

**HP LaserJet  
1160, 1320, 1320n,  
1320tn, 1320nw**



**i n v e n t**



**Use**



hp LaserJet 1160 and hp LaserJet 1320  
series printer

**User Guide** \_\_\_\_\_

Copyright information

© 2004 Copyright Hewlett-Packard  
Development Company, L.P.

Reproduction, adaptation or translation  
without prior written permission is  
prohibited, except as allowed under the  
copyright laws.

Part number: Q5927-90913

Edition 1, 09/2004

The information contained herein is subject  
to change without notice.

The only warranties for HP products and  
services are set forth in the express  
warranty statements accompanying such  
products and services. Nothing herein  
should be construed as constituting an  
additional warranty. HP shall not be liable  
for technical or editorial errors or omissions  
contained herein.

Trademark credits

Microsoft®, Windows®, and Windows NT®  
are U.S. registered trademarks of Microsoft  
Corporation.

Energy Star® and the Energy Star logo®  
are US registered marks of the United  
States Environmental Protection Agency.

PostScript® is a registered trademark of  
Adobe Systems Incorporated.

Bluetooth® is a registered trademark owned  
by its proprietor and used by Hewlett-  
Packard Company under license.

Java™ is a US trademark of Sun  
Microsystems Inc.

UNIX® is a registered trademark of The  
Open Group.

Linux® is a U.S. registered trademark of  
Linus Torvalds.

# Table of contents

## 1 Printer basics

Quick access to more information .....	2
WWW links for drivers, software, and support .....	2
User guide links .....	2
Where to look for more information .....	2
Printer configurations .....	3
hp LaserJet 1160 printer .....	3
hp LaserJet 1320 printer .....	3
hp LaserJet 1320n printer .....	4
hp LaserJet 1320tn printer .....	4
hp LaserJet 1320nw printer .....	4
Walk around .....	5
Printer control panel .....	6
Media paths .....	7
Single-sheet priority input slot (Tray 1) .....	7
Main input tray (Tray 2) .....	7
Straight-through output path .....	8
Output bin .....	9
Print cartridge access .....	10
Printer software .....	11
Supported operating systems .....	11
Installing printer software .....	11
Printer Properties (driver) .....	12
Print setting priorities .....	13
Printer Properties online help .....	13
Software for Windows .....	14
Printer drivers .....	14
Available printer drivers .....	14
hp toolbox .....	14
Embedded Web server .....	15
Software for Macintosh computers .....	16
hp LaserJet 1160 printer .....	16
hp LaserJet 1320 series printer .....	16
PostScript Printer Description files (PPDs) .....	17
Printer media specifications .....	18
Supported media sizes .....	18

## 2 Printer connections

USB connections .....	20
Connecting the USB cable .....	20
Parallel connections .....	21
Connecting the parallel cable .....	21
Network connections .....	22
Connecting to the network .....	23
Wireless connections .....	25

### 3 Managing the printer

Printer information pages .....	28
Demo page .....	28
Configuration page .....	28
Supplies Status page .....	28
Network Configuration page .....	28
Using the hp toolbox .....	29
Supported operating systems .....	29
Supported browsers .....	29
To view hp toolbox on Windows .....	29
To view hp toolbox on Mac .....	29
hp toolbox sections .....	30
Other links .....	30
Status tab .....	30
Troubleshooting tab .....	30
Alerts tab .....	31
Documentation tab .....	31
Advanced Printer Settings window .....	31
Network window .....	32
Using the embedded Web server .....	33
To open the embedded Web server .....	33
Information tab .....	34
Settings tab .....	34
Networking tab .....	34
Other links .....	35
Wireless printing .....	36
IEEE 802.11b/g standard .....	36
Bluetooth .....	36

### 4 Printing tasks

Manual feed .....	38
Canceling a print job .....	39
Understanding print quality settings .....	40
Using EconoMode (saves toner) .....	41
Optimizing print quality for media types .....	42
Guidelines for using media .....	43
Paper .....	43
Labels .....	44
Transparencies .....	44
Envelopes .....	44
Card stock and heavy media .....	46
Letterhead and preprinted forms .....	46
Choosing paper and other media .....	48
HP media .....	48
Media to avoid .....	48
Media that may damage the printer .....	48
Loading media into the input trays .....	50
Single-sheet priority input slot (Tray 1) .....	50
250-sheet input tray (Tray 2 or optional Tray 3) .....	50
Printing an envelope .....	51
Printing on transparencies or labels .....	53
Printing on letterhead and preprinted forms .....	54
Printing on custom-size media and card stock .....	55
Automatic two-sided printing (duplex) .....	57
Windows .....	57

Mac OS 9 .....	57
Mac OS X .....	58
Printing on both sides of the paper (manual two-sided printing) .....	59
Manual two-sided printing using the top output bin .....	59
Manual two-sided printing using the straight-through output door .....	61
Printing multiple pages on a single sheet of paper (N-up printing) .....	65
Printing booklets .....	66
Printing watermarks .....	67

