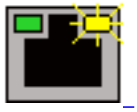
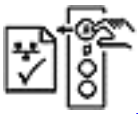
ethernet connection

The printer's built-in ethernet feature allows you to connect the printer directly to an ethernet network without the need for an external print server.

For more information about the printer's ethernet feature, click the topic below:


ethernet lights


network configuration page


printer's internal web page

For installation instructions, click the appropriate topic below:


ethernet basics


connecting the printer to an ethernet network

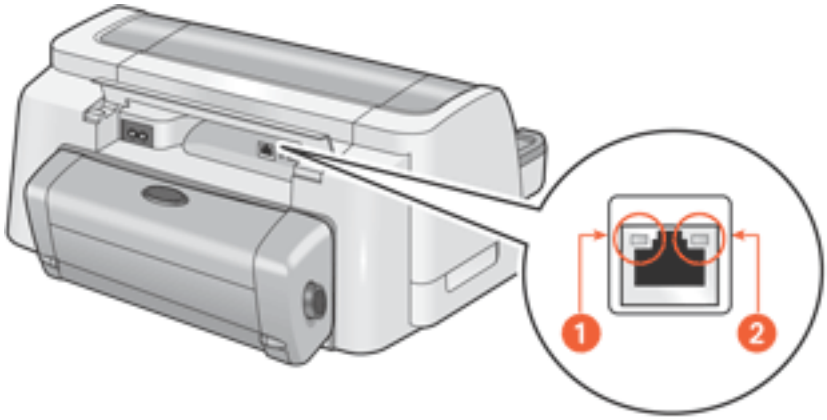

installing the printer software on a networked computer

Other information:

- troubleshooting
- resetting the printer to the factory default configuration
- ethernet glossary

ethernet lights

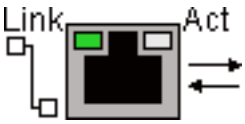
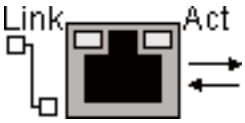
The printer's ethernet lights indicate the status of the printer's ethernet connection.



1. link light 2. activity light

link light

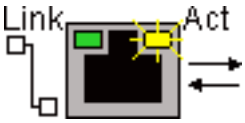
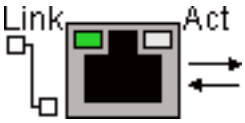
The Link light is solid when the printer is connected to an ethernet network and powered on.

link light is...	the printer is...
	connected to an ethernet network and powered on
	not connected to an ethernet network -or- powered off

activity light

The Activity light flashes when the printer is receiving or transmitting data over the ethernet connection.

activity light is...	the printer is...

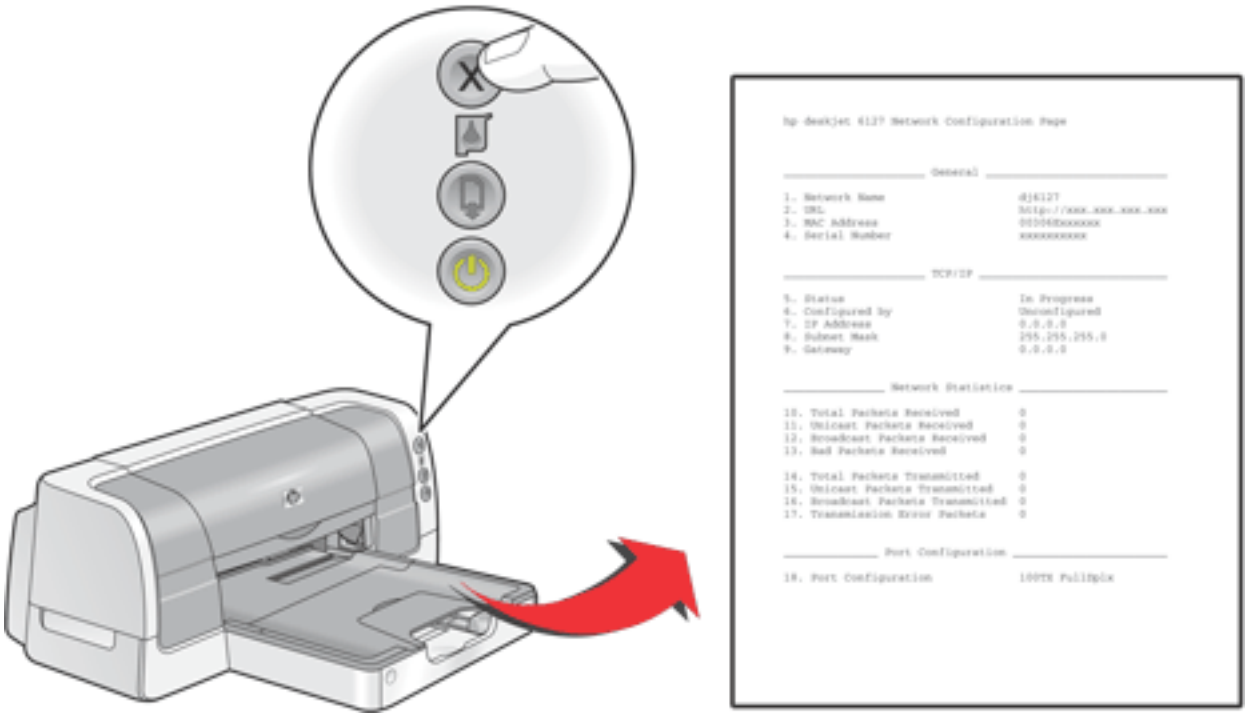
	receiving or transmitting data over the ethernet connection
	not receiving or transmitting data over the ethernet connection

