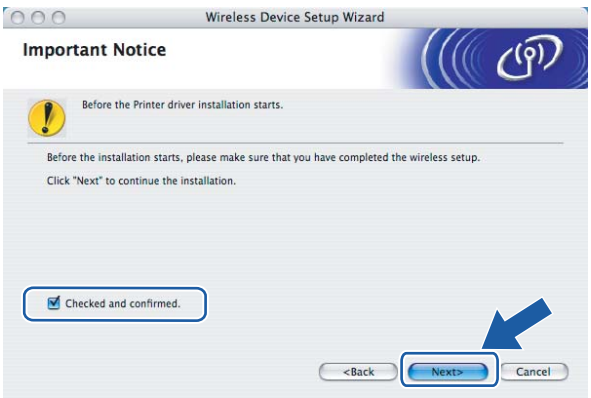
3 The LED will blink (turn on for 0.1 second and off for 0.1 second) for 30 seconds.

4 The LED will flash 10 times and then turn OFF for half a second. This pattern will repeat 20 times.

14 Click **Next** or **Finish**.

You have completed the wireless setup. If you chose to install the printer driver in step ❼, Go to the next step.

15 Check the box after you confirm that you have completed the wireless settings, and then click **Next**. Go to *Installing the printer driver* on page 66.



Configuration in Ad-hoc mode

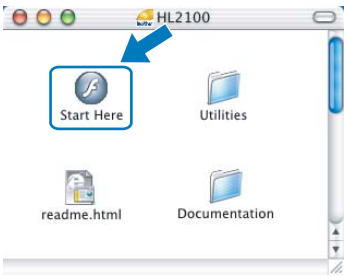
Before configuring the wireless settings

IMPORTANT

- If you have previously configured the wireless settings of the printer, you must reset the print server back to the default factory settings (see *Restoring the network settings to factory default* on page 100).
- If you are using Personal Firewall software, disable it. Once you are sure that you can print, restart your Personal Firewall software.

Configure the wireless settings

1. Turn on your Macintosh®.
2. Put the supplied CD-ROM into your CD-ROM drive. Double-click the **HL2100** icon on your desktop. Double-click the **Start Here** icon. Choose your printer model and the language.



3. Click **Install Printer Driver** on the menu screen.

4 Click **Wireless Network users**.

5 Choose **Wireless Setup and Driver Install (Recommended)** or **Wireless Setup Only**, and then click **Next**.

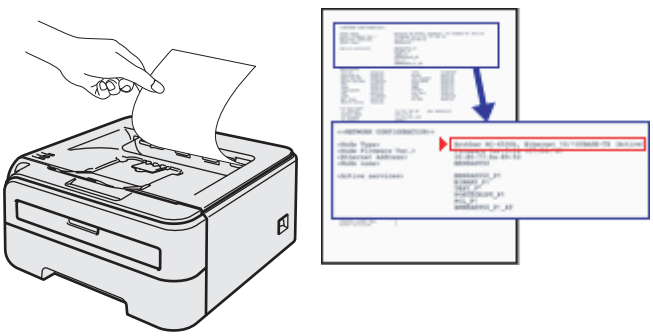
6 Choose **Step by Step install (Recommended)** and then click **Next**.

7 Choose **Without cable (Advanced)** and then click **Next**.

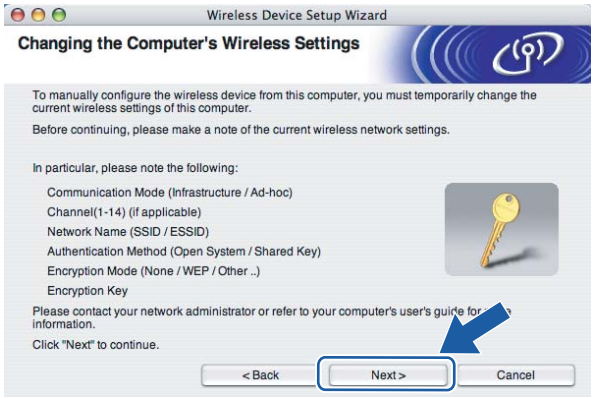
8 Read the **Important Notice** to enable the wireless interface. Hold down the **Go** button for 10 seconds, and then release the **Go** button when the printer prints a Network Configuration page.
Check the box after you confirm the wireless setting is enabled, and then click **Next**.

Note

To confirm the wireless setting is enabled, check the text to the right side of **IEEE 802.11b/g** in the **Node Type** section on the Network Configuration page. **Active** means that the wireless setting is enabled and **Inactive** means that the wireless setting is disabled. If the wireless setting is disabled, press the **Go** for 10 seconds again.

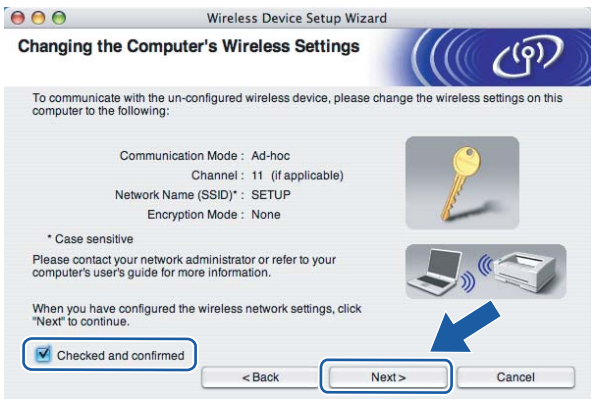


9 You need to temporarily change your computer's wireless settings. Follow the on-screen instructions. Make sure you take notes on all the settings such as SSID or channel of your computer. You will need them to return your computer back to its original wireless settings, and then click **Next**.



Item	Record the current wireless computer settings
Communication mode: (Infrastructure / Ad-hoc)	
Channel: (1-14)	
Network name: (SSID / ESSID)	
Authentication method: (Open system / Shared key / WPA/WPA2-PSK / LEAP)	
Encryption mode: (None / WEP / TKIP / AES/ CKIP)	
Encryption key:	

10 To communicate with the un-configured wireless printer, temporarily change the wireless settings on your computer to match your printer's default settings shown on this screen. Check the box after you confirm these settings, and then click **Next**.



Note

You can temporarily change the wireless settings on your computer, following the steps below:

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

2 Click the Network tab to see the available wireless devices. You can see the Brother wireless print server in the **Network** option. Select **SETUP**.

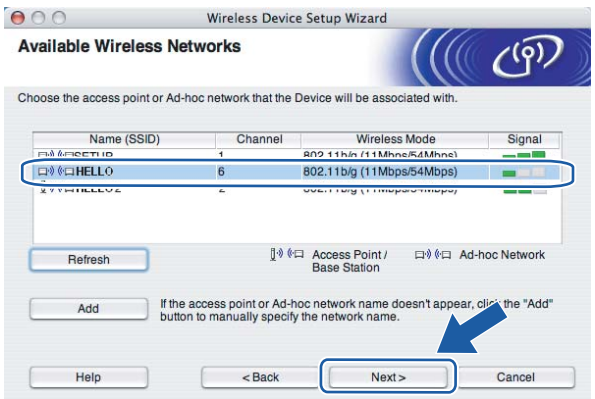
3 Your wireless network is connected successfully.

⓫ Choose the printer you wish to configure, and click **Next**. If the list is blank, check if the printer is powered on, and then click **Refresh**.

Note

The default Node name is “BRWxxxxxxxxxxxx”.

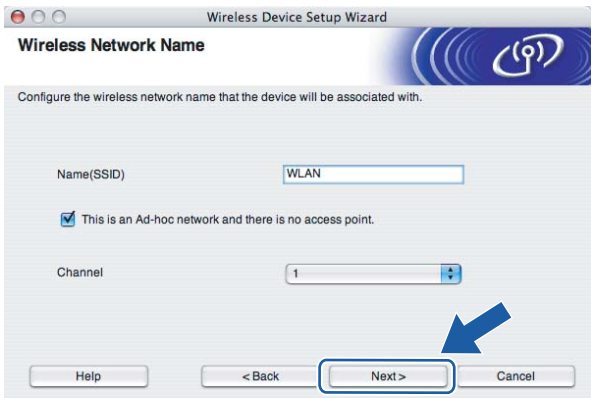
⓬ The wizard will search for wireless networks available from your printer. Choose the Ad-hoc network you wish to associate the printer with, and then click **Next**.



Note

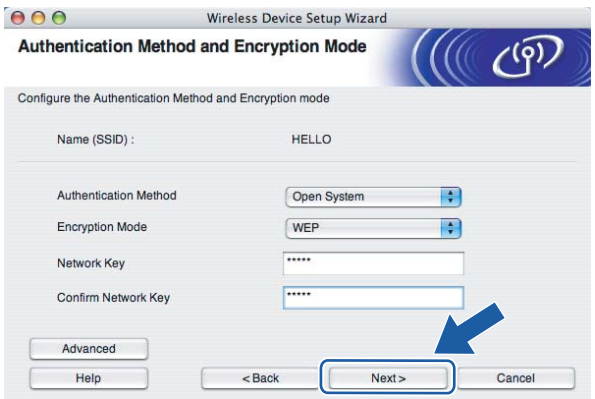
- If the list is blank, check if the printer is within range for wireless communication. Then, click **Refresh**.

- If your target Ad-hoc network does not appear on the list, you can manually add it by clicking the **Add** button. Check **This is an Ad-hoc network and there is no access point.**, and then enter the **Name (SSID)** and the **Channel** number, and then click **Next**.



13 If your network is not configured for Authentication and Encryption, the following screen will appear. To continue configuration, click **OK** and go to 15.

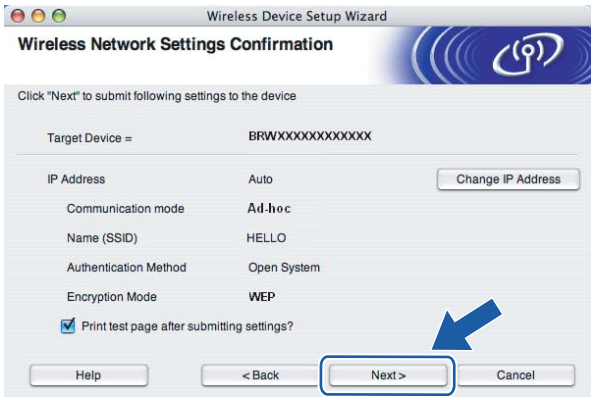
14 If your network is configured for Authentication and Encryption, the following screen will appear. When configuring your Brother wireless printer, you must ensure that it is configured to match the Authentication and Encryption settings of your existing wireless network. Choose the **Authentication Method** and **Encryption Mode** from the pull-downs in each setting box. Then enter the **Network key** and **Confirm Network Key**, and then click **Next**.



Note

- If you want to setup more than WEP key1, click **Advanced**.
- If you do not know the Authentication or Encryption settings for your network, contact your network administrator.
- If the **Authentication Method** is set to **Open System** and the **Encryption Mode** is set to **WEP**, an error indication will NOT appear if the **Network key** is incorrect.

15 Click **Next**. The settings will be sent to your printer. The settings will remain unchanged if you click **Cancel**.



Note

If you want to manually enter the IP address settings of your printer, click **Change IP Address** and enter the necessary IP address settings for your network.

16 To communicate with the configured wireless device, you must configure your computer to use the same wireless settings. Manually change the wireless settings on your computer to match the printer's wireless settings shown on this screen. Check the box after these settings, and then click **Next** or **Finish**. (The settings shown on this screen are for example only. Your settings will not be the same.)

OK! **You have completed the wireless setup. If you chose to install the printer driver in step ❺, Go to *Installing the printer driver* on page 66.**

Installing the printer driver

Improper Setup

DO NOT try to cancel any of the screens during this installation.

If your wireless settings fail, an error message will appear during the installation of the printer driver and the installation will be terminated. If you encounter this failure, please go back to step 1 and setup the wireless connection again.