## 5 Maintenance

Cleaning the printer .....	70
Cleaning the print cartridge area .....	70
Cleaning the printer media path .....	72
Changing the pickup roller .....	73
Cleaning the pickup roller .....	79
Changing the printer separation pad .....	80

## 6 Problemsolving

Finding the solution .....	84
Step 1: Is the printer set up correctly? .....	84
Step 2: Is the Ready light on? .....	84
Step 3: Can you print a demo page? .....	84
Step 4: Is the print quality acceptable? .....	85
Step 5: Is the printer communicating with the computer? .....	85
Step 6: Does the printed page look like you expected? .....	85
Contact HP support .....	86
Status light patterns .....	87
Common Macintosh problems .....	93
Troubleshooting PostScript (PS) errors .....	97
Paper handling problems .....	98
Paper jam .....	98
Print is skewed (crooked) .....	98
More than one sheet of media feeds through the printer at one time .....	98
Printer does not pull media from the media input tray .....	99
Printer curled the media .....	99
Printed media does not exit to the correct path .....	99
Print job is extremely slow .....	99
Printed page is different than what appeared on screen .....	100
Garbled, incorrect, or incomplete text .....	100
Missing graphics or text, or blank pages .....	100
Page format is different than on another printer .....	101
Graphics quality .....	101
Printer software problems .....	102
Improving print quality .....	103
Light print or faded .....	103
Toner specks .....	103
Dropouts .....	104
Vertical lines .....	104
Gray background .....	104
Toner smear .....	105
Loose toner .....	105
Vertical repetitive defects .....	105
Misformed characters .....	106
Page skew .....	106
Curl or wave .....	106

Wrinkles or creases .....	107
Toner scatter outline .....	107
Clearing jams .....	108
Print cartridge area .....	108
Input trays .....	110
Output bin .....	113
Straight-through output path .....	114
Automatic two-sided printing (duplexing) path .....	116
Wired network setup problemsolving .....	120

## Appendix A Printer specifications

Environmental specifications .....	124
Acoustic emissions .....	125
Electrical specifications .....	126
Physical specifications .....	128
Printer capacities and ratings .....	129
Memory specifications .....	130
Port availability .....	131

## Appendix B Regulatory information

FCC compliance .....	133
Declaration of Conformity statements .....	134
Regulatory statements .....	136
Laser safety statement .....	136
Canadian DOC regulations .....	136
Korean EMI statement .....	136
Laser statement for Finland .....	137
Environmental product stewardship program .....	138
Protecting the environment .....	138
Ozone production .....	138
Energy consumption .....	138
Toner consumption .....	138
Paper use .....	138
Plastics .....	138
HP LaserJet printing supplies .....	139
HP printing supplies returns and recycling program information .....	139
Paper .....	139
Material restrictions .....	139
For more information .....	140
Material safety data sheet .....	141

## Appendix C Warranty and licensing

Hewlett-Packard limited warranty statement .....	143
Hewlett-Packard software license agreement .....	145
Limited warranty for print cartridge life .....	146

## Appendix D HP parts and accessories

Ordering supplies and accessories .....	148
10/100 networking and wireless print servers .....	150
Using HP print cartridges .....	151
HP policy on non-HP print cartridges .....	151
Storing print cartridges .....	151
Print cartridge life expectancy .....	151

Saving toner .....	151
Redistributing toner .....	152
Changing the print cartridge .....	153
DIMMs (memory or font) .....	155
Installing a memory DIMM (HP LaserJet 1320 series printer only) .....	155
Testing the DIMM installation .....	158
Removing a DIMM .....	158

## **Appendix E Service and support**

Hardware service .....	162
Extended warranty .....	163
Guidelines for repacking the printer .....	164
How to contact HP .....	165

## **Index**



# 1

# Printer basics

This chapter provides information on the following topics:

- [Quick access to more information](#)
- [Printer configurations](#)
- [Walk around](#)
- [Printer control panel](#)
- [Media paths](#)
- [Print cartridge access](#)
- [Printer software](#)
- [Software for Windows](#)
- [Software for Macintosh computers](#)
- [Printer media specifications](#)

## Quick access to more information

The following sections provide resources for additional information about the hp LaserJet 1160 and hp LaserJet 1320 series printers.

### WWW links for drivers, software, and support

If you need to contact HP for service or support, use one of the following links.

#### hp LaserJet 1160 printer

- In the United States, see <http://www.hp.com/support/lj1160/>
- In other countries/regions, see <http://www.hp.com/>

#### hp LaserJet 1320 series printer

- In the United States, see <http://www.hp.com/support/lj1320/>
- In other countries/regions, see <http://www.hp.com/>

### User guide links

- [Walk around](#) (location of printer components)
- [Changing the print cartridge](#)
- [Problemsolving](#)
- [Ordering supplies and accessories](#)

### Where to look for more information

- **CD user guide:** Detailed information on using and troubleshooting the printer. Available on the CD-ROM that came with the printer.
- **Online Help:** Information on printer options that are available from within printer drivers. To view a Help file, access the online Help through the printer driver.
- **HTML (online) user guide:** Detailed information on using and troubleshooting the printer. Available at <http://www.hp.com/support/lj1160/> or <http://www.hp.com/support/lj1320/>. Once connected, select **Manuals**.