network configuration page

The printer's network configuration page supplies useful information about the printer's ethernet connection.

printing a network configuration page

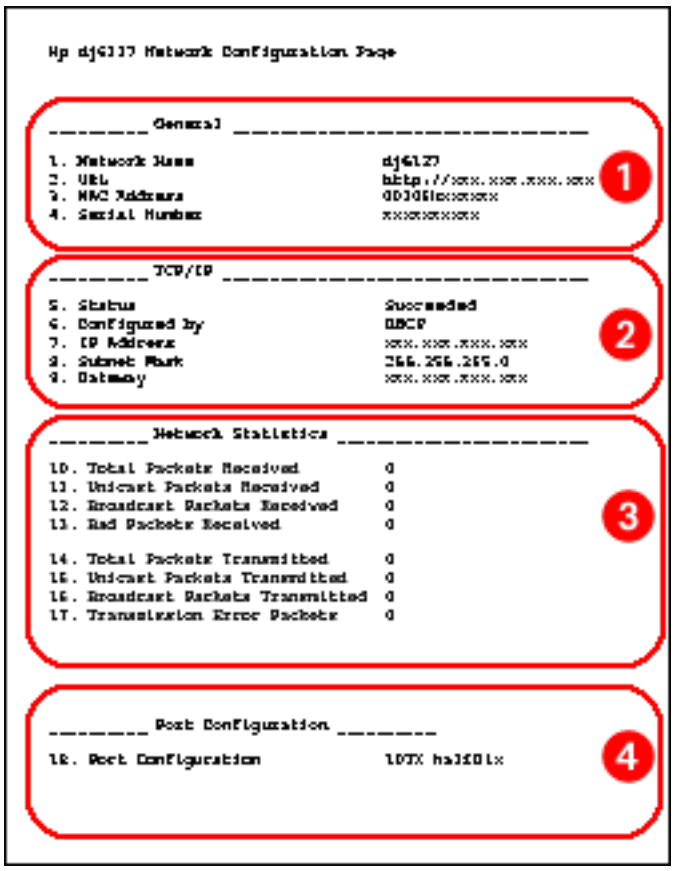
While the printer is powered on and idle, press the **Cancel** button (**X**) on the printer to print a network configuration page.



If the printer has just been connected to a network, wait a few minutes before printing the network configuration page to allow the printer to obtain valid network settings. You will know that the settings on the configuration page are valid if the **Status** is **Succeeded**.

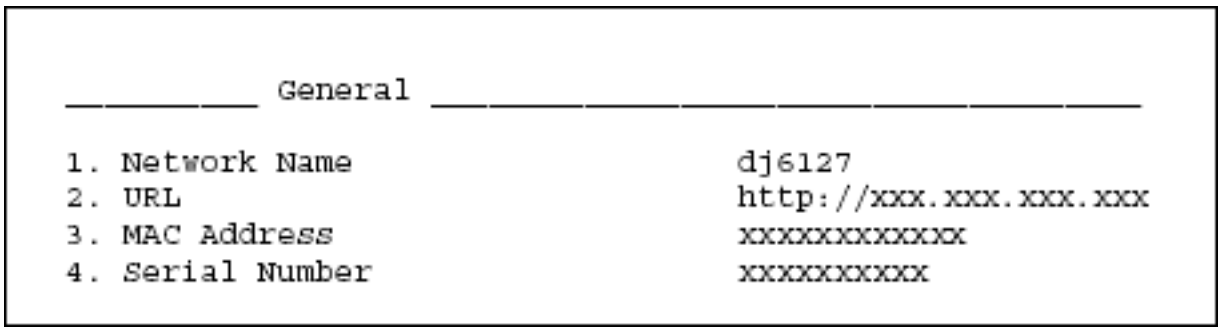
network configuration page topics

The printer's network configuration page is organized into four topics.



