N4050e Wireless Print Server

User's Guide

August 2004 **www.lexmark.com**

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740 West New Circle Road
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Edition: August 2004

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N4050e Print Server

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- Conforms to Lexmark’s official published specifications
- Is in good working order

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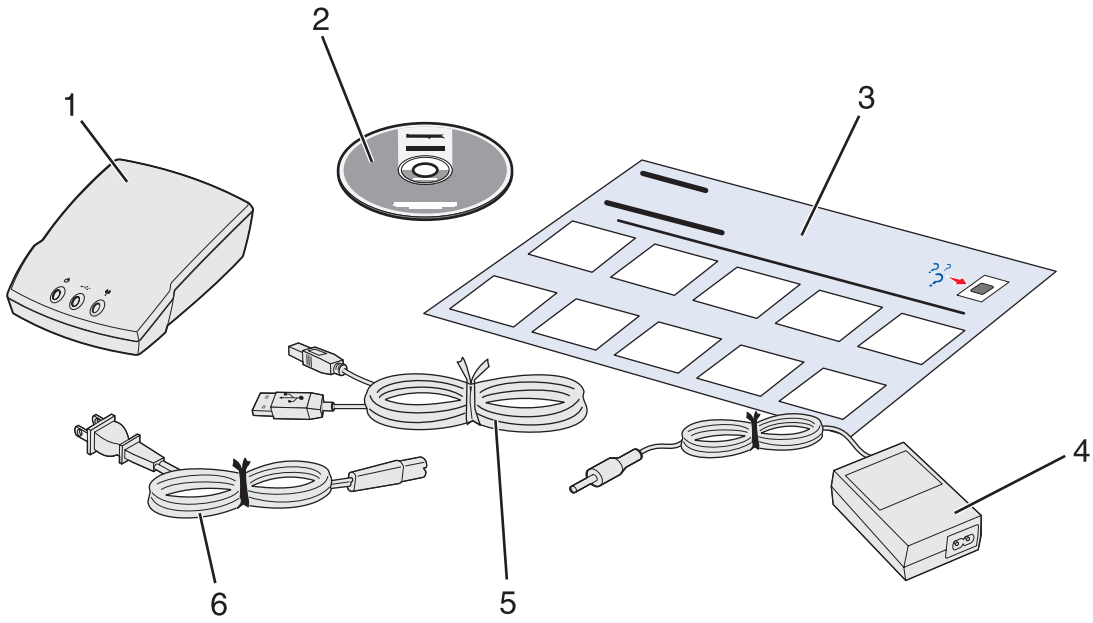
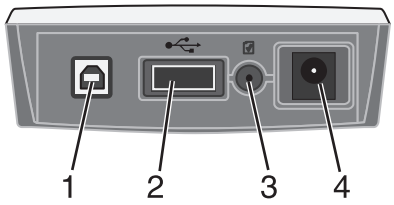
1 Getting started

Unpacking your print server



Number	Description
1	N4050e Print Server
2	N4050e *Setup Utility* CD
3	Setup Sheet
4	Power supply
5	USB cable
6	Power cord wall adapter

Understanding the print server ports



Number	Part	Description
1	USB port (to computer)	Connects your print server to a computer for initial configuration and network setup. Use USB port 2 to connect your print server to your printer.
2	USB port (to printer)	Connects your print server to your printer.
3	Test button	To print a test page, press and release the test button once. **Note:** Test pages are printed in ASCII. Your printer must support ASCII printing to print a test page. To reset the print server to the factory default settings: **1** Disconnect the power supply. **2** Reconnect the power supply while pressing the test button. **3** Continue holding the test button until only the power indicator light is lit.
4	Power cord connector	Connects the print server to the power supply.

Understanding the print server indicator lights

Number	Part	Description
1	Power Indicator	The print server has power.
2	USB status	The print server is connected by USB and is communicating.
3	Wireless status	The print server is communicating wirelessly.