# Printer configurations

Below are the standard configurations for the HP LaserJet 1160 and HP LaserJet 1320 series printers.

## hp LaserJet 1160 printer

- 20 ppm (Letter), 19 ppm (A4)
- First page out as low as 8.5 seconds
- 1200 dpi effective output quality (600 x 600 dpi with Resolution Enhancement technology (REt) with FastRes 1200)
- 250-sheet enclosed input tray (Tray 2)
- Single-sheet priority input slot (Tray 1)
- EconoMode (saves toner)
- Print watermarks, booklets, multiple pages per sheet (N-up), and first page on different media than rest of the document
- 16 MB RAM
- 2,500-page print cartridge
- Host-based and PCL 5e (printer automatically determines and switches to the appropriate language)
- Compatible with USB 2.0 specifications
- IEEE-1284B parallel port
- Windows® 98, Me, NT® (print driver only), 2000, Server 2003 (printer driver only), XP 32-bit, XP 64-bit (printer driver only)
- Mac OS 9.1 and later (printer driver only)
- Power switch
- HP toolbox (provides printer status information, troubleshooting information, and printer configuration information)
- 26 PCL fonts

## hp LaserJet 1320 printer

- 22 ppm (Letter), 21 ppm (A4)
- First page out as low as 8.5 seconds
- ProRes 1200 (provides fine-line detail at 1200 x 1200 dpi)
- 600 dpi (provides 600 x 600 dpi output with Resolution Enhancement Technology (REt) for improved text)
- 250-sheet enclosed input tray (Tray 2)
- Single-sheet priority input slot (Tray 1)
- Optional additional 250-sheet input tray (Tray 3)
- Automatic two-sided (duplex) printing

- EconoMode (saves toner)
- Print watermarks, booklets, multiple pages per sheet (N-up), and first page on different media than rest of the document
- 16 MB RAM
- Memory is upgradeable to 144 MB
- 2,500- or 6,000-page print cartridge
- PCL 6, PCL 5e, and PostScript® Level 2 emulation (printer automatically determines and switches to the appropriate language)
- Compatible with USB 2.0 specifications
- IEEE-1284B parallel port
- Windows 98, Me, NT (printer driver only), 2000, Server 2003 (printer driver only), XP 32-bit, XP 64-bit (printer driver only)
- Mac OS 9.1 and later (printer driver only)
- Mac OS X v10.1 (printer driver only), v10.2 and later
- Power switch
- HP toolbox (provides printer status information, troubleshooting information, and printer configuration information)
- 46 HP fonts
- 35 PS fonts

## hp LaserJet 1320n printer

The HP LaserJet 1320n printer includes an Internal HP Jetdirect network port instead of the IEEE-1284B parallel port.

## hp LaserJet 1320tn printer

The HP LaserJet 1320tn printer includes all of the features of the HP LaserJet 1320n printer with the addition of a second 250-sheet input tray (Tray 3).

## hp LaserJet 1320nw printer

The HP LaserJet 1320nw printer includes all of the features of the HP LaserJet 1320n printer with the addition of integrated 802.11b/g wireless connectivity.

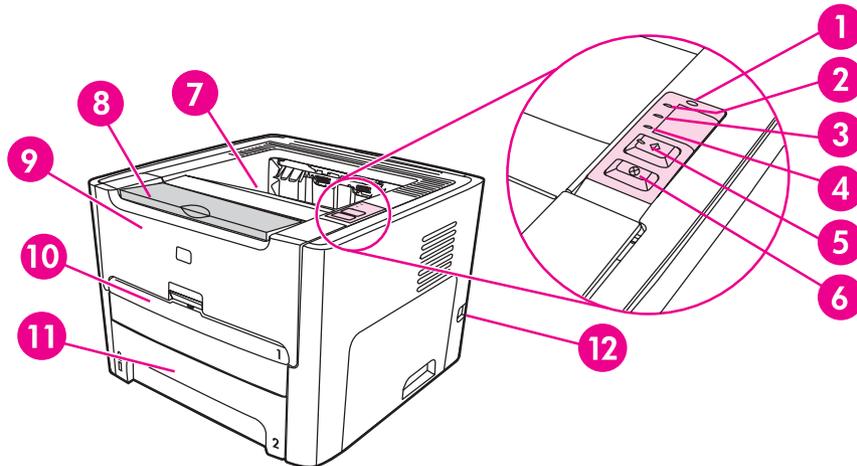
---

### Note

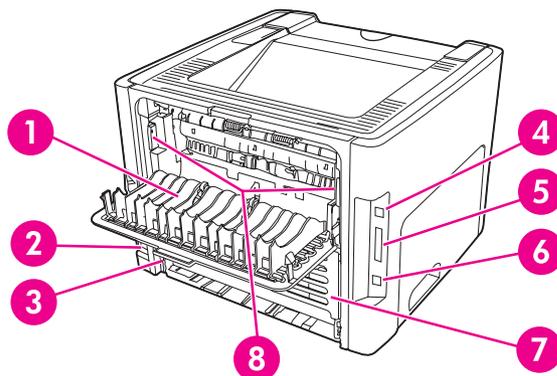
For more information about this product, see the HP LaserJet 1320nw wireless user guide.