1. General
2. TCP/IP
3. Network Statistics
4. Port Configuration

general



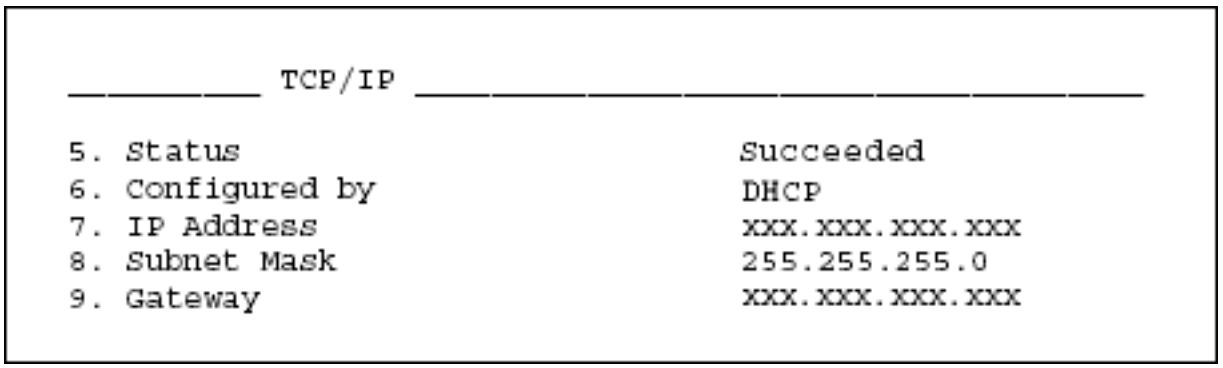
1. **Network Name:** Printer's friendly name.

2. URL: IP address for the printer's internal web page.

3. **MAC Address:** Printer's Media Access Control address (also appears on the label on the back of the printer).

4. **Serial Number:** Printer's serial number.

TCP / IP



5. **Status:** Printer's network status: **Succeeded**, **Failed**, or **In Progress**.

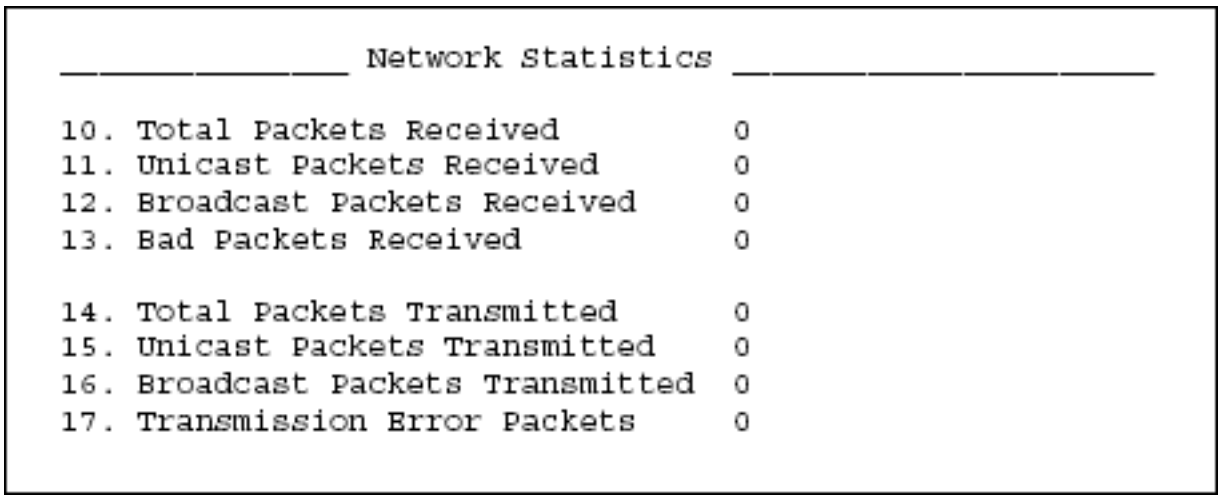
6. **Configured by:** How the printer obtained its IP address: DHCP, AutoIP, **Manual**, **Unconfigured**.