Wireless network settings

You may need to know some of your wireless network settings in order to set up your wireless print server. Here are some of the settings that you may need to know:

For basic setup:

- Network Name, also known as SSID (Service Set ID)
- Security type
  - None
  - WEP (Wired Equivalency Protocol)
  - WPA (Wi-Fi Protected Access)
- Security Key(s)

For advanced setup:

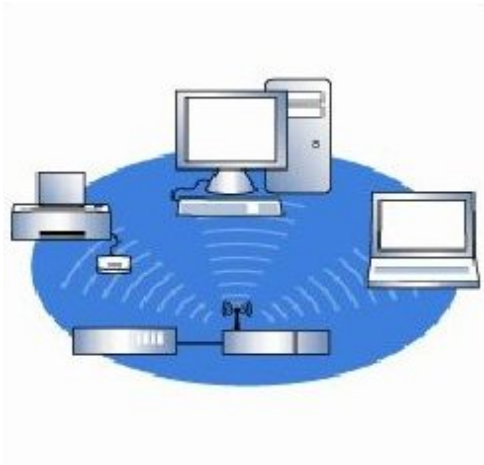
- Basic setup settings listed above
- BSS (Basic Service Set) Type (the type of wireless network you use—Ad-Hoc or Infrastructure)
- Wireless Channel Number

2 Setting up your wireless print server

Setup overview

The setup process consists of two parts: configuring your wireless print server and installing your printer on the network. The configuration segment involves connecting the print server to a computer by USB cable and running the Wireless Print Server Setup Wizard to configure the device and test the wireless connection. The installation segment involves connecting the print server to the printer that you want to install and running the printer drivers or printer software CD to install it as a network printer.

Basic setup accommodates both Infrastructure mode (in which the network structure is based on a series of wireless routers or base stations) as well as Ad-Hoc mode (in which wireless devices communicate with each other directly without using a wireless router).



Infrastructure mode

Ad-Hoc mode

While basic setup is the recommended process, if your operating system does not support basic setup, it is possible to set up your wireless print server without using the USB connection and Setup Wizard to complete the configuration process. For instructions on setting up your wireless print server through an alternate configuration method, see **Advanced Setup**.

Before setting up your wireless print server, make sure your printer has been set up correctly

- The toner or print cartridges are installed correctly.
- Paper has been loaded into the printer.
- Your printer is turned on and ready to be installed.

For help setting up your printer, refer to your printer documentation.

Minimum requirements

- The Lexmark Wireless Print Server
- An existing wireless network

  The following security types are supported:

  - No security
  - WEP (64-bit or 128-bit security keys)
  - WPA (Wi-Fi Protected Access)—(PSK–TKIP)
- A network-capable printer
- The Lexmark N4050e *Setup Utility* CD
- The drivers or printer software CD that came with your printer
- A computer that utilizes one of the following operating systems:
  - Windows 98 SE or Windows Me
  - Windows 2000
  - Windows XP
  - One of the following UNIX or Linux systems

Operating system	Version number
RedHat Linux	7.2, 7.3, 8.0, 9
RedHat Enterprise	3.0, WS
SuSE Linux	8.0, 8.1, 8.2, 9.0
IBM AIX	5.1, 5.2
HP–UX	11.0, 11.1
Sun Solaris SPARC	7, 8, 9

Safety information

- Use only the power supply provided with this product or the manufacturer's authorized replacement power supply.
- Connect the power cord to a properly grounded electrical outlet that is near the product and easily accessible.
- Refer service or repairs, other than those described in the user documentation, to a professional service person.

CAUTION: Do not set up this product or make any electrical or cabling connections during a lightning storm.

Select a location for your print server

The location of your print server is vital to ensuring that it works effectively. Follow these guidelines when determining a location for your print server:

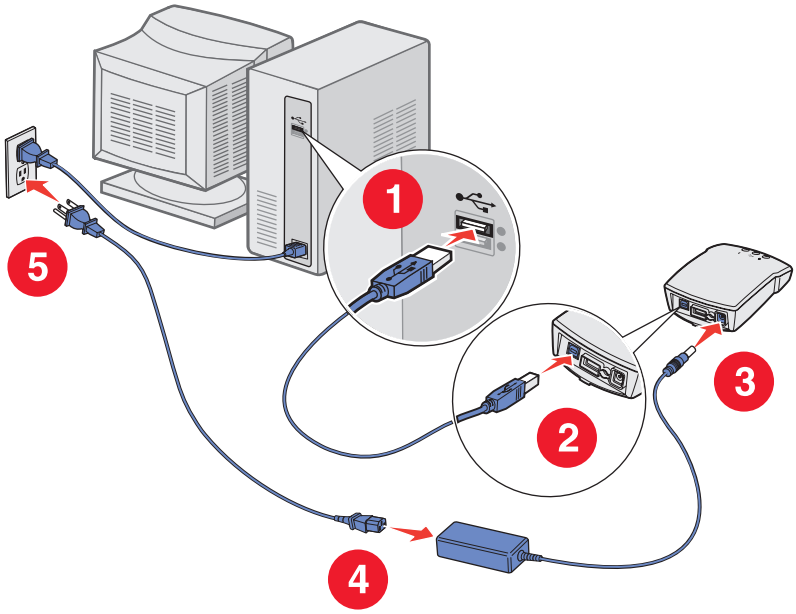
- Place the print server on a flat, level surface away from excessive heat, cold, and moisture.
- Keep the print server within appropriate range of a wireless access point if your network uses an Infrastructure configuration.
- Keep the print server away from other electronic devices that could interfere with the wireless signal.
- Keep the print server away from obstructions that could interfere with the wireless signal.