## Walk around

The following illustrations identify the components of the hp LaserJet 1160 and hp LaserJet 1320 series printers.



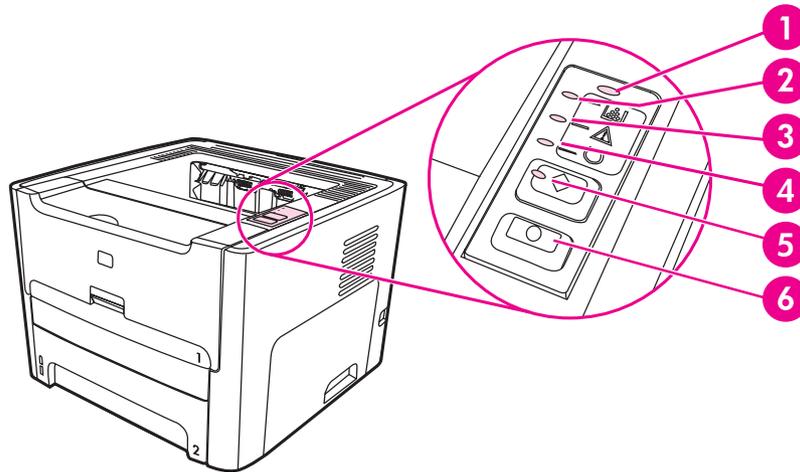
- 1 Wireless light (HP LaserJet 1320nw printer only)
- 2 Toner light
- 3 Attention light
- 4 Ready light
- 5 Go button and light
- 6 CANCEL button
- 7 Output bin
- 8 Media support
- 9 Print cartridge door
- 10 Single-sheet priority input slot (Tray 1)
- 11 Main input tray (Tray 2)
- 12 On/off switch



- 1 Straight-through output door
- 2 Power receptacle
- 3 Automatic two-sided printing media-size selector
- 4 USB port
- 5 Parallel port (HP LaserJet 1160 and HP LaserJet 1320 printers)
- 6 Internal HP Jetdirect network port (HP LaserJet 1320n, HP LaserJet 1320tn, and HP LaserJet 1320nw printers only)
- 7 Rear automatic two-sided path door
- 8 Jam clearing levers

## Printer control panel

The printer control panel is comprised of four lights and two buttons. The hp LaserJet 1320nw printer has an additional light at the top of the control panel. These lights produce patterns that identify your printer's status.



- 1 **Wireless light:** (HP LaserJet 1320nw printer only) When the Wireless light is on solid, a wireless connection has been established. When the Wireless light is off, wireless operation is disabled. When the Wireless light is flashing, the printer is trying to establish a wireless connection.
- 2 **Toner light:** When the toner is low, the Toner light is on solid. When the print cartridge is out of the printer, the Toner light is flashing.
- 3 **Attention light:** Indicates printer media input tray is empty, print cartridge door is open, print cartridge is missing, or other errors. See [Printer information pages](#) for more information.
- 4 **Ready light:** Indicates that the printer is ready to print.
- 5 **Go button and light:** To print a demo page or to continue printing while in manual feed mode, press and release the **Go** button. To print a configuration page, press and hold the **Go** button for 5 seconds.
- 6 **CANCEL button:** To cancel the print job that is currently printing, press the **CANCEL** button.

---

### Note

See [Status light patterns](#) for a description of the light patterns.

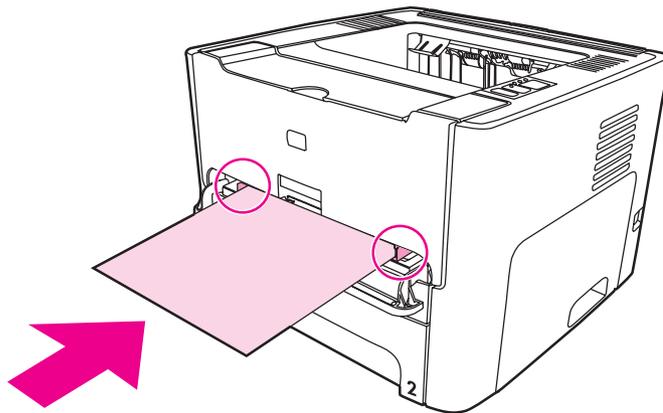
## Media paths

The following sections describe the input trays, output bins, and media paths.

### Single-sheet priority input slot (Tray 1)

You should use the single-sheet priority input slot when feeding one sheet of paper, envelope, postcard, label, or transparency. You can also use the single-sheet priority input slot to print the first page on different media than the rest of the document.