7. **IP Address:** Printer's IP address.

8. **Subnet Mask:** Printer's subnet mask.

9. **Gateway:** Printer's gateway address.

network statistics



10. Total Packets Received: Number of packets received without error.

11. Unicast Packets Received: Number of packets specifically addressed to the printer.

12. Broadcast Packets Received: Number of packets addressed to all devices on the network received.

13. Bad Packets Received: Number of packets received with errors.

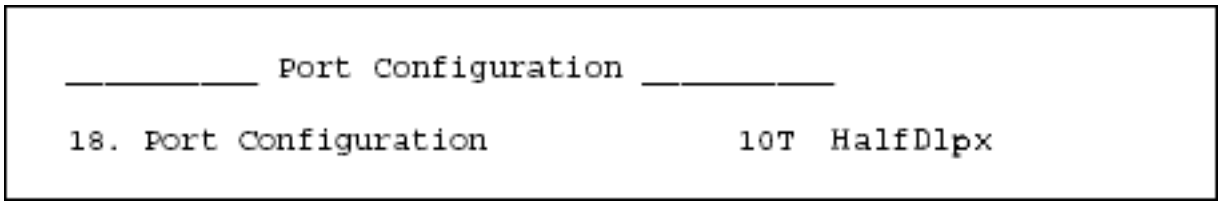
14. Total Packets Transmitted: Number of packets sent without error.

15. Unicast Packets Transmitted: Number of packets addressed to a specific device on the network transmitted.

16. Broadcast Packets Transmitted: Number of packets addressed to all devices on the network transmitted.

17. Transmission Error Packets: Number of packets not sent due to errors.

port configuration



18. Port Configuration: Type of ethernet port. This setting is determined by the network to which the printer is connected and is not configurable from the printer.

- **10T FullDplx**: Printer can simultaneously transmit and receive data (full duplex) at 10 Mb/s (megabits per second).
- **10T HalfDplx**: Printer can transmit and receive data at 10 Mb/s, but must transmit or receive separately (half duplex).
- **100TX FullDplx**: Printer can simultaneously transmit and receive data (full duplex) at 100 Mb/s.
- **100TX HalfDplx**: Printer can transmit and receive data at 100 Mb/s, but must transmit or receive separately (half duplex).

ethernet glossary

10/100 Base-T: A technical term for "ethernet." 10/100 refers to the speed at which the ethernet network functions. 10 indicates 10 megabits per second (Mb/s) for normal Ethernet, and 100 indicates 100 Mb/s for Fast Ethernet.

AutoIP: A process by which a device on a network automatically assigns IP addresses to itself.

Broadcast packet: A packet sent from one device on a network to all devices on the network.

DHCP (Dynamic Host Configuration Protocol): A protocol used to automatically assign an IP address to each device on a network.

Ethernet: A popular form of wired computer networking for Local Area Networks.

Ethernet cable: There are two types of ethernet cables. A straight-through cable is the most common and is used to connect devices on a network to a hub or router. A crossover cable is a twisted pair patch cable the routes the transmit signals from one device to the receive signals of another device. Use an unshielded CAT-5 straight-through cable with an RJ-45 plug to connect the printer to an ethernet network.

Gateway: A dedicated device (router or computer) that connects two different networks. For example, a computer on an ethernet network may act as a gateway between a network and the Internet.

Firewall: A combination of hardware and software that protects a network from unwanted entry.

Hub: A simple device that acts as the center of an ethernet network. Other devices on the network are connected to the hub.

ICS (Internet Connection Sharing): A Windows program that allows a computer to act as a gateway between the Internet and a LAN. ICS uses DHCP to assign IP addresses. See Windows documentation for more information about ICS.

IP address (Internet Protocol address): A unique number that identifies a device on a LAN. The IP address is often automatically assigned by DHCP or AutoIP. However, a device can be manually assigned a static IP address.

LAN (Local Area Network): A high-speed type of computer network that connects devices that are a relatively short distance from one another. Ethernet is one type of LAN.

MAC address (Media Access Control address): The hardware address for a device on a network. The printer's MAC address appears on the network configuration page and on the label near the printer's ethernet port.

Mb/s (megabits per second): The measure for the rate at which an ethernet network functions. For example, 1 Mb/s equals 1,000,000 bits per second (or 125,000 bytes per second).