Configuring your wireless print server

Note: If you are using your print server with a third-party printer, see **Installing third-party network printers** before proceeding with the configuration process.

Connect your print server to your computer

1. Connect the print server to your computer using the provided USB cable.
2. Connect the print server to its power supply.
3. Use the N4050e Wireless Print Server Setup Wizard to complete the configuration.



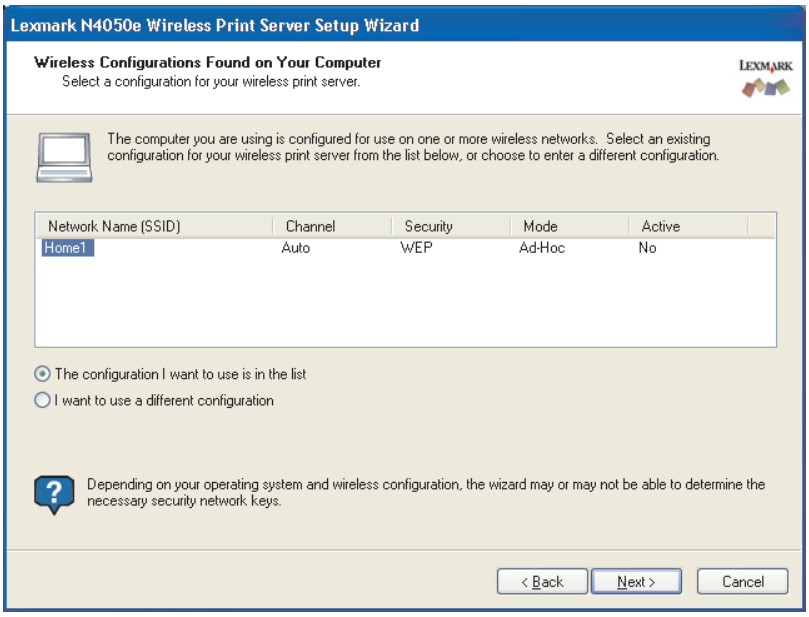
Special instructions for Windows 98 SE, Me:

The device driver required for communicating with a USB device is not installed by default for Windows 98, Windows 98/SE, or Windows Me. If you have not previously used a USB device with this operating system, you may need to insert your operating system CD to install the necessary device driver.

If the driver is not installed on your system, when the Print server is plugged in, the **Add New Hardware Wizard** will appear. Proceed through the wizard until it prompts you to insert your operating system CD. Once the driver is installed, you can proceed with setup normally.

Using the N4050e Wireless Print Server Setup Wizard

1. Insert the N4050e *Setup Utility* CD.
2. The CD will auto-launch. Click **Install N4050e Utility**.
3. Click **Agree** to accept the license agreement.
4. Click **Finish** to install the files and launch the setup utility.
5. The N4050e Wireless Print Server Setup Wizard welcome screen will appear. Click **Next** to access your current wireless settings.
6. Select the appropriate **Network Name (SSID)** from the list, and then click **Next**.



Troubleshooting tip:

If the Network Name you want to use is not in the list, select the **I want to enter a different configuration** radio button, and then click **Next**.

If the correct Network Name still does not appear, see **Entering alternate network settings**.