Media guides ensure that the media is correctly fed into the printer and that the print is not skewed (crooked on the media). When loading media, adjust the media guides to match the width of the media that you are using.



---

#### Note

---

The printer automatically prints from the single-sheet priority input slot before printing from the main input tray.

See [Choosing paper and other media](#) for more information about media types.

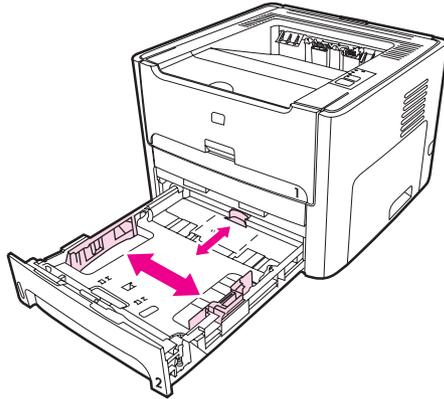
### Main input tray (Tray 2)

The enclosed main input tray, accessed from the front of the printer, holds up to 250 sheets of 20 lb paper or other media.

The main input tray supports paper with the following specifications:

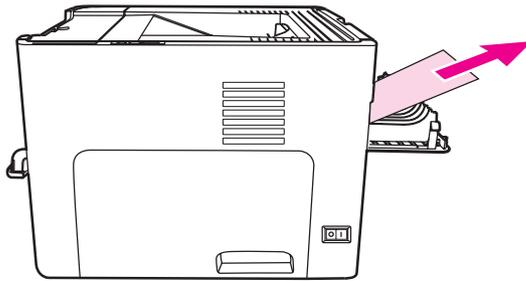
- **Weight:** Up to 60 to 105 g/m<sup>2</sup> (16 to 28 lb.).
- **Size:** From 147 x 211 mm (5.8 x 8.27 inches) to 216 x 356 mm (8.5 x 14 inches).

Media guides ensure that the media is correctly fed into the printer and that the print is not skewed (crooked on the media). The main input tray has both side and rear media guides. When loading media, adjust the media guides to match the length and width of the media that you are using.



## Straight-through output path

The straight-through output path is useful when you are printing envelopes, transparencies, heavy media, or any media that tends to curl when printed. Printed media exits in reverse order when the straight-through output door is open.



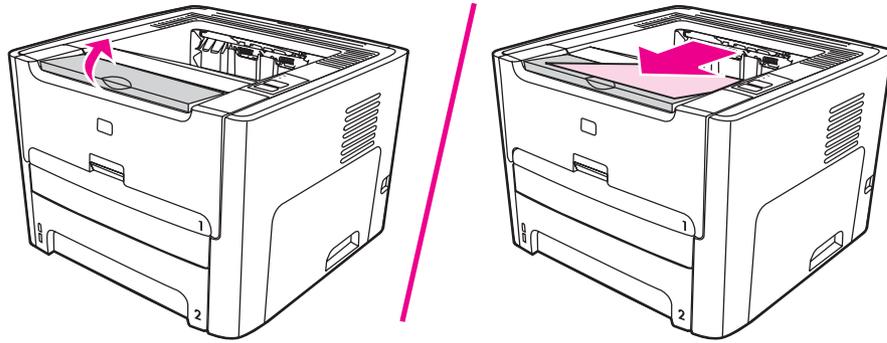
---

### Note

Printed media does not stack when you use the straight-through output path. The media drops to the surface below unless you remove each sheet as it exits the printer.

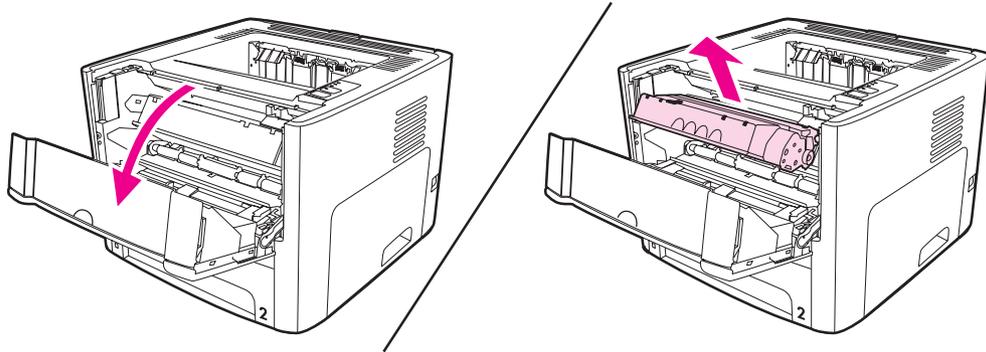
## Output bin

The output bin is located on the top of the printer. Printed media is collected here in the correct sequence when the straight-through output door is closed. The media support provides improved stacking for large print jobs. Use the output bin when printing normal and large, collated documents.



## Print cartridge access

The print cartridge door is located on the front of the printer. You must open the print cartridge door to access the print cartridge, clear jams, and clean the printer. To open the print cartridge door, grasp the center and pull the print cartridge door toward you.