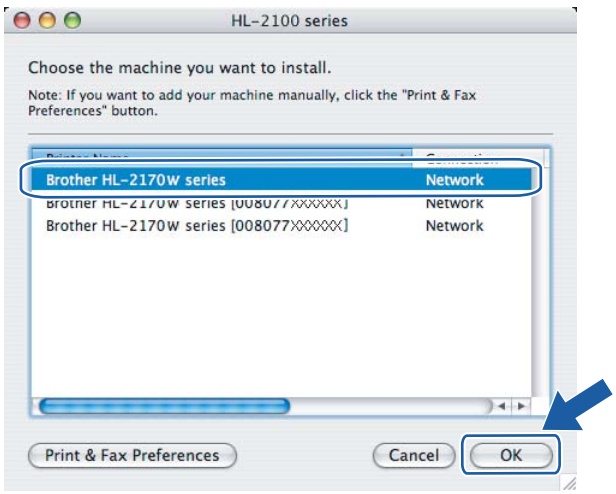
1. The driver installation starts.
   Follow the on-screen instructions. Then, restart your Macintosh®.

   For Mac OS® X 10.2.4 to 10.2.8 users: Go to step ❹.
   For Mac OS® X 10.3 or greater users: Go to step ❷.

2. The Brother software will search for the Brother printer. During this time the following screen will appear.

Note

- If more than one printer is available, the following list appears. Choose the printer you wish to connect, and then click **OK**.



- If there is more than one of the same printer model connected on your network, the Ethernet address (MAC address) will be displayed after the model name.
- *You can find your printer's Ethernet address (MAC address) by printing out the Printer Settings Page. See Printing the Printer Settings Page* on page 100.

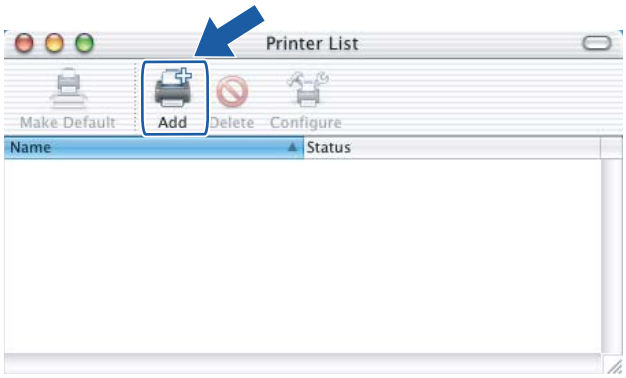
- If your printer fails to appear on the list, reset the print server back to the default factory settings (see *Restoring the network settings to factory default* on page 100) and try the wireless setup again.

3 When this screen appears, click **OK**.

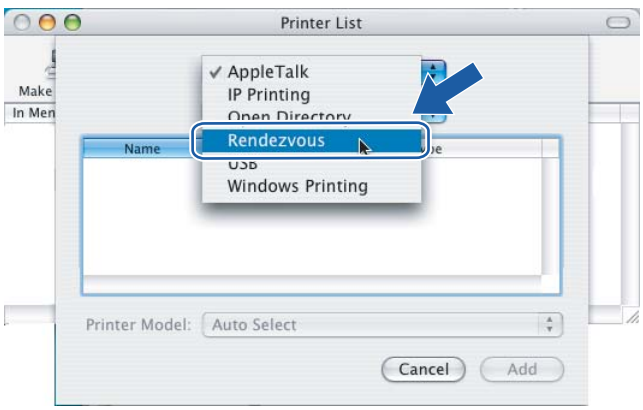
OK! **For Mac OS® X 10.3 or greater users:**

Setup is now complete.

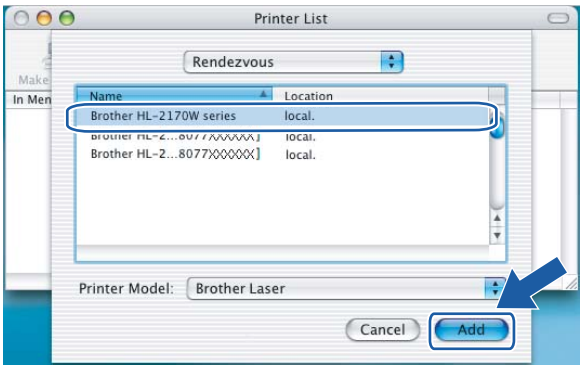
4 When this screen appears, click **Add**.



5 Make the following selection.



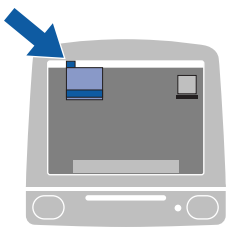
6 Choose your printer, and then click **Add**.



Note

- If there is more than one of the same printer model connected on your network, the Ethernet address (MAC address) will be displayed after the model name.
- *You can find your printer's Ethernet address (MAC address) by printing out the Printer Settings Page. See Printing the Printer Settings Page* on page 100.
- If your printer fails to appear on the list, reset the print server back to the default factory settings (see *Restoring the network settings to factory default* on page 100) and try the wireless setup again.

7 Click **Print Center**, then **Quit Print Center**.



OK! **For Mac OS® X 10.2.4 to 10.2.8 users:**

Setup is now complete.

6 Wireless configuration using the one-push wireless setting mode (For HL-2170W)

Overview

If your wireless access point supports either SecureEasySetup™, Wi-Fi Protected Setup™ (PBC [1]) or AOSS™, you can configure the machine easily without a computer. Your Brother printer has one-push wireless setting mode. This feature automatically detects which mode your access point uses for one-push configuration (SecureEasySetup™, Wi-Fi Protected Setup™ or AOSS™). By pushing a button on the wireless LAN router / access point and the machine, you can setup the wireless network and security settings. See the user's guide for your wireless LAN router / access point for instructions on how to access one-push mode.

[1] Push Button Configuration

Note

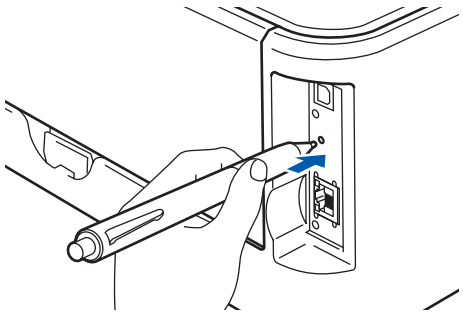
Routers or access points that support SecureEasySetup™, Wi-Fi Protected Setup™ or AOSS™ have the symbols shown below.

How to configure your wireless printer, using the one-push wireless setting mode

IMPORTANT

If you are going to connect the printer to your network, we recommend that you contact your system administrator prior to installation.

1. Press the wireless setup button located at the back of the machine for less than 2 seconds as show in the illustration below. This will put the printer in one-push wireless setting mode. This feature will automatically detect which mode your access point uses for one-push configuration (SecureEasySetup™, Wi-Fi Protected Setup™ or AOSS™) of your printer.



Note

- Use a pointy object such as a ballpoint pen to press the button.
- If you press the button for 3 seconds or more, the printer will change to the PIN Method of the Wi-Fi Protected Setup™ mode. See *How to configure your wireless printer, using the PIN Method of Wi-Fi Protected Setup™* on page 80.

2. The printer starts the one-push wireless setting mode.
The printer searches for an access point that supports SecureEasySetup™, Wi-Fi Protected Setup™ or AOSS™ for 2 minutes.

3. Put your access point in the SecureEasySetup™ mode, the Wi-Fi Protected Setup™ mode or the AOSS™ mode, depending on what is supported by your access point. Please refer to the instruction manual that came with your access point.

4 Wait for the **Ready** LED (**Go** button) of your printer to indicate connection succeeded. The **Ready** LED will turn on for 5 minutes. (See the table below) This indication means the machine has successfully connected to your router or access point. You can now use your printer on the wireless network.

If the LED indicates connection failed (See the table below), the machine has not successfully connected to your router or access point. Try starting from ❶ again. If the same message is indicated again, reset the machine back to the default factory settings and try again. For resetting, see *Restoring the network settings to factory default* on page 100.

If the LED indicates session overlap (See the table below), the machine has detected more than 2 routers or access points on your network that have the Wi-Fi Protected Setup™ mode or the AOSS™ mode enabled. Make sure that only one router or access point has the Wi-Fi Protected Setup™ mode or the AOSS™ mode enabled and try starting from ❶ again.

LED indications when using the one-push wireless setting mode

LEDs	Searching or accessing the access point [1]	Connecting and downloading settings from the access point [1]	Connection succeeded [2]	Connection failed [3]	Session overlap is detected [4]		
Toner (Yellow)							
Drum (Yellow)							
Error (Red)							
Ready (Blue)							

1 The LED will blink (turn on for 0.2 seconds and off for 0.1 second).

2 The LED will turn on for 5 minutes.

3 The LED will blink (turn on for 0.1 second and off for 0.1 second) for 30 seconds.

4 The LED will flash 10 times and then turn OFF for half a second. This pattern will repeat 20 times.

OK! **You have completed the wireless setup. To install the printer driver, Go to step ❶ on page 72 for Windows® or page 76 for Macintosh®.**

For Windows® users

Improper Setup

DO NOT try to cancel any of the screens during this installation.

1. Turn on your computer. (You must be logged on with Administrator rights.)
   Close any applications running before configuration.
2. Put the supplied CD-ROM into your CD-ROM drive. The opening screen will appear automatically.
   Choose your printer model and the language.
3. Click **Install Printer Driver** on the menu screen.

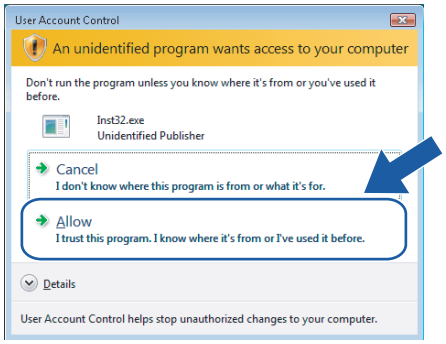
Note

Choose the **Install Printer Driver** icon for your region.

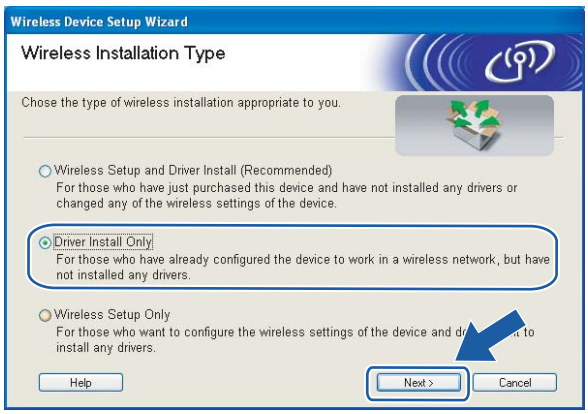
4. Click **Wireless Network users**.

Note

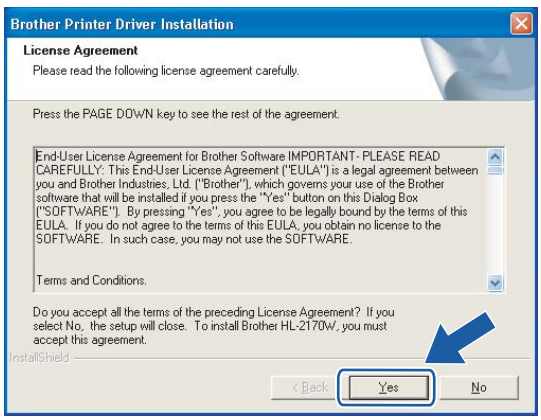
For Windows Vista®, when the **User Account Control** screen appears, click **Allow**.



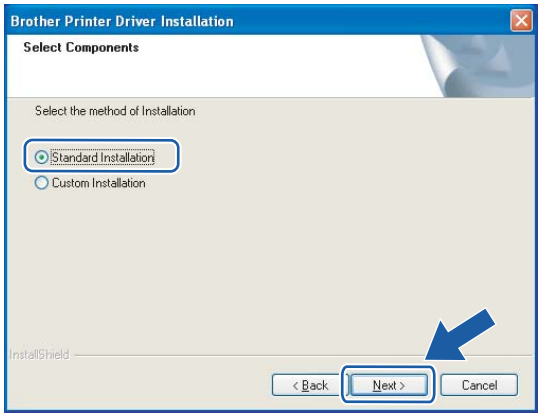
5 Choose **Driver Install Only**, and then click **Next**.