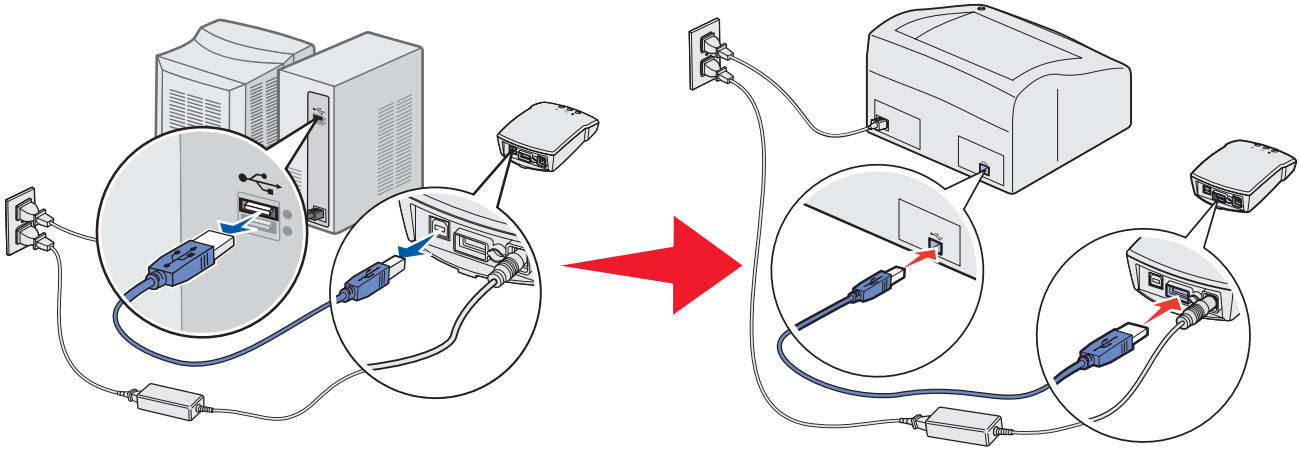
7 Select the appropriate security method, and then click **Next**. If no security was detected, go to step 8.

8 Enter the appropriate security key(s) for your network, and then click **Next**.

9 Check each network attribute on the summary screen to make sure that the settings are correct. If the settings are correct, click **Next** to apply these settings to your print server.

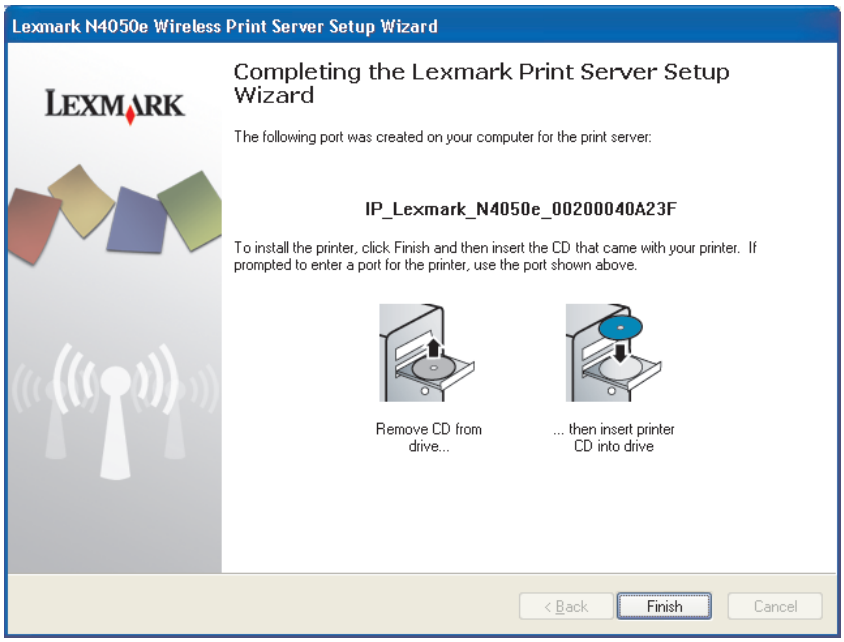
10 Disconnect the USB cable from both your computer and the print server.

11 Use the same cable to connect the print server to your printer. To make this connection, insert the large end of the USB cable into the middle USB port on the back of the print server, and then insert the small end of the USB cable into your printer.



12 Click **Next** to continue with the Setup Utility Wizard.

13 Write down the port or MAC address information displayed on the screen. This information will be needed when installing your printer on the network.



14 Click **Finish** to close the N4050e *Setup Utility* Wizard.

15 Remove the *Setup Utility* CD from your computer, insert your printer drivers CD or printer software CD, and proceed to **Installing your printer on the network**.