Network Name: The name by which the printer identifies itself on the network (also known as the printer's "friendly name"). The printer's Network Name is item 1 on the network configuration page. Use the Network Name to open the printer's internal web page.

Packet: A message sent from one device on a network to other devices on the network.

Protocol: A "language" that devices on a network use to communicate with each other. A popular network protocol is TCP/IP.

RJ-45: The type of plug at the end of an ethernet cable.

Router: A complex internetworking device that directs packets from one network to another network. A router can act as a gateway between a LAN and the Internet.

Static IP address: An IP address that is manually assigned to a device on a network. A static IP address remains fixed until changed manually. Alternative methods for assigning IP address are DHCP and AutoIP.

Subnet: A "small network" that acts as part of a large network. It is recommended that the printer and the computers that use it all be on the same subnet.

Subnet mask: A number that identifies what subnet an IP address belongs to.

TCP/IP (Transmission Control Protocol/Internet Protocol): The network communication protocol used on the Internet. The printer's built-in ethernet feature supports LANs that use TCP/IP.

Unicast packet: A packet sent from one device on a network to another device on the network.

printer's internal web page

Use the printer's internal web page to do the following:

- Adjust network configuration
- Check estimated ink levels in the print cartridges
- View network statistics
- Link to HP's website for support and to purchase supplies

before using the internal web page

Before using the printer's internal web page, verify that the printer and the computer are powered on and connected to the network.

If you want to use the internal web page to access HP support or to purchase supplies, verify that the computer is connected to the Internet.

opening the internal web page

Follow these steps to open the printer's internal web page.

1. Launch your Internet browser.

   Use Microsoft Internet Explorer 5.0 or higher or Netscape 4.75 or higher.

2. Enter one of the following in the address box, then press **Enter**.
   - Printer's Network Name
   - Printer's URL

     If the printer is on a different subnet than your computer, enter the printer's URL in the browser's address box to open the internal web page.

   If you don't know either of the above, print a network configuration page.

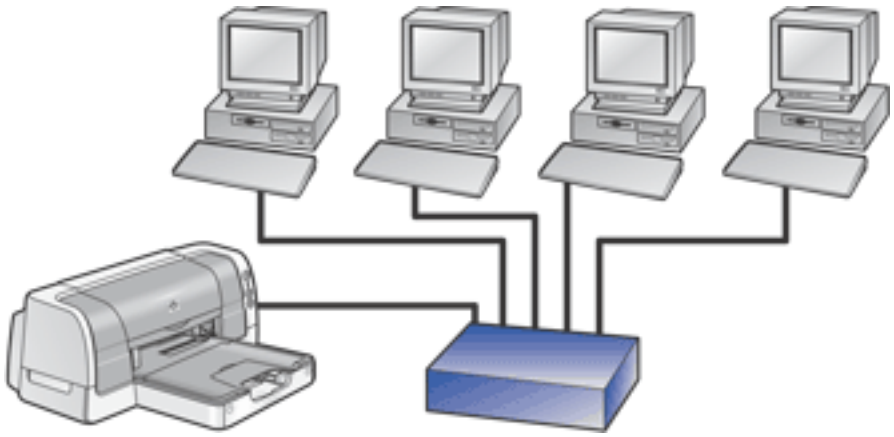
ethernet basics

The printer's built-in ethernet feature allows you to connect the printer directly to a 10/100 Base-T ethernet network without the aid of an external print server.

hardware

hubs and routers

On an ethernet network, computers and the printer are each connected to a hub or a router.



an example of an ethernet network

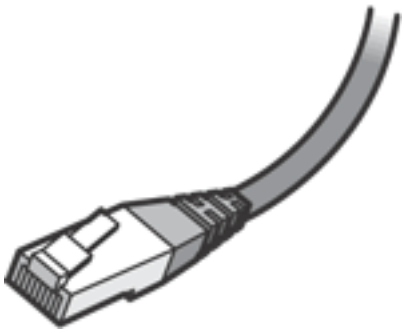
Hubs and routers may look similar, but there is one important difference.

Hubs are passive-other devices on the network plug into the hub in order to communicate with one another. The hub does not manage the network.

Routers are active. Routers have network administration tools, such as firewalls and DHCP. A router can act as a gateway, while a hub cannot.

cables

Use an unshielded CAT-5 ethernet cable to connect the printer to an ethernet network. Ethernet cables have an RJ-45 plug.



rj-45 plug

To prevent damaging the printer, do not use a phone cord to connect the printer to an ethernet network, and do not connect the printer to a phone jack.

network communication

TCP / IP

Devices on a network communicate with one another using a "language" called a protocol. The printer is designed to operate on networks that use a popular protocol called TCP/IP.