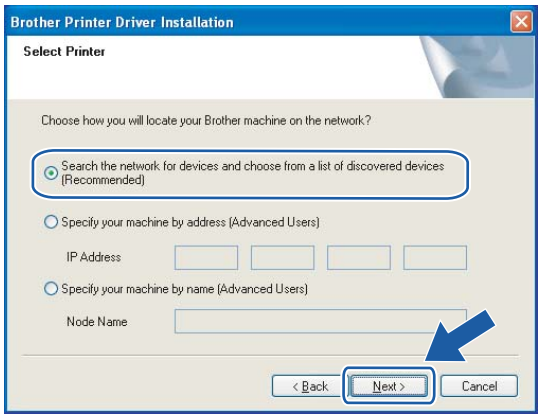
6 When the **License Agreement** window appears, click **Yes** if you agree to the License Agreement.



7 Choose **Standard Installation**, and then click **Next**.



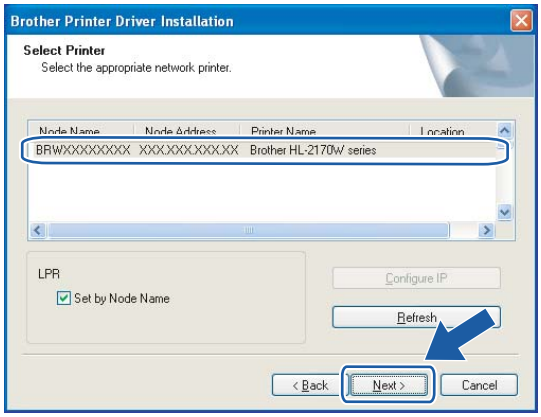
8 Choose **Search the network for devices and choose from a list of discovered devices (Recommended)**. Or enter your printer's IP address or its node name. Click **Next**.



Note

You can find your printer's IP address and the node name by printing out the Printer Settings Page. See Printing the Printer Settings Page on page 100.

9 Choose your printer, and then click **Next**.

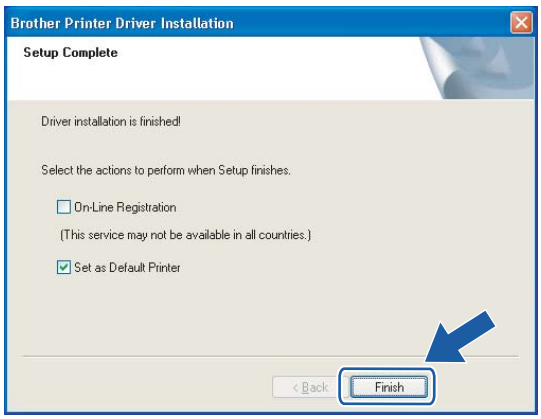


Note

If your printer takes a long time (about 1 minute) to appear on the list, click **Refresh**.

6

10 Click **Finish**.



Note

- If you want to register your product on-line, check **On-Line Registration**.
- If you do not want to set your printer as Default printer, uncheck **Set as Default Printer**.

OK! **Setup is now complete.**

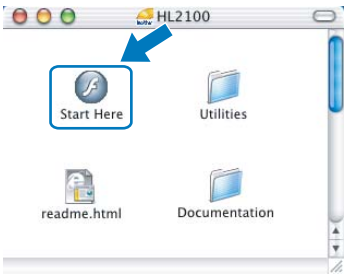
For Macintosh® users

Improper Setup

DO NOT try to cancel any of the screens during this installation.

1. Turn on your Macintosh®.

2. Put the supplied CD-ROM into your CD-ROM drive. Double-click the **HL2100** icon on your desktop. Double-click the **Start Here** icon. Choose your printer model and the language.



3. Click **Install Printer Driver** on the menu screen.

4. Click **Wireless Network users**.

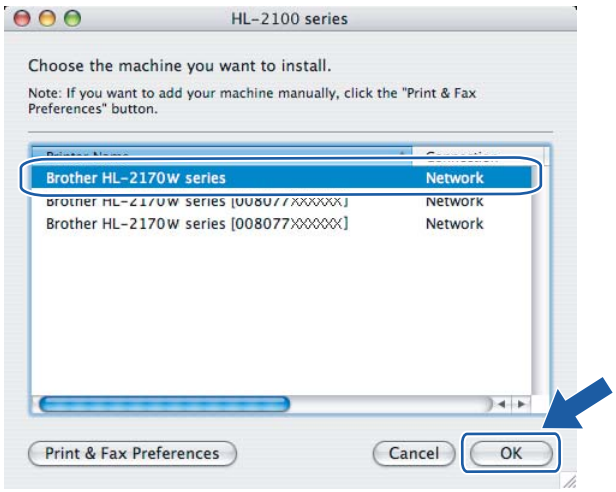
5 Choose **Driver Install Only**, and then click **Next**. Follow the on-screen instructions. Then, restart your Macintosh®.

For Mac OS® X 10.2.4 to 10.2.8 users: Go to step 8.
For Mac OS® X 10.3 or greater users: Go to step 6.

6 The Brother software will search for the Brother printer. During this time the following screen will appear.

Note

- If more than one printer is available, the following list appears. Choose the printer you wish to connect, and then click **OK**.

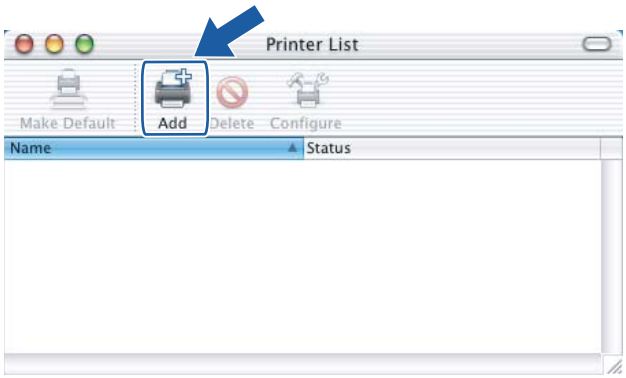


- If there is more than one of the same printer model connected on your network, the Ethernet address (MAC address) will be displayed after the model name.
- *You can find your printer's Ethernet address (MAC address) by printing out the Printer Settings Page. See Printing the Printer Settings Page* on page 100.

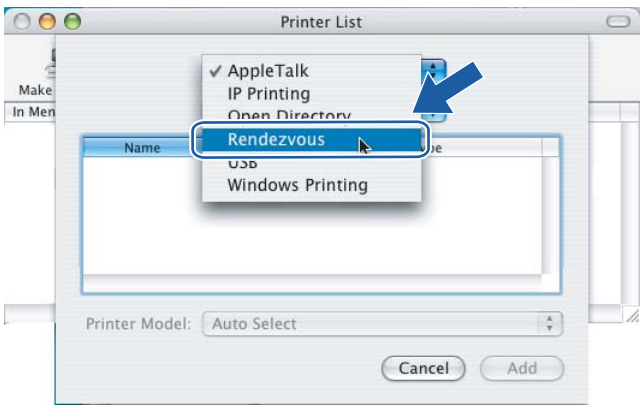
7 When this screen appears, click **OK**.

OK! **For Mac OS® X 10.3 or greater users:**
Setup is now complete.

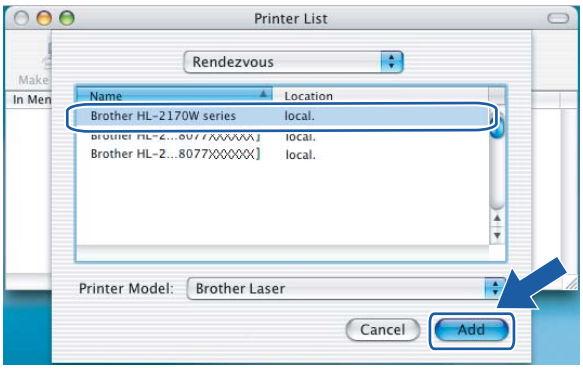
8 When this screen appears, click **Add**.



9 Make the following selection.



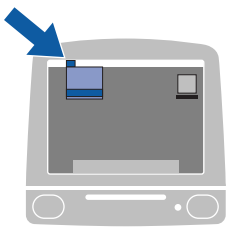
⑩ Choose your printer, and then click **Add**.



Note

- If there is more than one of the same printer model connected on your network, the Ethernet address (MAC address) will be displayed after the model name.
- *You can find your printer's Ethernet address (MAC address) by printing out the Printer Settings Page. See Printing the Printer Settings Page* on page 100.

⑪ Click **Print Center**, then **Quit Print Center**.



OK! **For Mac OS® X 10.2.4 to 10.2.8 users:**

Setup is now complete.

7 Wireless configuration using the PIN Method of Wi-Fi Protected Setup™ (For HL-2170W)

Overview

If your wireless access point supports Wi-Fi Protected Setup™ (PIN Method), you can configure the machine easily without a computer. The PIN (Personal Identification Number) Method is one of the connection methods developed by the Wi-Fi Alliance. By inputting a PIN which is created by an Enrollee (your machine) to the Registrar (a device that manages the wireless LAN), you can setup the wireless network and security settings. See the user's guide for your wireless LAN router / access point for instructions on how to access the Wi-Fi Protected Setup™ mode.

Note

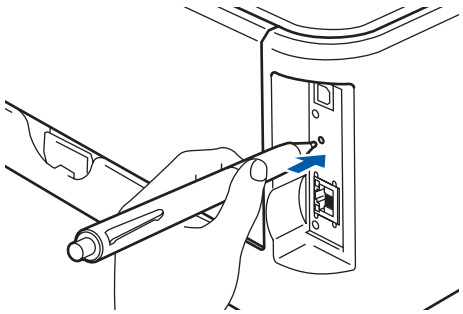
Routers or access points that support Wi-Fi Protected Setup™ have a symbol as shown below.

How to configure your wireless printer, using the PIN Method of Wi-Fi Protected Setup™

IMPORTANT

If you are going to connect the printer to your network, we recommend that you contact your system administrator prior to installation.

1. Press the wireless setup button located at the back of the machine for 3 seconds or more as show in the illustration below.



Note

Use a pointy object such as a ballpoint pen to press the button.

2 The printer will print a piece of paper that shows an 8 digit PIN and starts searching for an access point for 5 minutes.

3 Using a computer that is on the network, type `http://access_point_ip_address/` into your browser. (Where access_point_ip_address is the IP address of the device that is used as the Registrar [1]) Go to the WPS (Wi-Fi Protected Setup) setting page and input the PIN from the printed page to the Registrar and follow the on-screen instruction.

[1] The Registrar is normally the access point / router.

Note

The setting page is different, depending on the brand of access point / router. See the instruction manual that came with your access point / router.

If you are using your Windows Vista® computer as a Registrar, follow the instructions below.

Note

To use a Windows Vista® computer as a Registrar, you need to register it to your network in advance. See the instruction manual that came with your access point / router.

1 Click **Start** and then **Network**.

2 Click **Add a wireless device**.

3 Choose your printer and click **Next**.

4 Input the PIN from the printed page and then click **Next**.

5 Choose your network that you want to connect to, and then click **Next**.

6 Click **Close**.

4 Wait for the **Ready** LED (**Go** button) of your printer to indicate connection succeeded. (See the table below) This indication means the machine has successfully connected to your access point / router. You can now use your printer on the wireless network.

If the LED indicates connection failed (See the table below), the machine has not successfully connected to your router or access point. Try starting from ❶ again. If the same message is indicated again, reset the machine back to the default factory settings and try again. For resetting, see *Restoring the network settings to factory default* on page 100.