# Printer software

The following sections describe the software that is provided with the HP LaserJet 1160 and HP LaserJet 1320 series printers.

## Supported operating systems

For easy printer setup and access to the full range of printer features, HP strongly recommends that you install the software provided. Not all software is available in all languages. Install the software before setting up the printer. See the Readme for the latest software information.

The most recent drivers, additional drivers, and other software are available from the Internet and other sources.

The printer comes with software for the following operating systems:

- Windows 98
- Windows Me
- Windows NT (printer driver only)
- Windows 2000
- Windows Server 2003 (printer driver only)

For more information about upgrading from Windows 2000 Server to Windows Server 2003, go to <http://www.microsoft.com/>.

For more information about Windows Server 2003 Point and Print, go to <http://www.microsoft.com/>.

For more information about Windows Server 2003 Terminal Services and Printing, go to <http://www.microsoft.com/>.

- Windows XP (32-bit)
- Windows XP (64-bit) (printer driver only)
- Mac OS 9.x (printer driver only)
- Mac OS X v10.1 (printer driver only), v10.2 and later

---

### Note

Apple encourages OS X v10.0 users to upgrade to v10.1 or later.

## Installing printer software

The following sections provide instructions for installing the printer software on various operating systems.

### To install a printer driver for Windows NT 4.0

To install the printer software for Windows NT 4.0, you must use the Add Printer Wizard.

1. Click **Start**, and then point to **Settings**.
2. Click **Printers**.
3. Double-click **Add Printer**.

4. Select the port that the printer is connected to, and click **Next**.
5. Click **Have Disk**. Click **Browse**.
6. On the CD-ROM, browse to the driver you want to install as follows:
  - a. Select your language from the directory list, and double-click.
  - b. Select **drivers** from the directory list, and double-click.
  - c. Select your operating system from the directory list, and double-click.
  - d. Select the driver from the directory list, and double-click.
  - e. Click **OK** to select the INF file.
  - f. Click **HP LaserJet 1160** or **HP LaserJet 1320 series printer**, and click **OK** to begin the installation.
7. Follow the on-screen instructions to complete the software installation.

### To install printer software for Windows XP (64-bit) and Windows Server 2003

See the operating system documentation for instructions on installing a printer driver.

### To install printer software for all other operating systems

Insert the software CD that came with the printer into the computer CD-ROM drive. **Follow the on-screen installation instructions.**

---

#### Note

If the Welcome screen does not open, click **Start** on the Windows task bar, click **Run**, type `z:\setup` (where `z` is your CD drive letter), and click **OK**.

## Printer Properties (driver)

Printer Properties control the printer. You can change the default settings, such as media size and type, printing multiple pages on a single sheet of media (N-up printing), resolution, and watermarks. You can access the printer Properties in the following ways:

- Through the software application that you are using to print. This only changes the settings for the current software application.
- Through the Windows operating system. This changes the default settings for all future print jobs.

---

#### Note

Because many software applications use a different method of accessing the printer Properties, the following section describes the most common methods used in Windows 98, 2000, Me, and Windows XP.

### To only change the settings for the current software application

---

#### Note

Although the steps can vary between software applications, this is the most common method.

1. From the **File** menu in the software application, click **Print**.
2. On the **Print** dialog, click **Properties**.
3. Change the settings, and click **OK**.

## To change the default settings for all future print jobs in Windows 98, 2000, and Me

1. In the Windows task bar, click **Start**, select **Settings**, and click **Printers**.
2. Right-click the **HP LaserJet 1160** or **HP LaserJet 1320 series printer** icon.
3. Click **Properties** (in Windows 2000, you can also click **Printing Preferences**).
4. Change the settings, and click **OK**.

---

### Note

In Windows 2000, many of these features are available from the **Printing Preferences** menu.

## To change the default settings for all future print jobs in Windows XP

1. In the Windows task bar, click **Start**, and click **Printers and Faxes**.
2. Right-click the **HP LaserJet 1160** or **HP LaserJet 1320 series printer** icon.
3. Click **Properties**, or click **Printing Preferences**.
4. Change the settings, and click **OK**.

## Print setting priorities

There are three ways to change print settings for this printer: in the software application, in the printer driver, and in the HP toolbox. For the HP LaserJet 1320 series printer, you can also change print settings through the embedded Web server. Changes made to print settings are prioritized according to where the changes are made, as follows:

- Changes made in the software application override settings changed anywhere else. Within a software application, changes made in the Page Setup dialog box override changes made in the Print dialog box.
- Changes made in the printer driver (printer Properties dialog box) override settings in the HP toolbox. Changes made in the printer driver do not override settings in the software application.
- Changes made in the HP toolbox and the embedded Web server have the lowest priority.

If a particular print setting can be changed in more than one of the ways listed above, use the method that has the highest priority.

## Printer Properties online help

The printer Properties (driver) online help includes specific information about the functions in the printer Properties. This online help guides you through the process of changing your printer's default settings. For some drivers, online Help gives instructions on using context-sensitive Help. Context-sensitive Help describes the options for the driver feature you are currently accessing.