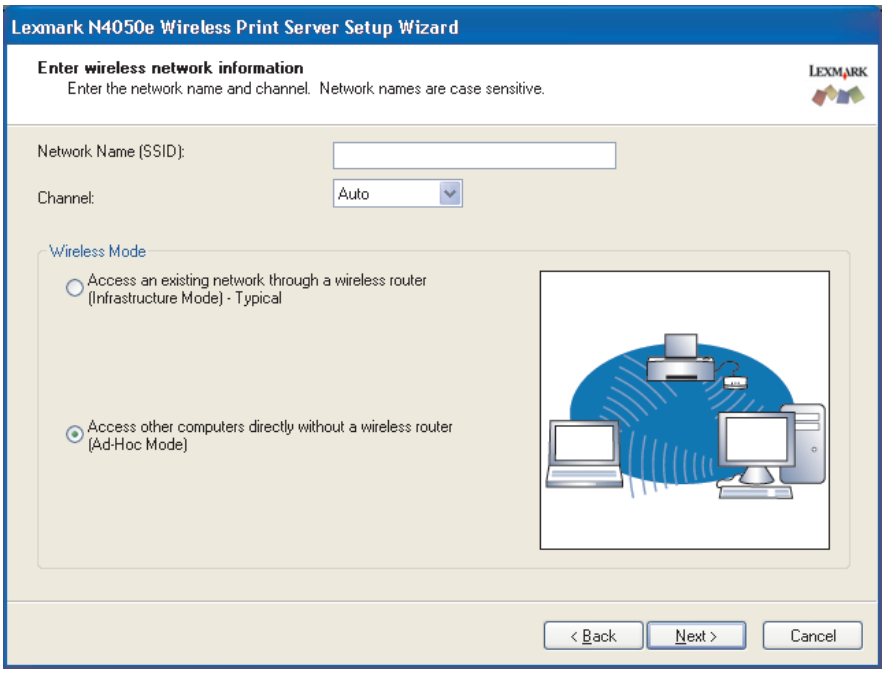
Entering alternate network settings

Once you have started the N4050eWireless Print Server Setup Utility, and the Wizard has collected and displayed your existing wireless settings, if the network configuration you want to use is not available, you have the option to enter a different network configuration.

1. After the Setup Wizard performs the site survey, select the option to enter a different configuration.
   - If wireless network configurations were found on your computer:

     From the Wireless Configurations Found on your Computer screen, Select the **I want to enter a different configuration** radio button, and then click **Next**.
   - If no wireless network configurations were found on your computer:

     From the Wireless Networks Found in Your Area screen, select the **I want to enter a different network name** radio button, and then click **Next,** and then skip to step 3.
2. From the *Wireless Networks Found in Your Area* screen, select the **I want to enter a different network name** radio button, and then click **Next**.
3. Enter the Network Name (SSID) of the Network that you want to use.



4. Select the appropriate channel for the network.
5. Select the wireless mode for your network (Infrastructure or Ad-Hoc mode).
6. Click **Next**.
7. Select the type of security that your network uses, and then click **Next**.

8. If security was selected, enter the appropriate security key(s), and then click **Next**. If no security was selected, proceed to step 9.
9. Check each network attribute on the summary screen to make sure that the settings are correct. If the settings are correct, click **Next** to apply these settings to your print server.
10. Disconnect the USB cable from both your computer and the print server.
11. Use the same cable to connect the print server to your printer. To make this connection, insert the large end of the USB cable into the middle USB port on the back of the print server, and then insert the small end of the USB cable into your printer.
12. Click **Next** to continue with the Setup Utility Wizard.
13. Write down the port or MAC address information displayed on the screen. This information will be needed when installing your printer on the network.
14. Remove the *Setup Utility* CD from your computer, and insert your printer drivers CD or printer software CD.
15. Click **Finish** to close the Setup Utility Wizard, and proceed to **Installing your printer on the network**.

Installing your printer on the network

Once the print server has been configured, use the printer drivers CD or printer software CD that came with your printer to install your network printer on the computers attached to your network.

- Make sure that your printer drivers CD or printer software CD is inserted into the computer you want to install the printer for.
- When installing the printer, follow the **Network** installation path. This process can vary between different printers.

Installing your network printer on additional network computers

If you are installing your network printer for use with multiple computers on the network, you will need to repeat the **Installing your printer on the network** process for each computer you want to have access to the printer. The wireless print server does not need to be reconfigured for each successive installation.

Installing third-party network printers

If you are using the N4050e wireless print server with a third-party printer, you will need to use an alternate setup process to complete the installation of your printer on your network. Third-party printers must first be installed as a local printer, directly attached to your computer, before the wireless print server is configured and connected to the printer. The printer port that the printer uses

must then be changed to match the port that is created by the N4050e Wireless Print Server Setup Utility.