LED indications when using the one-push wireless setting mode

LEDs	Searching or accessing the access point [1]	Connecting and downloading the settings from the access point [1]	Connection succeeded [2]	Connection failed [3]
Toner (Yellow)				
Drum (Yellow)				
Error (Red)				
Ready (Blue)				

1 The LED will blink (turn on for 0.2 seconds and off for 0.1 second).

2 The LED will turn on for 5 minutes.

3 The LED will blink (turn on for 0.1 second and off for 0.1 second) for 30 seconds.

OK! **You have completed the wireless setup. To install the printer driver, Go to step ❶ on page 83 for Windows® or page 87 for Macintosh®.**

For Windows® users

Improper Setup

DO NOT try to cancel any of the screens during this installation.

1. Turn on your computer. (You must be logged on with Administrator rights.)
   Close any applications running before configuration.
2. Put the supplied CD-ROM into your CD-ROM drive. The opening screen will appear automatically.
   Choose your printer model and the language.
3. Click **Install Printer Driver** on the menu screen.

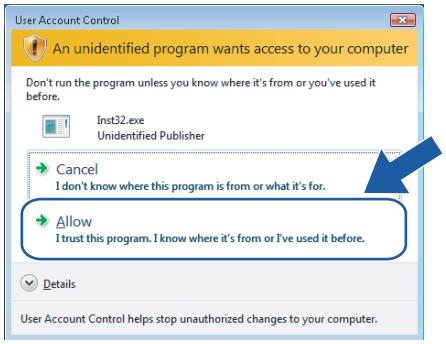
Note

Choose the **Install Printer Driver** icon for your region.

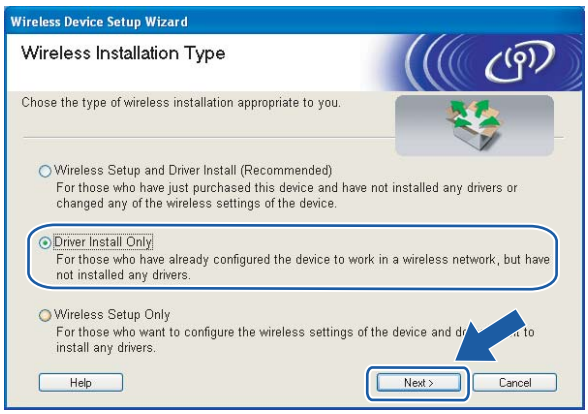
4. Click **Wireless Network users**.

Note

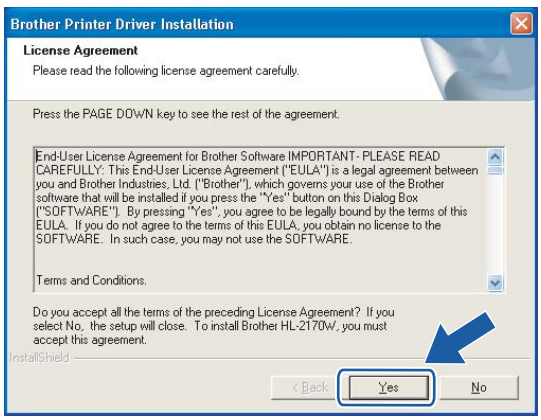
For Windows Vista®, when the **User Account Control** screen appears, click **Allow**.



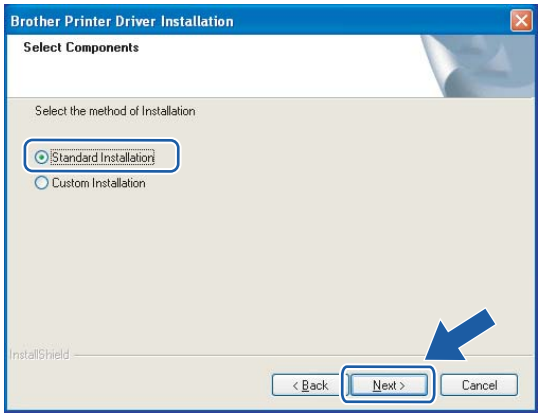
5 Choose **Driver Install Only**, and then click **Next**.



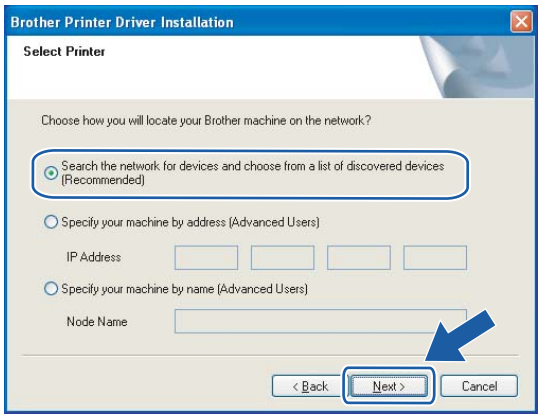
6 When the **License Agreement** window appears, click **Yes** if you agree to the License Agreement.



7 Choose **Standard Installation**, and then click **Next**.



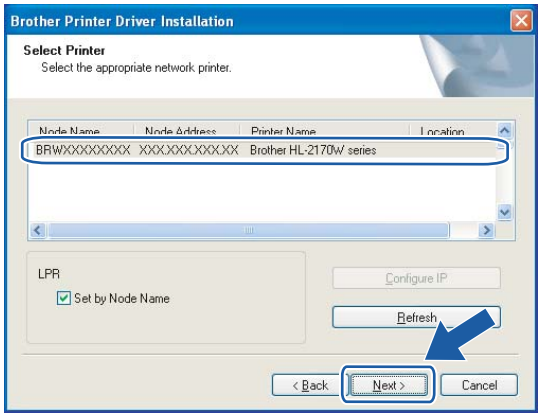
8 Choose **Search the network for devices and choose from a list of discovered devices (Recommended)**. Or enter your printer's IP address or its node name. Click **Next**.



Note

You can find your printer's IP address and the node name by printing out the Printer Settings Page. See Printing the Printer Settings Page on page 100.

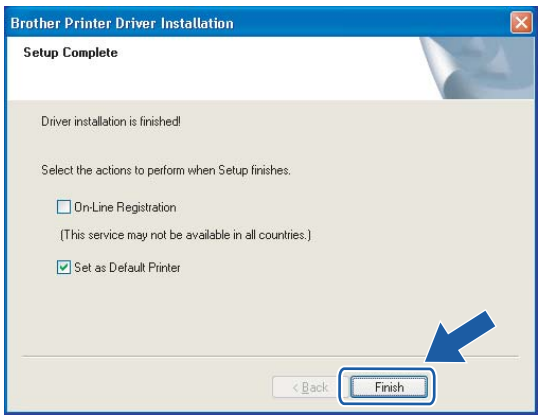
9 Choose your printer, and then click **Next**.



Note

If your printer takes a long time (about 1 minute) to appear on the list, click **Refresh**.

10 Click **Finish**.



Note

- If you want to register your product on-line, check **On-Line Registration**.
- If you do not want to set your printer as Default printer, uncheck **Set as Default Printer**.

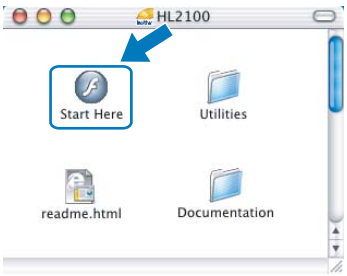
OK! **Setup is now complete.**

For Macintosh® users

Improper Setup

DO NOT try to cancel any of the screens during this installation.

1. Turn on your Macintosh®.
2. Put the supplied CD-ROM into your CD-ROM drive. Double-click the **HL2100** icon on your desktop. Double-click the **Start Here** icon. Choose your printer model and the language.



3. Click **Install Printer Driver** on the menu screen.

4. Click **Wireless Network users**.

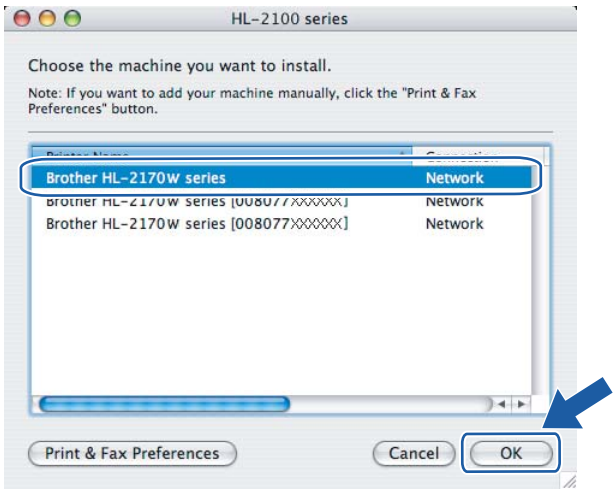
5 Choose **Driver Install Only**, and then click **Next**. Follow the on-screen instructions. Then, restart your Macintosh®.

For Mac OS® X 10.2.4 to 10.2.8 users: Go to step 8.
For Mac OS® X 10.3 or greater users: Go to step 6.

6 The Brother software will search for the Brother printer. During this time the following screen will appear.

Note

- If more than one printer is available, the following list appears. Choose the printer you wish to connect, and then click **OK**.

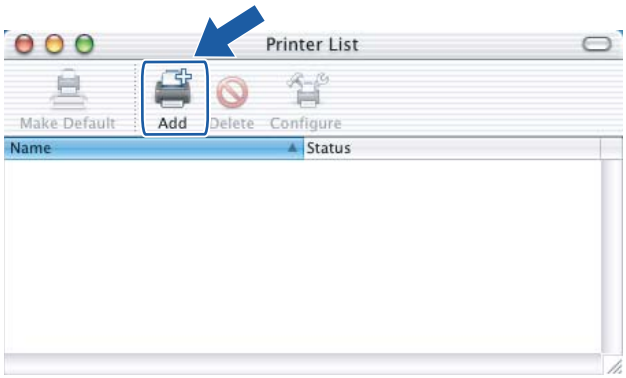


- If there is more than one of the same printer model connected on your network, the Ethernet address (MAC address) will be displayed after the model name.
- *You can find your printer's Ethernet address (MAC address) by printing out the Printer Settings Page. See Printing the Printer Settings Page* on page 100.

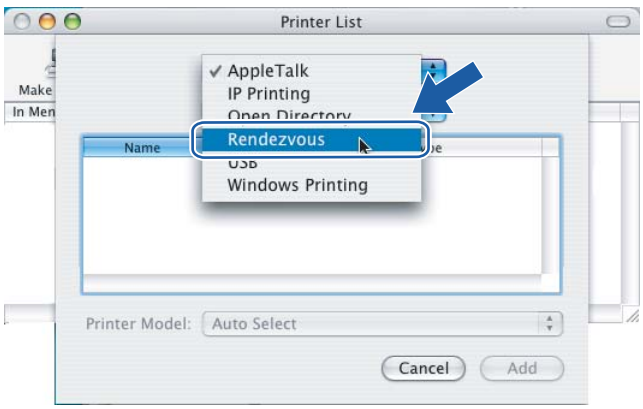
7 When this screen appears, click **OK**.

OK! **For Mac OS® X 10.3 or greater users:**
Setup is now complete.

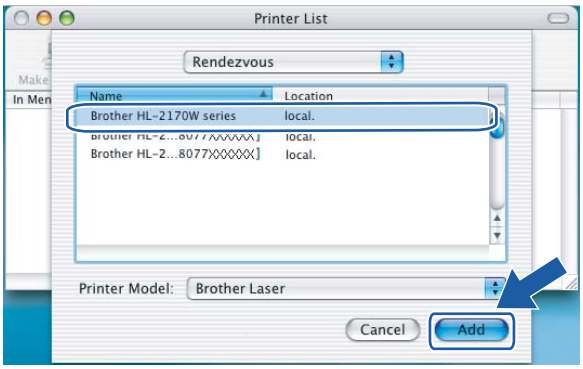
8 When this screen appears, click **Add**.



9 Make the following selection.



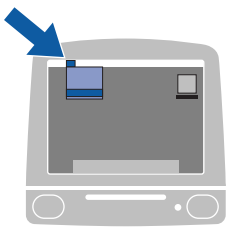
⑩ Choose your printer, and then click **Add**.