IP address

Each device on a network identifies itself with a unique IP address. Most networks use DHCP or AutoIP to automatically assign IP addresses.

internet connections

Ethernet networks may or may not be connected to the Internet.

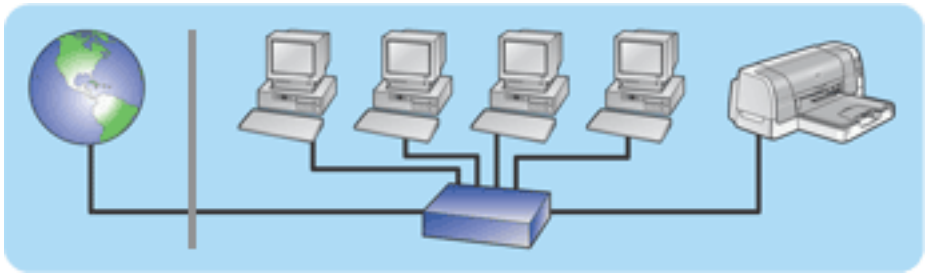
If you place the printer on an ethernet connected to the Internet, it is recommended that you use a gateway so that the printer's IP address is assigned through DHCP.

A gateway can either be a router or a Windows computer running Internet Connection Sharing (ICS). For more information about ICS, see the documentation that came with the Windows computer.

examples of ethernet networks

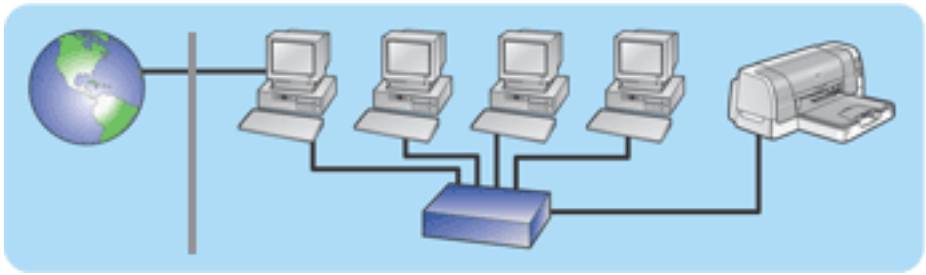
These are some common ethernet network configurations:

shared internet connection with a router acting as a gateway



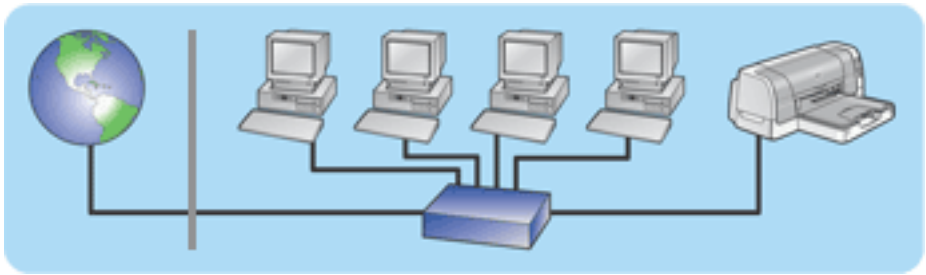
In this example, a router manages the network connections and acts as a gateway between the network and the Internet.

shared internet connection with a PC acting as a gateway



In this example, the network devices are connected to a hub. A computer on the network acts as the gateway between the network and the Internet. The gateway computer uses Windows Internet Connection Sharing (ICS) to manage the network connections and provide Internet access to the other devices.

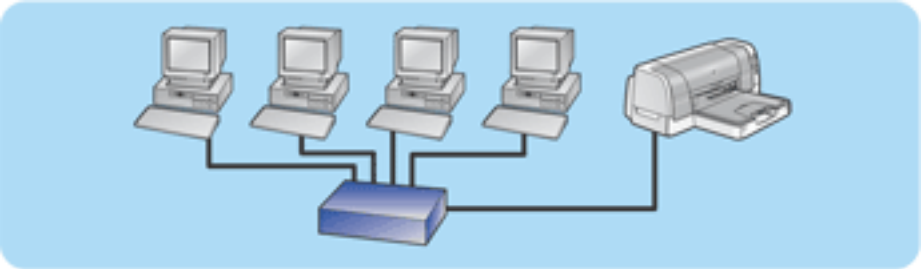
DSL or cable internet connection without a gateway



This example looks similar to the first example. However, in this example, the network devices are connected to a hub, rather than a router. The hub is directly connected to the Internet.