## To access the printer Properties online help

1. From the software application, click **File**, and then click **Print**.
2. Click **Properties**, and then click **Help**.

## Software for Windows

The following software is available to all users of the printer.

### Printer drivers

A printer driver is the software component that provides access to printer features and provides the means for the computer to communicate with the printer. Choose a printer driver based on the way you use the printer.

- Use the PCL 5e printer driver if you need print results to look consistent with those from older HP LaserJet printers. Certain features are not available in this printer driver. (Do not use the PCL 5e driver for this printer with older printers.)
- Use the PCL 6 printer driver to take full advantage of the printer features (HP LaserJet 1320 series printer only). Unless complete backward compatibility with previous PCL drivers or older printers is necessary, the PCL 6 driver is recommended.
- Use the PS printer driver for compatibility with PostScript (HP LaserJet 1320 series printer only). Certain printer features are not available in this printer driver.

The printer automatically switches between PS and PCL printer languages depending on the driver you have selected.

### Available printer drivers

The following printer drivers are included with the printer.

#### Available printer drivers

HP LaserJet 1160 printer	HP LaserJet 1320 series printer
<ul style="list-style-type: none"><li>• host-based</li><li>• PCL 5e</li></ul>	<ul style="list-style-type: none"><li>• PCL 5e</li><li>• PCL 6</li><li>• PS</li></ul>

### hp toolbox

You can view the HP toolbox when the printer is directly connected to your computer or when it is connected to a network. You must have performed a complete software installation to use the HP toolbox.

The HP toolbox is a Web application that you can use for the following tasks:

- Check the printer status.
- Configure the printer settings.
- View troubleshooting information.
- View online documentation.

See [Using the hp toolbox](#) for more information.

## Embedded Web server

---

**Note**

---

This feature is only available on the HP LaserJet 1320n, HP LaserJet 1320tn, and HP LaserJet 1320nw printers.

The embedded Web server is available for the HP LaserJet 1320 series printer over the Internal HP Jetdirect network connection.

With the embedded Web server, you can gain access to the printer settings and information by typing an IP address or hostname of the printer in a Web browser (such as Netscape Navigator or Microsoft® Internet Explorer) on any computer. You can use the embedded Web server to configure the printer, view status information, and obtain troubleshooting information.

---

**Note**

---

These settings can also be changed using HP Toolbox.

The embedded Web server works with the following supported web browsers:

- Internet Explorer 5.5 (and later)
- Netscape Navigator 4.75 (and later)

See [Using the embedded Web server](#) for more information.

# Software for Macintosh computers

The following sections describe the software for Macintosh computers that is available for the HP LaserJet 1160 and HP LaserJet 1320 series printers.

## hp LaserJet 1160 printer

The following sections describe how to access the Macintosh software for the HP LaserJet 1160 printer.

### Accessing the printer driver (Mac OS 9.1 and later)

1. From the **Apple** menu, select the **Chooser**.
2. On the top, left side of the Chooser dialog box, click **HP LaserJet**.
3. Select one of the following options, depending on how the computer and the printer are connected:
  - **TCP/IP**: In the pop-up dialog, select **yes** to scan for TCP/IP network printers.
  - **USB**: Go to step 4.
4. On the right side of the Chooser dialog box, click **HP LaserJet 1160 printer**.
5. Close the Chooser.

### Accessing the printer driver (Mac OS X v10.1 and later)

1. Print Center should automatically launch. If it does not launch, perform the following steps:
  - a. Double-click the hard drive icon on the desktop.
  - b. Open the **Applications** folder, and then open the **Utilities** folder.
  - c. Double-click **Print Center** or **Printer Setup Utility**, depending on the operating system.
2. Click **Add**. The Add Printer List dialog box appears.
3. Select one of the following options from the top menu, depending on how the computer and the printer are connected:
  - **USB**
  - **TCP/IP**: For connecting to your TCP/IP printer in OS X v10.1, select **hp ip printing**. For OS X v10.2 and later, select **Rendezvous**.
4. Select the printer name from the printer list.
5. Click **Add**.

## hp LaserJet 1320 series printer

The following sections describe how to access the Macintosh software for the hp LaserJet 1320 series printer.

## Accessing the printer driver (Mac OS 9.x)

1. Double-click the hard drive icon on the desktop.
2. Open the **Applications** folder, and then open the **Utilities** folder.
3. Launch the **Desktop Printer Utility**.
4. Double-click **Printer (USB)**.
5. In the **USB Printer Selection** section of the dialog box, click **Change**.
6. Select **HP LaserJet 1320 printer**.
7. Click **Auto Setup**.
8. Click **Create** at the bottom of the Window.
9. Click **Save**.