Note

- If there is more than one of the same printer model connected on your network, the Ethernet address (MAC address) will be displayed after the model name.
- *You can find your printer's Ethernet address (MAC address) by printing out the Printer Settings Page. See Printing the Printer Settings Page* on page 100.

⑪ Click **Print Center**, then **Quit Print Center**.



OK! **For Mac OS® X 10.2.4 to 10.2.8 users:**

Setup is now complete.

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

Overview

To connect your printer to your network, you need to follow the steps in the Quick Setup Guide. We recommend that you use the Brother installer application on the CD-ROM which we have provided with the printer. By using this application, you can easily connect your printer to your network and install the network software and printer driver which you need to complete the configuration of your printer for a network. You will be guided by the on-screen instructions until you are able to use your Brother network printer.

If you are a Windows® user and want to configure your printer without using the Brother installer application, use the TCP/IP protocol in a Peer-to-Peer environment. Please follow the instructions in this chapter. This chapter explains how to install the network software and the printer driver which you will need in order to use your network printer.

Note

- You must configure the IP address on your printer before you proceed with this chapter. If you need to configure the IP address, see *Chapter 2* first.
- 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.
- The default password for Brother print servers is `access`.

Configuring the standard TCP/IP port

Printer driver not yet installed

For Windows Vista®

1. Click the **Start** button, **Control Panel**, **Hardware and Sound**, and then **Printers**.
2. Click **Add a printer**.
3. Select **Add a local printer**.
4. You must now select the correct Network printing port. Select **Create a new port** and select **Standard TCP/IP Port** from the pull-down window, then click **Next**.
5. Select **TCP/IP Device** from the pull-down window of **Device type**. Enter the IP address, or the node name you wish to configure. The Wizard will automatically enter the Port name information for you, then click **Next**.
6. Windows Vista® will now contact the printer that you specified. If you did not specify the correct IP address or name then an error dialog will appear.

7. Now that you have configured the port, you must specify which printer driver you wish to use. Select the appropriate driver from the list of supported printers. If you are using a driver supplied with the printer on the CD-ROM then select the **Have Disk** option to browse to the CD-ROM.

8. For example, select the "X:\\install\your language\PCL\win2kxpvista [1]" folder (where X is your drive letter). Click **Open**.

   [1] "winxpx64vista64" folder for 64-bit OS users

9. Specify a name and click **Next**.

Note

- When the **User Account Control** screen appears, click **Continue**.
- If the printer driver that you are installing does not have a Digital Certificate you will see a warning message. Click **Install this driver software anyway** to continue with the installation.

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

For Windows® 2000/XP and Windows Server® 2003

1. For Windows® XP and Windows Server® 2003: Click the **Start** button and select **Printers and Faxes**.
   For Windows® 2000: Click the **Start** button, select **Settings** and then **Printers**.

2. For Windows® XP and Windows Server® 2003: Click **Add a printer** to start the **Add Printer Wizard**.
   For Windows® 2000: Double click the **Add Printer** icon to start the **Add Printer Wizard**.

3. Click **Next** when you see the **Welcome to the Add Printer Wizard** screen.

4. Select **Local printer** and deselect the **Automatically detect and install my Plug and Play printer** option, then click **Next**.

5. You must now select the correct Network printing port. Select **Create a new port** and select **Standard TCP/IP Port** from the pull-down window, then click **Next**.

6. The **Add Standard TCP/IP Printer Port Wizard** will now appear. Click **Next**.

7. Enter the IP address, or the node name you wish to configure. The Wizard will automatically enter the Port name information for you, then click **Next**.

8. Windows® 2000/XP and Windows Server® 2003 will now contact the printer that you specified. If you did not specify the correct IP address or name then an error dialog will appear.

9. Click **Finish** to complete the Wizard.

10. Now that you have configured the port, you must specify which printer driver you wish to use. Select the appropriate driver from the list of supported printers. If you are using a driver supplied with the printer on the CD-ROM then select the **Have Disk** option to browse to the CD-ROM.

11. For example, select the "X:\\install\your language\PCL\win2kxpvista [1]" folder (where X is your drive letter). Click **Open**.

    [1] "winxpx64vista64" folder for 64-bit OS users

12. Specify a name and click **Next**.
13. Continue through the Wizard clicking **Finish** when complete.

Printer driver already installed

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

1. For Windows Vista®:
   Click the **Start** button, **Control Panel**, **Hardware and Sound**, and then **Printers**.
   For Windows® XP and Windows Server® 2003:
   Click the **Start** button and select **Printers and Faxes**.
   For Windows® 2000:
   Click the **Start** button and select **Settings** and then **Printers**.
2. Right click on the printer driver you wish to configure, and then select **Properties**.
3. Click the **Ports** tab and click **Add Port**.
4. Select the port that you wish to use. Typically this would be **Standard TCP/IP Port**. Then click the **New Port...** button.
5. The **Standard TCP/IP Port Wizard** will start.
6. Enter the IP address of your network printer. Click **Next**.
7. Click **Finish**.
8. Close **Printer Ports** and **Properties** dialog box.

Other sources of information

How to configure the IP address of the printer, see *Configuring your printer for a network* on page 8.

9 Internet printing for Windows®

Overview

Windows® 2000/XP, Windows Vista® and Windows Server® 2003 users can print using TCP/IP and the standard Network Printing IPP protocol software built into Windows® 2000/XP, Windows Vista® and Windows Server® 2003.

Note

- You must configure the IP address on your printer before you proceed with this chapter. If you need to configure the IP address, see *Chapter 2* first.
- 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.
- The default password for Brother print servers is `access`.

IPP printing for Windows® 2000/XP, Windows Vista® and Windows Server® 2003

Use the following instructions if you wish to use the IPP printing capabilities of Windows® 2000/XP, Windows Vista® and Windows Server® 2003.

For Windows Vista®

1. Click the **Start** button, **Control Panel**, **Hardware and Sound**, and then **Printers**.
2. Click **Add a printer**.
3. Select **Add a network, wireless or Bluetooth printer**.
4. Click **The printer that I want isn't listed**.
5. Select **Select a shared printer by name** and then enter the following in the URL field: `http://printer_ip_address:631/ipp` (Where `printer_ip_address` is the IP address or the node name).

Note

If you have edited the hosts file on your computer or are using a Domain Name System, you can also enter the DNS name of the print server. As the print server supports TCP/IP and NetBIOS, you can also enter the NetBIOS name of the print server. The NetBIOS name can be seen in the printer settings page. The NetBIOS name assigned is the first 15 characters of the node name and by default it will appear as "BRNxxxxxxxxxxxx" for a wired network or "BRWxxxxxxxxxxxx" for a wireless network.

6 When you click **Next**, Windows Vista® will make a connection with the URL that you specified.

■ If the printer driver has already been installed:

1 You will see the printer selection screen in the **Add Printer** wizard. Click **OK**.

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

2 Go to ⓫.

■ If the printer driver has NOT been installed:

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

Go to ❼.

7 If your printer is not in the list of supported printers, click **Have Disk**. You will then be asked to insert the driver disk.

8 Click **Browse** and select the appropriate Brother printer driver that is contained in the CD-ROM or in the network share.

For example, select the “X:\\install\your language\PCL\win2kxpvista [1]” folder (where X is your drive letter). Click **Open**.

[1] “winxpx64vista64” folder for 64-bit OS users

9 Click **OK**.

10 Specify the model name of the printer. Click **OK**.

Note

- When the **User Account Control** screen appears, click **Continue**.
- If the printer driver that you are installing does not have a Digital Certificate you will see a warning message. Click **Install this driver software anyway** to continue with the installation. The **Add Printer** wizard will then complete.

11 You will see the **Type a printer name** screen in the **Add Printer** wizard. Check the **Set as the default printer** check box if you want to use this printer as the default printer, and then click **Next**.

12 To test the printer connection, click **Print a test page**, and then click **Finish** and the printer is now configured and ready to print.

For Windows® 2000/XP and Windows Server® 2003

1. For Windows® XP and Windows Server® 2003: Click the **Start** button and select **Printers and Faxes**.
   For Windows® 2000: Click the **Start** button, select **Settings** and then **Printers**.
2. For Windows® XP and Windows Server® 2003: Click **Add a printer** to start the **Add Printer Wizard**.
   For Windows® 2000: Double click the **Add Printer** icon to start the **Add Printer Wizard**.
3. Click **Next** when you see the **Welcome to the Add Printer Wizard** screen.
4. Select **Network printer**.
   For Windows® XP and Windows Server® 2003: Make sure that you select **A network printer, or a printer attached to another computer**.
   For Windows® 2000: Make sure that you select **Network Printer**.
5. Click **Next**.
6. For Windows® XP and Windows Server® 2003: Select **Connect to a printer on the Internet or on a home or office network** and then enter the following in the URL field: `http://printer_ip_address:631/ipp` (Where `printer_ip_address` is the IP address or the node name).
   For Windows® 2000: Select **Connect to a printer on the Internet or on your intranet** and then enter the following in the URL field: `http://printer_ip_address:631/ipp` (Where `printer_ip_address` is the IP address or the node name).

Note

If you have edited the hosts file on your computer or are using a Domain Name System, you can also enter the DNS name of the print server. As the print server supports TCP/IP and NetBIOS, you can also enter the NetBIOS name of the print server. The NetBIOS name can be seen in the printer settings page. The NetBIOS name assigned is the first 15 characters of the node name and by default it will appear as “BRNxxxxxxxxxxxx” for a wired network or “BRWxxxxxxxxxxxx” for a wireless network.

7. When you click **Next**, Windows® 2000/XP and Windows Server® 2003 will make a connection with the URL that you specified.
   - If the printer driver has already been installed:
     1. You will see the printer selection screen in the **Add Printer Wizard**.
        If the appropriate printer driver is already installed on your computer, Windows® 2000/XP and Windows Server® 2003 will automatically use that driver. In this case, you will simply be asked if you wish to make the driver the default printer, after which the Driver installation wizard will complete. You are now ready to print.
     2. Go to ⓬.
   - If the printer driver has NOT been installed:

     One of the benefits of the IPP printing protocol is that it establishes the model name of the printer when you communicate with it. After successful communication you will see the model name of the

printer automatically. This means that you do not need to inform Windows® 2000 about the type of printer driver to be used.

Go to ❽.

❽ The driver installation starts automatically.

Note

If the printer driver that you are installing does not have a Digital Certificate you will see a warning message. Click **Continue Anyway** [1] to continue with the installation.

[1] **Yes** for Windows® 2000 users

❾ For Windows® XP and Windows Server® 2003: Click **Have Disk**. You will then be asked to insert the driver disk.

For Windows® 2000: Click **OK** when you see the **Insert Disk** screen.

❿ Click **Browse** and select the appropriate Brother printer driver that is contained in the CD-ROM or in the network share.

For example, select the “X:\\install\your language\PCL\win2kxpvista [1]” folder (where X is your drive letter). Click **Open**.

[1] “winxpx64vista64” folder for 64-bit OS users

⓫ Click **OK**.

⓬ Check **Yes** if you want to use this printer as the default printer. Click **Next**.

⓭ Click **Finish** and the printer is now configured and ready to print. To test the printer connection, print a test page.

Specifying a different URL

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

http://printer_ip_address:631/ipp

This is the default URL and we recommend that you use this URL.

http://printer_ip_address:631/ipp/port1

This is for HP® Jetdirect® compatibility.

http://printer_ip_address:631/

If you forget the URL details, you can simply enter the above text (http://printer_ip_address/) and the printer will still receive and process data.

Where printer_ip_address is the IP address or the node name.

Other sources of information

How to configure the IP address of the printer, see *Configuring your printer for a network* on page 8.