> **Caution!** HP does not recommend this configuration. If possible, use a gateway to manage your network's Internet access in order to limit exposure to viruses and guard against unwanted entry.

ethernet network without an internet connection



In this example, the network devices are connected to a hub. Devices use AutoIP to obtain IP addresses.

using the printer on an ethernet network

Computers on the network send print jobs directly to the printer, which prints them in the order received.

printer's ethernet capacity

The printer can accept print jobs sent simultaneously from four users.

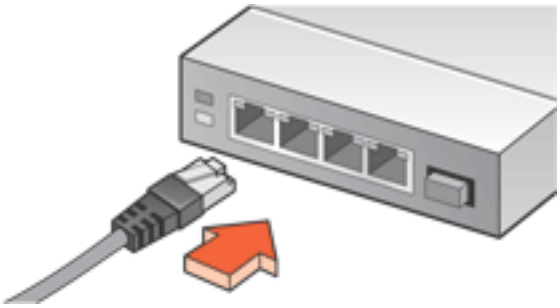
For example, if five users each send a print job to the printer at the same time, the printer accepts four of the print jobs and rejects the fifth. The user who sent the fifth print job should wait a few minutes and then resend the print job.

connecting the printer to an ethernet network

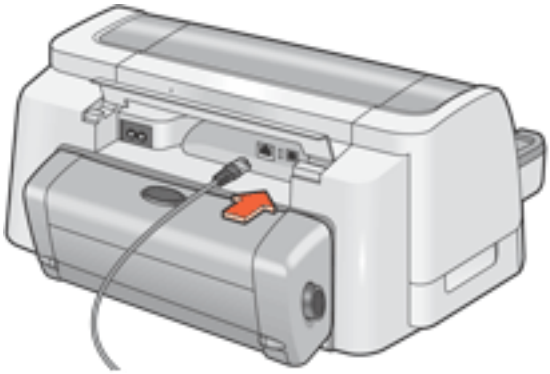
Follow these steps to connect the printer to an ethernet network.

1. If necessary, set up the printer hardware.

   For printer hardware setup instructions, see the *setup* poster that came with the printer.
2. Verify that the printer is powered on.
3. Connect the ethernet cable to an available port on the ethernet hub or router.

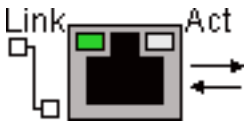


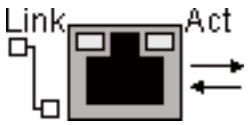
4. Connect the ethernet cable to the ethernet port on the back of the printer.



To prevent damaging the printer, do not use a phone cord to connect the printer to an ethernet network, and do not connect the printer to a phone jack.

5. Do one of the following:

if the link light is...	then...
	Install the printer software on the network computers.

	Repeat steps 2-4. If the lights are still off, then verify the following: ❍ The printer is powered on. ❍ The hub or router is powered on. ❍ All cable connections are secure. ❍ You are using an ethernet cable.

installing the printer software on a networked computer

before installing

Before installing the printer software on a networked computer, verify the following:

- The printer is set up and powered on.
- The ethernet hub or router is powered on and functioning properly.
- All computers on the network are powered on and connected to the network.
- The printer is connected to the ethernet network.

If the printer was previously installed on a computer with a USB cable, disconnect the USB cable from the printer. Use the printer software CD and follow the instructions below to install an ethernet version of the printer driver on the computer.

installation steps

Follow these steps to install the printer software on a networked computer:

1. Insert the printer software CD in the computer's CD-ROM drive.

   If the CD does not autoplay, then open the CD in Windows and double-click the **setup.exe** file.

2. Follow the onscreen instructions and use the following information to complete the installation.
   - **Printer connection:** Connected via network
   - **Network setup:** Basic network setup for a PC or server

     If the printer cannot be detected during the installation process, then follow the *printer cannot be detected during software installation* instructions in ethernet troubleshooting.

3. After the installation has completed, follow the onscreen instructions to print a test page.

ethernet troubleshooting

Click the option that best describes the problem:

- The printer will not print.
- You cannot browse to the printer's internal web page.
- The printer cannot be detected during software installation.

printer will not print

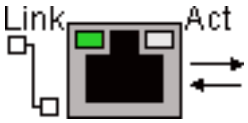
Verify the following:

- The printer is set up and powered on.
- The print cartridges are installed.
- The printer is on and the paper tray is loaded.
- The printer is free of paper jams.