1. Refer to your printer documentation for instructions on installing your printer as a locally attached printer (not over a network).
2. Connect the printer to your computer using the provided USB cable.
3. Insert your printer software or drivers CD and follow the **local** installation path.
4. Disconnect the printer from your computer.
5. Connect the print server to your computer and follow the instructions for **Configuring your wireless print server**, and then proceed to step 6.

   Note: Be sure to write down the port information that is provided on the final screen of the Setup Utility Wizard. The port name provided will be needed to complete the third-party printer setup process.

6. In your operating system, change the current printer port that was designated during printer installation from step 3 to the port that was provided by the setup utility wizard. For example:

   To change your printer port

   a. Go to your **Printers** folder.
   b. Right-click the printer icon that was created when the printer was installed in step 3.
   c. Select **Properties**.
   d. Select the **Ports** tab.
   e. Change the selected port to the port provided by the setup utility wizard.
   f. Save or apply the changes.

Once the port has been changed, we recommend that you print a test page to verify that the printer is communicating correctly. Make sure that the print server is correctly attached to the printer to ensure that the printer can communicate over the network effectively.

3 Changing your wireless print server settings

The easiest way to change settings in the wireless print server is through the embedded Web server. For this to work, you must successfully complete the installation of the print server on your network.

1. Enter the IP address of the print server in a browser window. The embedded Web page for the print server will open.

   For information on locating the IP address of the print server, see **Finding the network printer IP address** below.
2. Select the settings you want to change, such as IP address.
3. Enter the changes, and then click **Submit**.

Finding the network printer IP address

Using the IP Setup Utility

The IP Setup Utility is installed in addition to the N4050e Wireless Setup Utility Wizard when you run the *Setup Utility* CD. You can use this utility to find the IP address of your print server.

1. Launch the IP Setup Utility. For example:

   In Windows operating systems go to **Start** → **Programs** → **Lexmark** → , **Lexmark Wireless Print Server N4050e** → **IP Setup Utility**.

   The IP Setup Utility will discover all Lexmark print servers on the network. A list of print servers, including their MAC and IP addresses, will be displayed.
2. Select your print server from the list.
3. Click **Launch Web Page**.

Printing a network setup page

Once the print server and printer are connected, for most printers, press and release the test button on the back of the print server to print a network setup page.

Note: If you have not successfully completed the installation of this product on the wireless network, the IP address may not be listed on the network setup page.

4 Troubleshooting

Use this section to solve problems you may have while setting up your print server.

Indicator light status

Indicator light pattern	State	Result
Power indicator	Off	The Print Server does not have power. Make sure that the power cord is attached correctly and is plugged into an outlet with power.
USB status	Off	The USB cable connecting the print server to either the printer or the computer is not secure. Make sure that the USB cable is connected correctly on both ends.
	On	The USB cable connecting the print server to the printer or computer is secure and recognized by the USB port.
	Blinking	A print job is active.
Wireless status	Off	The print server is searching for a network connection, or no network connection is available.
	On	The print server is connected to the network.
USB status and Wireless status	Blinking alternately	The print server has experienced an error. Power the print server off and back on again. If the problem continues, contact the Customer Support Center.

Note: To locate the Power and USB indicator lights, see **Understanding the print server indicator lights**.

The Setup Utility CD does not auto launch

1. Close all open software programs.
2. Reinsert the *Setup Utility* CD. If the setup utility screen appears, continue your setup instructions.

If the setup utility screen does not appear, do the following:

a From your desktop, double-click **My Computer**.

b Double-click the CD-ROM drive icon.

c If necessary, double-click **setup.exe**.

The Setup Utility Wizard was not able to communicate with the print server

- Verify that the print server has power and that the power indicator light is lit.
- Verify that the USB cable is properly connected to both your computer and the wireless print server.
- Connect the print server to a different USB port on your computer.

My network key was invalid

A network key is like a password and should follow this criteria:

- WEP key
  - Exactly 5 or 13 ASCII characters

    Or
  - Exactly 10 or 26 Hexadecimal characters (using A–F and 0–9 only)
- WPA-PSK key (for infrastructure mode only)
  - Between 8 and 63 ASCII characters

My wireless print server was unable to join the network

There are many factors that can prevent the print server from joining the network. Here are some of the most common troubleshooting options:

- Verify that the print server settings match those used by your wireless network.
- Verify that the print server is within range of the network.
- If your network uses MAC address filtering, provide the MAC address for the print server to your network. The MAC address can be found on the bottom of the print server.