10 Network printing from Macintosh®

Overview

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

Printing from a Macintosh® using the Simple Network Configuration capabilities

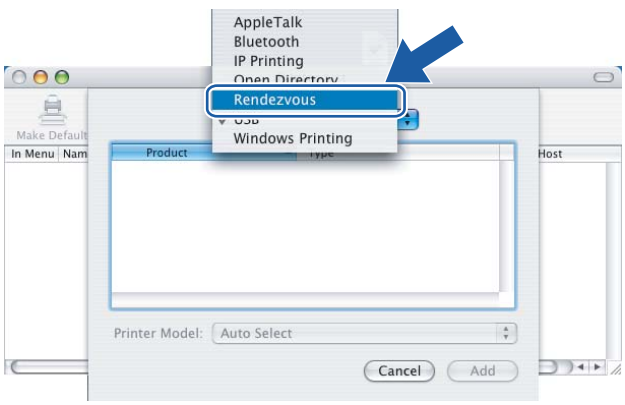
With the release of Mac OS® X 10.2, Apple® introduced Simple Network Configuration capabilities.

The Simple Network Configuration capabilities of Mac OS® X lets you create an instant network of computers and smart devices by connecting them to each other. The smart devices automatically configure themselves to be compatible with your network. Before using the Simple Network Configuration capabilities, you must install the printer driver. For installing the printer driver, see the Quick Setup Guide we provided with the printer.

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

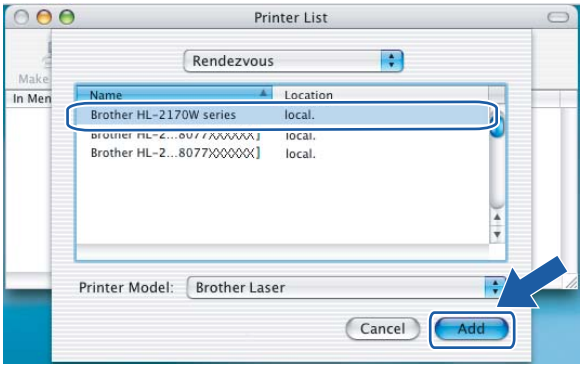
How to select the printer driver

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

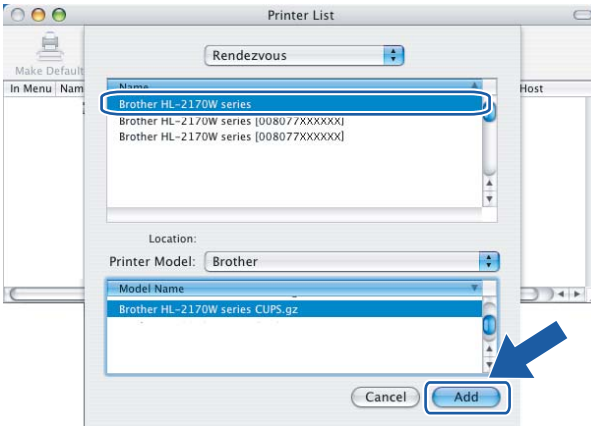


6 Choose your printer and then click **Add**. The printer is now ready to print.

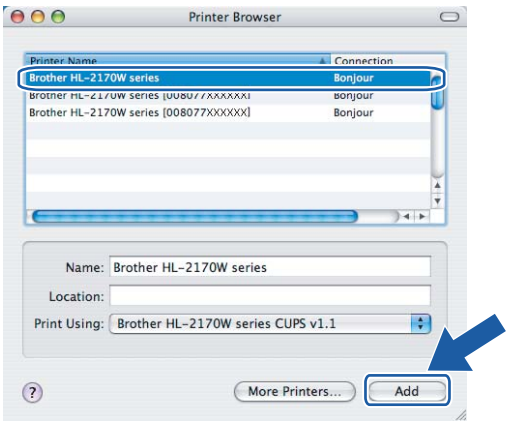
(Mac OS® X 10.2.x)



(Mac OS® X 10.3.x)



(Mac OS® X 10.4.x)



Other sources of information

How to configure the IP address of the printer, see *Configuring your printer for a network* on page 8.

11 Control panel features

Overview

With the **Go** button on the control panel you can do the following:

Print the Printer Settings Page

See *Printing the Printer Settings Page* on page 100 for information on how to print the Printer Settings Page.

Restore the network settings to factory default

See *Restoring the network settings to factory default* on page 100 for information on how to restore the network settings to factory default.

Enable or Disable the wireless network (For HL-2170W)

See *Enabling or disabling the wireless network (For HL-2170W)* on page 101 for information on how to enable/disable the wireless network.

Printing the Printer Settings Page

Note

Node name: Node name appears in the Printer Settings Page. The default Node name of the network card in the printer is “BRNxxxxxxxxxxxx” for a wired network or “BRWxxxxxxxxxxxx” for a wireless network.

The Printer Settings Page prints a report listing all the current printer settings including the network print server settings. You can print the Printer Settings Page using the **Go** button of the printer.

1. Make sure that the front cover is closed and the power cord is plugged in.
2. Turn on the printer and wait until the printer is in the Ready state.
3. Press **Go** three times within 2 seconds. The printer will print the current printer settings page.

Restoring the network settings to factory default

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

1. Turn off the printer.
2. Make sure that the front cover is closed and the power cord is plugged in.
3. Hold down the **Go** button as you turn on the power switch. Keep the **Go** button pressed down until the **Toner**, **Drum** and **Error** LEDs light up. Release the **Go** button. Make sure that all the LEDs turn off.

4 Press the **Go** button seven times. Make sure that all the LEDs light up to indicate the print server has been reset to its default settings.

Note

You can reset the print server back to its default factory settings using the BRAdmin applications or Web Based Management (web browser). For more information, see *Changing the print server settings* on page 12.

Enabling or disabling the wireless network (For HL-2170W)

If you want to switch the wireless network to enabled/disabled, please follow these steps:

1 Make sure that the power cord is plugged in.

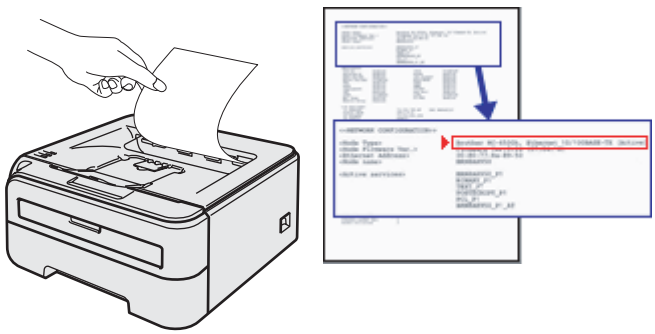
2 Turn on the printer and wait until the printer is in the Ready state.

3 Hold down the **Go** button for 10 seconds. Release the **Go** button when the printer prints a Network Configuration page that indicates the current network settings.

Note

If you release the **Go** button in less than 10 seconds, the printer will change to the reprint mode.

4 Check the text to the right side of **IEEE 802.11b/g** in the **Node Type** section. **Active** means that the wireless setting is enabled and **Inactive** means that the wireless setting is disabled.



Note

You can switch the wireless network to enabled/disabled, using the BRAdmin applications or Web Based Management (web browser). For more information, see *Changing the print server settings* on page 12.

12 Security methods

Overview

This chapter explains the security methods supported by your printer and how to configure them. You can also learn how to manage your network printer securely.

Security methods for E-mail notification

The Brother machine supports the following security methods for E-mail notification.

POP before SMTP (PbS)

A 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.

Using E-mail notification with user authentication

To use the E-mail notification function via a secure SMTP server that requires a user authentication, you need to use POP before SMTP or SMTP-AUTH method. These methods prevent an unauthorized user from accessing the mail server. You can use Web Based Management (web browser), BRAdmin Professional and Web BRAdmin to configure these settings.

Note

You need to match the settings of POP3/SMTP authentication with one of the E-mail servers. Contact your network administrator or your internet service provider about the configuration before using.

How to configure the POP3/SMTP settings using Web Based Management (web browser).

1. Start your web browser.
2. Type `http://printer_ip_address/` into your browser. (Where `printer_ip_address` is the IP address or the node name)
   - For example:

     `http://192.168.1.2/` (if the printer's IP address is 192.168.1.2.)

Note

If you have edited the hosts file on your computer or are using a Domain Name System, you can also enter the DNS name of the print server. As the print server supports TCP/IP and NetBIOS, you can also enter the NetBIOS name of the print server. The NetBIOS name can be seen on the printer settings page. The NetBIOS name assigned is the first 15 characters of the node name and by default it will appear as "BRNxxxxxxxxxxxx" for a wired network or "BRWxxxxxxxxxxxx" for a wireless network.

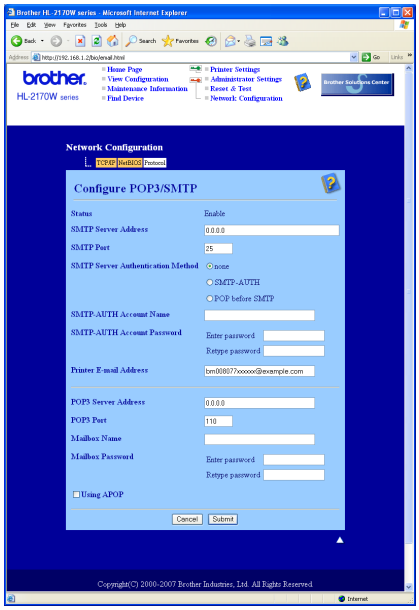
3. Click **Network Configuration**.
4. Enter a user name and a password.

Note

The login name for the Administrator is "`admin`" (case sensitive) and the default password is "`access`".

5. Click **Configure Protocol**.
6. Make sure that the POP3/SMTP setting is **Enable**, and then click **Advanced Setting** of **POP3/SMTP**.

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



Note

- You can also 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, and you are not using the ISP’s SMTP server. By changing the SMTP port number to a specific number which your SMTP server decide (for example, port 587), you can still send an E-mail via the SMTP server you currently use. You will also need to check **SMTP-AUTH** of **SMTP Server Authentication Method** to enable the SMTP server authentication.
- 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 POP3 settings. You can also use the APOP method.
- 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.

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

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

Managing your network printer securely using BRAdmin Professional (for Windows®)

To use the BRAdmin Professional utility securely, you need to follow the points below.

- We strongly recommend to use the latest version of the BRAdmin Professional 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 devices the user authentication will not be secure.
- If you want to avoid access to your printer from older versions of BRAdmin [1], you need to disable the access from older versions of BRAdmin [1] from the **Advanced Setting** of **SNMP** on the **Configure Protocol** page using Web Based Management (web browser). See *How to configure the print server settings using Web Based Management (web browser)* on page 107.
- Disable the TELNET, 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 print server settings using Web Based Management (web browser)* on page 107.
- If you are managing a mixed group of older print servers [2] and the new NC-6600h or NC-7400w print server with BRAdmin Professional, we recommend using a different password in each group.

[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

13 Web Based Management

Overview

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

- View the printer status, configuration and maintenance information details
- View the software version information of the printer and print server
- Change the printer setting
- Change the print server settings
- Print the test page, the printer settings page and the network configuration page
- Restoring the printer settings to its factory reset
- Restoring the network settings to its factory reset

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

Note

- To learn how to configure the IP address on your printer, see *Setting the IP address and subnet mask* on page 10.
- You can use a web browser on most computing platforms, for example, Macintosh® and UNIX® users are also able to connect to the machine and manage it.
- You can also use the BRAdmin applications to manage the printer and its network configuration.

How to configure the print server 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).

Note

We recommend Microsoft Internet Explorer 6.0® (or greater) or Firefox® 1.0 (or greater) for Windows® and Safari™ 1.0 for Macintosh®. Please also make sure that JavaScript and Cookies are always enabled in whichever browser you use. We recommend you upgrade to Safari™ 1.2 or greater to enable JavaScript. To use a web browser, you will need to know the IP address of the print server.

1. Start your web browser.
2. Type `http://printer_ip_address/` into your browser. (Where `printer_ip_address` is the IP address or the node name)
   - For example:

     `http://192.168.1.2/` (if the printer's IP address is 192.168.1.2.)