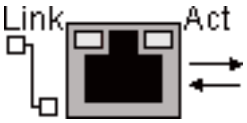
If any of the above are problems, then click here.

Answer the following questions:

Is the Link light on and solid?

Yes. 

Proceed to the next question.

No. 

Verify the following:

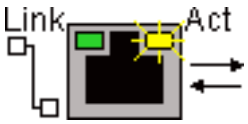
- You are not using a phone cord to connect the printer to the network.
- The ethernet cable is securely connected to the printer.
- The ethernet hub or router is on and working properly.
- The computer that you are using is connected to the network.

Were more than four people printing to the printer at the same time ?

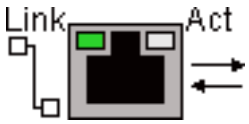
Yes. Wait until the printer is idle, then reprint your document.

No. Proceed to the next question.

Does the Activity light blink when you try to print a document?

Yes. 

If the document does not print, then click here for more troubleshooting.

No. 

Verify the following:

- The printer is selected in the application from which you are trying to print.
- The computer is connected to the network.

If you still cannot print then reset the printer to the factory default configuration.

cannot browse to the printer's internal web page

Verify the following:

- You are not using a phone cord to connect the printer to the network.
- The ethernet cable is securely connected to the printer.
- The ethernet hub or router is on and working properly.
- The computer that you are using is connected to the network.

If you still cannot access the printer's internal web page, then follow these steps:

1. Print a network configuration page.
2. Find the printer's URL (item 2 on the configuration page).
3. Launch your Internet browser.

Use Microsoft Internet Explorer 5.0 or higher or Netscape 4.75 or higher.

4. Enter the printer's **URL** in the address box, then press **Enter**.

If you still cannot open the printer's internal web page with the printer, then reset it to its factory default configuration.

The printer cannot be detected during software installation

Follow these steps if the printer cannot be detected during the software installation:

1. Print a network configuration page.
2. Find the printer's IP Address (item 7 on the configuration page).
3. On the **Identify Printer** panel of the software installer, select **Specify a printer by address**, then click **Next**.
4. On the **Specify Printer** panel of the software installer, select **IP Address**.
5. Enter the printer's **IP Address** in the IP Address box, then click **OK**.
6. Follow the onscreen instructions to complete the installation.

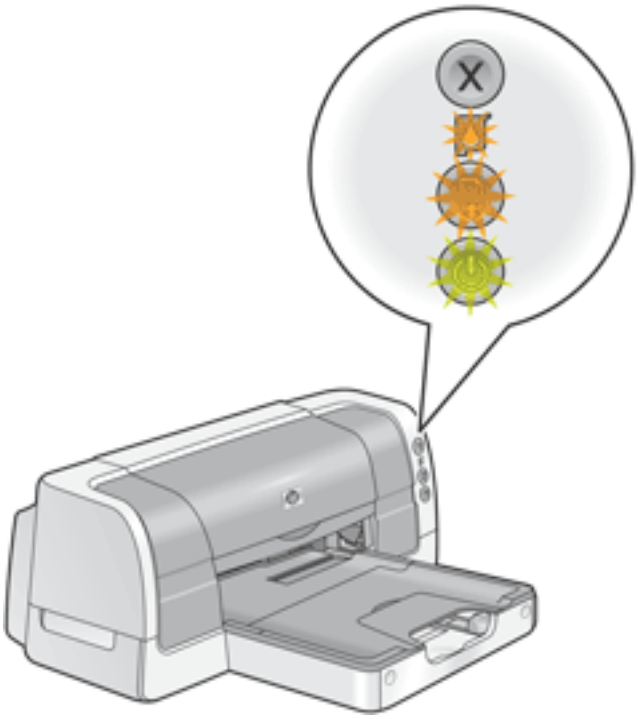
resetting the printer to the factory default configuration

Once the printer is configured on an ethernet, its configuration settings are saved in its memory. You may need to reset the printer to its factory default configuration, if you cannot:

- Print to the printer
- Open the printer's internal web page

Follow these steps to reset the printer to the factory default configuration:

1. Verify that the printer is powered off.
2. Press and hold down the **Cancel** button (**X**).
3. While holding down the **Cancel** button, press the **Power** button to turn the printer on.
4. Release the **Cancel** button.
5. Verify that all three printer lights simultaneously blink twice.



all three lights simultaneously blink twice

If the lights do not blink, then repeat steps 1-4.