The print server was configured correctly, but cannot be found on the network

- Verify that the print server has power and that the power indicator light is on.
- Verify that the print server is within range of the wireless network.
- Verify that the print server is located away from other electronic devices that may interfere with the wireless signal.
- Verify that your wireless network is using a unique network name (SSID). If not, it is possible that the print server is communicating over a different, nearby network that uses the same network name.
- Verify that the print server has a valid IP address on the network.

No printer was found attached to the print server

- Verify that the USB cable is properly connected to both the printer and the print server.
- Verify that the printer has power.
- Verify that the printer was set up correctly.
- Verify that the print server has power and is available on your network.

My network printer does not print

- Make sure all cables to the printer, print server, electrical outlet, and network connection are secure.
- Make sure the Power, USB, and Wireless status indicator lights are on.
- Check the printer status.
- Make sure the network is operating properly.

  Refer to your network documentation, or contact the person who set up your network if you are not sure that your network is operating correctly.
- Make sure the printer driver is installed on the computer from which you are sending the print job.

  Note: You must install the printer driver on each computer that uses the network printer.
- Make sure the correct printer port is selected.
- Restart the computer.
- Uninstall and then reinstall the printer software.

  If the printer still does not print, refer to your printer documentation for help.

- Make sure there is not a problem with the printer itself.

  1. Disconnect the printer from the printer adapter.
  2. Attach the printer directly to your computer with a USB cable, and perform a local printer installation.

  If you are able to print when the printer is directly attached, there may be a problem with your network. Refer to your network documentation, or contact your network administrator.

The correct print server listing is not present when running the printer software or drivers CD

If you are using the print server with a third-party printer, the drivers CD that came with the printer may not recognize the print server. See **Installing third-party network printers** for alternate setup information.

5 Advanced Setup

The wireless print server is shipped with default settings that let you configure it in Ad-Hoc mode by accessing the embedded Web page of the print server.

Like basic setup, this method involves first configuring the print server and then installing the printer on the network. However, because this configuration method does not use a direct USB connection to your computer or the Wireless Print Server Setup Utility, you will be required to access several of the wireless settings on both your computer and your network. As a result, extensive knowledge of your wireless network and computer settings will be needed.

Note: To configure the wireless print server by this method, you must have a computer with a wireless network card.

Configuring the print server in Ad-Hoc mode

1. Connect the print server to the printer with the USB cable, and turn on the printer.
2. Make sure the print server power indicator light is on.
3. Access and record your computer's current wireless network parameters.

   For information on accessing your current wireless network parameters, refer to your wireless network documentation, or contact the person who set up your network.
4. Change your current wireless network parameters to the following values:

Wireless network parameter	Set to
SSID (Network Name or Service Set ID)	print server
Basic Service Set Type (BSST)	Ad-Hoc
Data Encryption Mode	None
WEP Key	None

5 Check the IP address of the print server.

The print server will be assigned an IP address through the AutoIP method. This address should be in the range of 169.254. You can access the print server IP address by one of the following methods:

- Press and release the **Test** button on the back of the print server to print a setup page showing the print server IP address.
- Use the IP Setup Utility located on the N4050e *Setup Utility* CD to display the print server IP address.

6 Make sure your PC has assigned itself a different IP address than the print server, but is still within the same IP range. For example:

Device	IP address
Computer	169.254.1.1
Print server	169.254.1.4

If your computer IP address is not within the same range as the print server, you will need to change the IP address so that it is within the appropriate range.

For information on locating and changing your computer IP address, refer to your computer or operating system documentation.

7 Open a Web browser, and enter the print server IP address as the URL to access the embedded Web page of the print server.

8 Click the **Settings** link on the left side of the Web page.

9 Under Print Server Settings, click the **Wireless** link.

10 Change the listed network settings to match your wireless network, including:

- SSID
- BSS type
- Channel Number
- Encryption Mode

Note: The SSID must be entered exactly as it is used on your network. SSIDs are case-sensitive, so if the SSID is entered incorrectly, the print server will not be able to communicate on the network and the configuration process must be repeated.

11 Click **Submit**.

12 Wait 10 seconds while the adapter resets.

13 Restore your computer's wireless network settings back to the original values you recorded in step 3.

Installing your printer on the network

Once the print server has been configured, use the printer drivers CD or printer software CD that came with your printer to install the printer on the computers attached to your network.

- Make sure that your printer drivers CD or printer software CD is inserted into the computer you want to install the printer for.
- When installing the printer, follow the **Network** installation path. This process may vary between different printers.