Note

- If you have edited the hosts file on your computer or are using a Domain Name System, you can also enter the DNS name of the print server. As the print server supports TCP/IP and NetBIOS, you can also enter the NetBIOS name of the print server. The NetBIOS name can be seen on the printer settings page. The NetBIOS name assigned is the first 15 characters of the node name and by default it will appear as "BRNxxxxxxxxxxxx" for a wired network or "BRWxxxxxxxxxxxx" for a wireless network.
- For Macintosh® users, you can also have easy access to Web Based Management by clicking the machine icon on **Status Monitor** screen.

3. Click **Network Configuration**.
4. Enter a user name and a password.

Note

Web Based Management offers two levels of password access. Users are able to access to **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`".

5. Click **OK**.
6. You can now change the print server settings.

14 Driver Deployment Wizard (Windows® only)

Overview

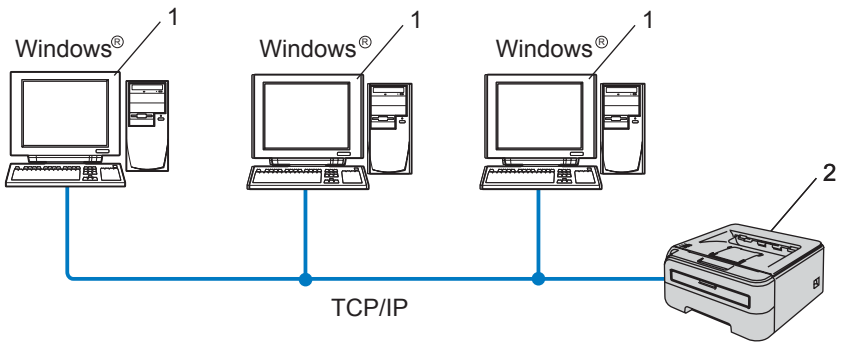
The Driver Deployment Wizard software can be used to ease the installation or even automate the installation of a locally connected or network connected printer. The Driver Deployment Wizard can also be used to create self running executable files which when run on a remote PC, completely automates the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

Connection methods

The Driver Deployment Wizard supports the three connection methods.

Peer-to-peer

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

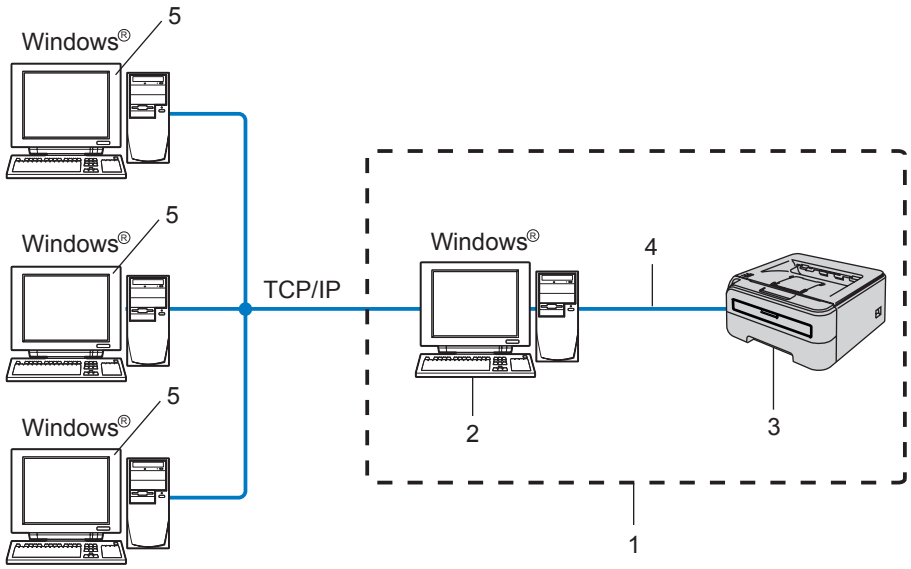


1 Client Computer

2 Network printer

Network Shared

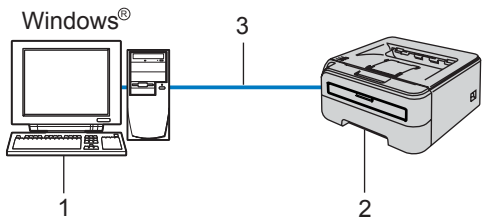
The device is connected to a network and a central print queue is used to manage all print jobs.



1 Network Shared
2 Print server
3 Network printer
4 TCP/IP or USB
5 Client Computer

Local Printer (USB)

The device is connected to the computer using an USB cable.



1 Client Computer
2 Printer
3 USB

How to install the Driver Deployment Wizard software

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

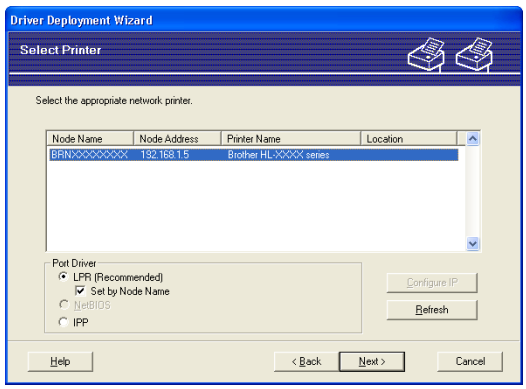
Note

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

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

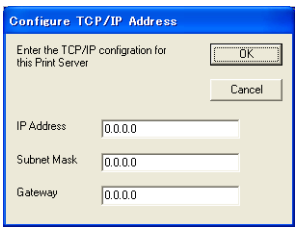
Using the Driver Deployment Wizard software

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



■ **Setting the IP Address**

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



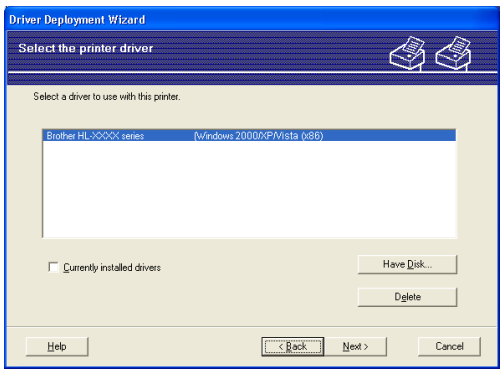
5 Choose the printer driver if you wish to install.

■ If the printer driver you wish to use is installed on your computer:

Check the box of **Currently installed drivers** and choose the printer you wish to install, and then click **Next**.

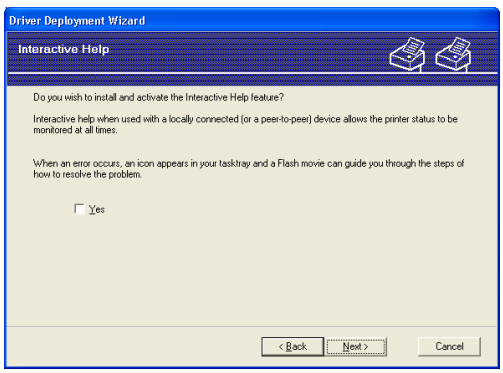
■ If the driver you wish to use is not installed on your computer:

Click **Have Disk** and then specify the path of the printer driver.

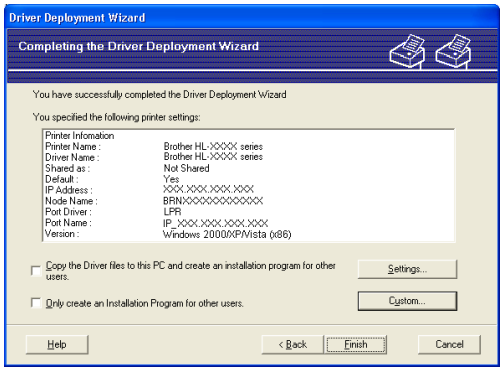


6 Click **Next** after you choose the correct driver.

7 Check **Yes** if you want to install the Interactive Help feature and then click **Next**.



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



■ Creating an executable file

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

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

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

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

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

Note

- If you work in a "queue" based network and you create an executable file for another user who does not have access to the same printer queue that you define into the executable file, the driver when installed on the remote computer will default to LPT1 printing.
- If you check the box of **Currently installed drivers** in ❺, you can change the default settings of the printer driver, such as paper size by clicking **Custom...**.

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

15 Troubleshooting

Overview

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

This chapter is divided into the following sections:

- General problems
- Network print software installation problems
- Printing problems
- Protocol-specific troubleshooting

General problems

CD-ROM is inserted, but does not start automatically

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

My computer cannot find the printer/print server
I cannot make a necessary connection to the printer/print server.
My printer/print server does not appear in the window of BRAdmin Light or BRAdmin Professional

- For Windows®

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

  Windows Vista® users:

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

Note

After the Brother software is installed, restart your Firewall.

Windows® XP SP2 users:

1. Click the **Start** button, **Settings**, and then **Control Panel**.
2. Double click **Windows Firewall**.
3. Click the **General** tab. Verify that **Off (not recommended)** is selected.
4. Click **OK**.

Note

After the Brother software is installed, restart your Firewall.

■ For Macintosh®

Re-select your printer in the DeviceSelector application located in the Macintosh **Macintosh HD** (Startup Disk) / **Library** / **Printers** / **Brother** / **Utilities**.

Network print software installation problems

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

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

Check the following:

1. Make sure that the printer is powered on, is on-line and ready to print.
2. **For wired network users:**
   Check to see if there is any LED activity. Brother print servers have two LEDs on the back panel of the printer. The lower green LED shows Link/Activity (Received/Transmit) status. The upper orange LED shows Speed status.
   - No light: If the lower LED is off, then the print server is not connected to the network.
   - The lower LED is green: The Link/Activity LED will be green if the print server is connected to a Ethernet network.
   - The upper LED is orange: The Speed LED will be orange if the print server is connected to a 100BASE-TX Fast Ethernet network.
   - The upper LED is off: The Speed LED will be off if the print server is connected to a 10BASE-T Ethernet network.
3. Print the Printer Settings Page and check if the settings such as IP address settings are correct for your network. The problem may be the result of a mismatched or duplicate IP address. Verify that the IP address is correctly loaded into the print server, and make sure that no other nodes on the network have this IP address. For information on how to print the Printer Settings Page, see *Printing the Printer Settings Page* on page 100.

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

■ For Windows®

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

`ping ipaddress`

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

■ For Macintosh®

1. From the **Go** menu, select **Applications**.
2. Open the **Utilities** folder.
3. Double click the **Terminal** icon.
4. Try pinging the print server from the Terminal window:
   `ping ipaddress`
   Where `ipaddress` is the print server IP address (note that in some instances it can take up to two minutes for the print server to load its IP address after setting the IP address).

5 If you have tried ❶ to ❹ above and it does not work, then reset the print server back to the default factory settings and try from the initial setup again. For information on how to reset to the default factory settings, see *Restoring the network settings to factory default* on page 100.

6 (For Windows®) If the installation failed, the Firewall on your computer may be blocking the necessary network connection to the printer. In this case, you will need to disable the Firewall on your computer and re-install the drivers. After you re-install the drivers verify you can print and then turn your Firewall back on. For information on how to disable the Firewall, see *For Windows®* on page 113.

Printing problems

Print job is not printed

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

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

   - For Windows®

     1. Try pinging the print server from the host operating system command prompt with the command:
        `ping ipaddress`
        Where `ipaddress` is the print server IP address (note that in some instances it can take up to two minutes for the print server to load its IP address after setting the IP address).
     2. If a successful response is received, then proceed to Windows® 2000/XP, Windows Vista® and Windows Server® 2003 IPP troubleshooting. Otherwise, proceed to ❹.

   - For Macintosh®

     1. From the **Go** menu, select **Applications**.
     2. Open the **Utilities** folder.
     3. Double click the **Terminal** icon.
     4. Try pinging the print server from the Terminal window:
        `ping ipaddress`
        Where `ipaddress` is the print server IP address (note that in some instances it can take up to two minutes for the print server to load its IP address after setting the IP address).

4. If you have tried ❶ to ❸ above and it does not work, then reset the print server back to the default factory settings and try from the initial setup again. For information on how to reset to the default factory settings, see *Restoring the network settings to factory default* on page 100.

Error during printing

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

Protocol-specific troubleshooting

Windows® 2000/XP, Windows Vista® and Windows Server® 2003 IPP troubleshooting

I want to use a different Port number other than 631.

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

To send a print job using IPP to a printer using Port 80 (the standard HTTP port) enter the following when configuring your Windows® 2000/XP, Windows Vista® and Windows Server® 2003 system.

`http://ip_address/ipp`

The Get More Info option in Windows® 2000 is not working

If you are using a URL of:

`http://ip_address:631/ipp`,

the **Get More Info** option in Windows® 2000 will not function. If you wish to use the **Get More Info** option, use the following URL:

`http://ip_address`

This will then force Windows® 2000/XP, Windows Vista® and Windows Server® 2003 to use Port 80 to communicate with the Brother print server.

Web Based Management (web browser) troubleshooting (TCP/IP)

1. If you cannot connect to the print server using your web browser it may be worth checking the Proxy Settings of your browser. Look in the Exceptions setting and if necessary, type in the IP address of the print server. This will stop your computer from trying to connect to your ISP or proxy server every time you wish to look at the print server.

2. Make sure that you are using the correct web browser, we recommend Microsoft Internet Explorer 6.0® (or greater) or Firefox® 1.0 (or greater) for Windows® and Safari™ 1.0 for Macintosh®. Please also make sure that JavaScript and Cookies are always enabled in whichever browser you use. We recommend you upgrade to Safari™ 1.2 or greater to enable JavaScript.

Wireless network troubleshooting

Wireless setup problems

The Brother print server is not found during setup using the Brother installer application on the CD-ROM.

1. Make sure that the printer is powered on, is on-line and ready to print.
2. Move your machine closer to the wireless access point / router and try again.
3. Reset the print server back to its default factory settings and try again. For the information how to reset to the factory default settings, see *Restoring the network settings to factory default* on page 100.

Why do I have to change my printer's network setting to "Wired LAN" during setup although I am trying to setup Wireless LAN?

If you are using Windows® 2000, Mac OS® X 10.2.4 or greater or your computer is connected to the wireless network using a network cable, it is recommended you temporarily connect the printer to your access point / router, hub or router using a network cable. You will also need to change your printer's network setting to wired LAN temporarily. Your printer's network setting will be changed to wireless LAN automatically or during the course of the setup.

For Windows®:

Configuration in Infrastructure mode on page 24

Configuration using the automatic wireless (one-push) method on page 31

Configuration in Ad-hoc mode on page 36

For Macintosh®:

Configuration in Infrastructure mode on page 47

Configuration using the automatic wireless (one-push) method on page 54

Configuration in Ad-hoc mode on page 59

Wireless connection problem

The wireless network connection is sometimes disabled.

The wireless network connection status is affected by the environment where the Brother printer and other wireless devices are located. The following conditions may cause connection problems:

- A concrete or metal framed wall is installed between the Brother machine and the access point / router.
- Electric appliances such as televisions, computer appliances, microwave ovens, intercoms, mobile/cellular phones and the battery chargers and AC power adapters are installed close to your network.
- A broadcast station or high-tension wire is located close to your network.
- A fluorescent light is being switching ON or OFF.

A Appendix A

Using services

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

Service (Example)	Definition
BINARY_P1	TCP/IP binary, NetBIOS service
TEXT_P1	TCP/IP text service (adds carriage return after each line feed)
PCL_P1	PCL® service (switches PJL-compatible printer to PCL® mode)

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

For information on how to configure your network printer using the BRAdmin Light utility or Web Based Management (web browser), see *Setting the IP address and subnet mask* on page 10.

Using DHCP to configure the IP address

The Dynamic Host Configuration Protocol (DHCP) is one of several automated mechanisms for IP address allocation. If you have a DHCP server in your network, the print server will automatically obtain its IP address from 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 (web browser).

Using BOOTP to configure the IP address

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

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

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

Note

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

```
BRN008077310107 1 00:80:77:31:01:07 192.168.1.2
```

and:

```
BRN008077310107: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 printer is powered on.

Using RARP to configure the IP address

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

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

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

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

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

For AT&T UNIX®-based systems, type:

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

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

Using APIPA to configure the IP address

The Brother print server supports the Automatic Private IP Addressing (APIPA) protocol. With APIPA, 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 the BRAdmin applications or Web Based Management (web browser). For more information, see *Changing the print server settings* on page 12.

If the APIPA protocol is disabled, the IP address of a Brother print server is 192.0.0.192. However, you can easily change this IP address number to match with the IP address details of your network.

Using ARP to configure the IP address

If you are unable to use the BRAdmin applications 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 Ethernet address (MAC address) of the print server and `ipaddress` is the IP address of the print server. For example:

Windows® systems

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

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

UNIX®/Linux systems

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

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

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 printer's IP address. But a valid IP address must already be programmed into the print server.

Type `TELNET ipaddress` at the command prompt of the system prompt, where `ipaddress` is the IP address of the print server. When you are connected, push the Return or Enter key to get the "#" prompt, enter 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 CTR-D (i.e., hold down the control key and type "D") to end the remote console session.

Using the Brother Web BRAdmin server software for IIS* to configure the IP address

The Web BRAdmin server software is designed to manage all LAN/WAN Brother network connected devices. By installing the Web BRAdmin server software on a computer running IIS [1], Administrators with a web browser can connect to the Web BRAdmin server, which then communicates with the device itself. Unlike the BRAdmin Professional utility - which is designed for Windows® systems only - the Web BRAdmin server software can be accessed from any client computer with a web browser that supports Java.

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

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

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

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

Note

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

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

Note

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

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

Installation when using a Network Print Queue or Share

Note

If you are going to connect to a shared printer on your network, we recommend that you ask your system administrator about the queue or share name for the printer prior to installation.

Installing the driver and choosing the correct printer queue or share name

1. Turn on your computer. (You must be logged on with Administrator rights.)
   Close any applications running before configuration.
2. Put the supplied CD-ROM into your CD-ROM drive. The opening screen will appear automatically.
   Choose your printer model and the language.
3. Click **Install Printer Driver** on the menu screen.

Note

Choose the **Install Printer Driver** icon for your region.

4. Click **Network cable users**.

Note

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

5. When the **License Agreement** window appears, click **Yes** if you agree to the License Agreement.
6. Choose **Network Shared Printer**, and then click **Next**.
7. Choose your printer's queue, and then click **OK**.

Note

Contact your administrator if you do not know the location or the name of the printer in the network.

8. Click **Finish**.

Note

- If you want to register your product on-line, check **On-Line Registration**.
- If you do not want to set your printer as Default printer, uncheck **Set as Default Printer**.

OK! **Setup is now complete.**

B Appendix B

Print server specifications

Ethernet wired network

Network node type	NC-6600h	
Operating system support	Windows® 2000/XP, Windows® XP Professional x64 Edition, Windows Vista®, Windows Server® 2003, 2003 x64 Edition, Mac OS® X 10.2.4 or greater	
Protocol support	TCP/IP: IPv4	ARP, RARP, BOOTP, DHCP, APIPA (Auto IP), WINS, NetBIOS name resolution, DNS resolver, mDNS, LPR/LPD, Custom Raw Port/Port9100, IPP, FTP Server, POP before SMTP, SMTP-AUTH, TELNET, SNMPv1, HTTP Server, TFTP client and server, SMTP Client, APOP, ICMP, LLTD responder, LLMNR responder, Web Services
	TCP/IP: IPv6 [1]	NDP, RA, DNS resolver, mDNS, LPR/LPD, Custom Raw Port/Port9100, IPP, FTP Server, POP before SMTP, SMTP-AUTH, TELNET, SNMPv1, HTTP Server, TFTP client and server, SMTP Client, APOP, ICMPv6, LLTD responder, LLMNR responder, Web Services
Network type	10/100BASE-TX Ethernet network	
Network printing	Windows® 2000/XP, Windows Vista® and Windows Server® 2003 TCP/IP printing Mac OS® X 10.2.4 or greater printing	

[1] If you want to use the IPv6 protocol, visit http://solutions.brother.com for more information.

Ethernet wireless network

Network node type	NC-7400w	
Operating system support	Windows® 2000/XP, Windows® XP Professional x64 Edition, Windows Vista®, Windows Server® 2003, 2003 x64 Edition, Mac OS® X 10.2.4 or greater	
Protocol support	TCP/IP: IPv4	ARP, RARP, BOOTP, DHCP, APIPA (Auto IP), WINS, NetBIOS name resolution, DNS resolver, mDNS, LPR/LPD, Custom Raw Port/Port9100, IPP, FTP Server, POP before SMTP, SMTP-AUTH, TELNET, SNMPv1, HTTP Server, TFTP client and server, SMTP Client, APOP, ICMP, LLTD responder, LLMNR responder, Web Services
	TCP/IP: IPv6 [1]	NDP, RA, DNS resolver, mDNS, LPR/LPD, Custom Raw Port/Port9100, IPP, FTP Server, POP before SMTP, SMTP-AUTH, TELNET, SNMPv1, HTTP Server, TFTP client and server, SMTP Client, APOP, ICMPv6, LLTD responder, LLMNR responder, Web Services
Network type	IEEE 802.11b/g wireless	
Frequency	2412-2472 MHz	
RF channels	US/Canada	1-11
	Europe/Oceania	1-13
	Japan	802.11b: 1-14, 802.11g: 1-13
Communication mode	Infrastructure, Ad-hoc (802.11b only)	
Data rates	802.11b	11/5.5/2/1 Mbps
	802.11g	54/48/36/24/18/12/11/9/6/5.5/2/1 Mbps
Link distance	70 m (233 ft.) at lowest data rate (The distance rate will vary upon environment and other equipment location.)	
Network security	SSID/ESSID, 128 (104) / 64 (40) bit WEP, WPA/WPA2-PSK (TKIP/AES), LEAP (CKIP)	
Network printing	Windows® 2000/XP, Windows Vista® and Windows Server® 2003 TCP/IP printing Mac OS® X 10.2.4 or greater printing	

[1] If you want to use the IPv6 protocol, visit http://solutions.brother.com for more information.

Computer requirements

Computer Platform & Operating System Version		Processor Minimum Speed	Minimum RAM	Recommended RAM	Hard Disk Space to install
Windows® Operating System	Windows® 2000 Professional	Intel® Pentium® II or equivalent	64 MB	256 MB	50 MB
	Windows® XP Home Edition		128 MB		
	Windows® XP Professional				
	Windows® XP Professional x64 Edition	64-bit (Intel®64 or AMD64) supported CPU	256 MB	512 MB	
	Windows Vista®	Intel® Pentium® 4 or equivalent 64-bit (Intel®64 or AMD64) supported CPU	512 MB	1 GB	
	Windows Server® 2003	Intel® Pentium® III or equivalent	256 MB	512 MB	
	Windows Server® 2003 x64 Edition	64-bit (Intel®64 or AMD64) supported CPU			
Macintosh® Operating System [1]	Mac OS® X 10.2.4 - 10.4.3	PowerPC G4/G5 PowerPC G3 350MHz	128 MB	256 MB	80 MB
	Mac OS® X 10.4.4 or greater	PowerPC G4/G5 Intel® Core™ Processor	512 MB	1 GB	

[1] Third party USB ports are not supported.

Management utilities

BRAdmin Light	Windows® 2000/XP/XP Professional x64 Edition, Windows Vista®, Windows Server® 2003/2003 x64 Edition
	Mac OS® X 10.2.4 or greater
BRAdmin Professional [1]	Windows® 2000/XP/XP Professional x64 Edition, Windows Vista®, Windows Server® 2003/2003 x64 Edition
Web BRAdmin [1]	Windows NT® 4.0, Windows® 2000 Professional / Server / Advanced Server, Windows® XP Professional/XP Professional x64 Edition, Windows Vista®, Windows Server® 2003/2003 x64 Edition

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

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