Installing your network printer on additional network computers

If you are installing your network printer for use with multiple computers on the network, you will need to repeat the **Installing your printer on the network** process for each computer you want to have access to the printer. The wireless print server does not need to be reconfigured for each successive installation.

Glossary

Ad-Hoc network. A stand-alone or peer-to-peer network in which wireless devices communicate directly with one another without using a wireless access point or base station.

ASCII. A standard character set consisting of 96 uppercase and lowercase letters, plus 32 nonprinting control characters.

BSS Type. Basic Service Set, the type of wireless network that you are using. The BSS type can be one of the following:

- Infrastructure network
- Ad-Hoc network

Channel number. A number associated with the radio frequency at which an 802.11 device operates. The channel numbers available vary by geographical region.

Data Encryption mode. The security protocol that is used to protect data that is transferred accross your wireless network and provide network authentication. You can use one of the following protocols for data encryption:

- None
- Shared—WEP (Wired Equivalency Protocol)
- WPA-Personal (TKIP:PSK)—WPA (Wi-Fi Protected Access) in PSK (Pre-Shared Key) mode

DHCP. Dynamic Host Configuration Protocol, a protocol for assigning dynamic IP addresses to devices on a network. With dynamic addressing, a device can automatically request an IP address every time it connects to the network. This means that a new device can be added to a network without having to manually assign a unique IP address.

Hexadecimal. A numbering system that is used as a representation of binary numbers using a base of 16 digits.

Infrastructure network. A network in which your wireless devices communicate through a central wireless access point or base station. An infrastructure network can contain multiple wireless access points.

IP address. A number that identifies each device connected to the network. For example, 192.168.0.1.

MAC address. A 12-character identifier that is unique for each network hardware device. For example, 0002001008e8.

Network authentication type. The data encryption mode that is used on your network to prevent unauthorized users or devices from connecting to or accessing your wireless network. You can use one of the following protocols for network authentication:

- None
- WEP
- WPA (Infrastructure mode networks only)

network-capable printer. A printing device that does not need to be locally attached to a computer.

printer port. Windows terminology for a physical or logical connection to a printer. For example:

- LPT1 indicates the printer is attached to a physical parallel port with a parallel cable.
- USB001 indicates the printer is attached to a physical USB port with a USB cable.
- Print_Server_E320_0020000035D0 indicates a logical connection to the printer across your network.

PSK. Pre-Shared Key, a permanent security key or password that a user enters to establish security keys in a WPA environment.

Security key. A security key is like a password used with either WPA or WEP security protocols and must meet the following criteria:

- For WPA keys, if using Hexadecimal characters, valid keys are at least 24 characters long; if using ASCII, valid keys are between 8 and 63 characters long. WPA authentication is not supported for Ad-Hoc configurations.
- For WEP keys, if using Hex characters, valid keys are either 10 or 26 characters long; if using ASCII, valid keys are either 5 or 13 characters long.

subnet. A portion of a network that shares a common address component. On TCP/IP networks, subnets are defined as all devices whose IP addresses have the same prefix. For example, all devices with IP addresses that start with 192.168.0. would typically be part of the same subnet.

SSID. Service Set ID, also known as Network name, is a unique identifier used to distinguish one wireless network from another. Wireless devices must use the same SSID to communicate. SSIDs are up to 32 characters long, and are case-sensitive.

TCP/IP. The Transmission Control Protocol (TCP) and the Internet Protocol (IP) are protocols that let different types of computers communicate with each other. The Internet is based on this suite of protocols.

TKIP. Temporal Key Integrity Protocol, a protocol used with the WPA data encryption mode that scrambles security keys using a hashing algorithm and adds an integrity-checking feature that ensures the keys haven’t been tampered with.

WEP. Wired Equivalency Protocol, a security protocol defined in the original 802.11b specification that is used to provide data encryption and user authentication.

WPA. Wi-Fi Protected Access, a security protocol for wireless networks defined by the Wi-Fi Alliance that was designed to improve upon the WEP security protocol through improved data encryption and user authentication.

Wi-Fi® Interoperability Certificate

Certification ID: W002843

This certificate represents the capabilities and features that have passed the interoperability testing governed by the Wi-Fi Alliance. Detailed descriptions of these features can be found at www.wi-fi.org/certificate

Certification Date: September 18, 2004
Category: Wireless Printers and Print Servers
Company: Lexmark International, Inc.
Product: Lexmark N4050e

This product has passed Wi-Fi certification testing for the following standards:

IEEE Standard	Security		
802.11b 802.11g	WPA™ - Personal		

For more information: www.wi-fi.org/certified_products