## Accessing the printer driver (Mac OS X v10.1 and later)

1. Print Center should automatically launch. If it does not launch, perform the following steps:
  - a. Double-click the hard drive icon on the desktop.
  - b. Open the **Applications** folder, and then open the **Utilities** folder.
  - c. Double-click **Print Center** or **Printer Setup Utility**, depending on the operating system.
2. Click **Add**. The Add Printer List dialog box appears.
3. Select one of the following options from the top menu, depending on how the computer and the printer are connected:
  - **USB**
  - **TCP/IP**: For connecting to your TCP/IP printer in OS X v10.1, select **hp ip printing**. For OS X v10.2 and later, select **Rendezvous**.
4. Select the printer name from the printer list.
5. Click **Add**.

## PostScript Printer Description files (PPDs)

PPDs, in combination with the Apple printer driver, access the printer features and allow the computer to communicate with the printer. An installation program for the PPDs is provided on the HP LaserJet 1320 series printer CD.

## Printer media specifications

HP LaserJet printers produce excellent print quality. The printer accepts a variety of media, such as cut-sheet paper (including recycled paper), envelopes, labels, transparencies, vellum, and custom-size paper. Properties such as weight, grain, and moisture content are important factors affecting printer performance and output quality.

The printer can use a variety of paper and other print media in accordance with the guidelines in this user guide. Media that does not meet these guidelines might cause the following problems:

- Poor print quality
- Increased media jams
- Premature wear on the printer, requiring repair

For best results, use only HP brand paper and print media. Hewlett-Packard Company cannot recommend the use of other brands. Because they are not HP products, HP cannot influence or control their quality.

It is possible for media to meet all of the guidelines in this user guide and still not produce satisfactory results. This might be the result of improper handling, unacceptable temperature and humidity levels, or other variables over which Hewlett-Packard has no control.

Before you purchase a large quantity of media, make sure that it meets the requirements specified in this user guide and in *HP LaserJet printer family media guide*. The guidelines can be downloaded from <http://www.hp.com/support/ljpaperguide/> or see [Ordering supplies and accessories](#) for more information about ordering the guidelines. Always test media before you purchase a large quantity.

---

### CAUTION

---

Using media that does not meet Hewlett-Packard's specifications might cause problems for the printer, requiring repair. This repair is not covered by the Hewlett-Packard warranty or service agreements.

## Supported media sizes

The following are the supported media sizes:

- **Minimum:** 76 x 127 mm (3 x 5 in.)
- **Maximum:** 216 x 356 mm (8.5 x 14 in.)

# 2

## Printer connections

This chapter provides information on the following topics:

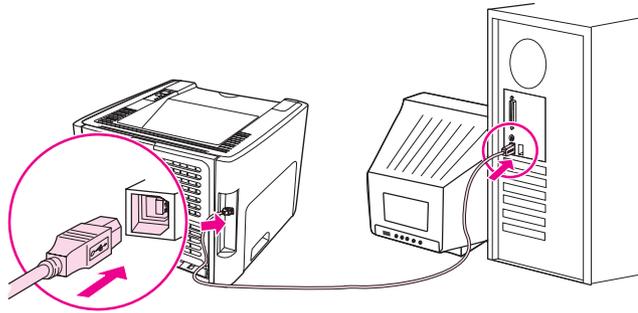
- [USB connections](#)
- [Parallel connections](#)
- [Network connections](#)
- [Wireless connections](#)

## USB connections

All HP LaserJet 1160 and HP LaserJet 1320 series printer models support USB connections.

### Connecting the USB cable

1. Plug the USB cable into the printer.
2. Plug the other end of the USB cable into the computer when prompted to do so during the software installation.

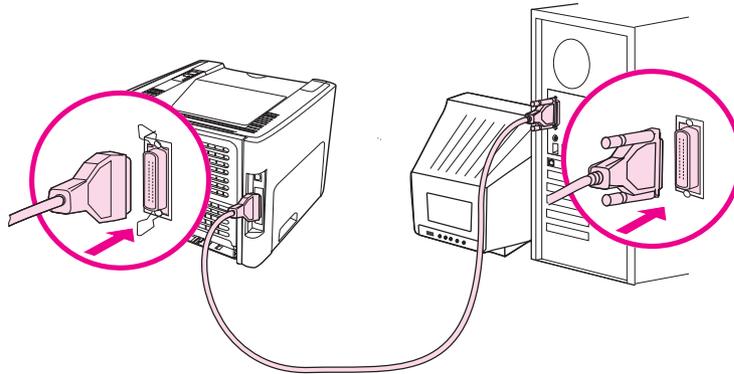


## Parallel connections

The HP LaserJet 1160 and HP LaserJet 1320 printer models support parallel connections.

### Connecting the parallel cable

1. Connect the parallel cable to the printer.
2. Connect the other end of the parallel cable to the computer.



## Network connections

The HP LaserJet 1320n, HP LaserJet 1320tn, and HP LaserJet 1320nw printers can connect to networks through the Internal HP Jetdirect network port. The HP LaserJet 1320nw printer can also connect to 802.11b/g wireless networks. External network print servers are available for the HP LaserJet 1160 and HP LaserJet 1320 series printers. The following table identifies what is required to add networking to any HP LaserJet 1160 or HP LaserJet 1320 series printer.

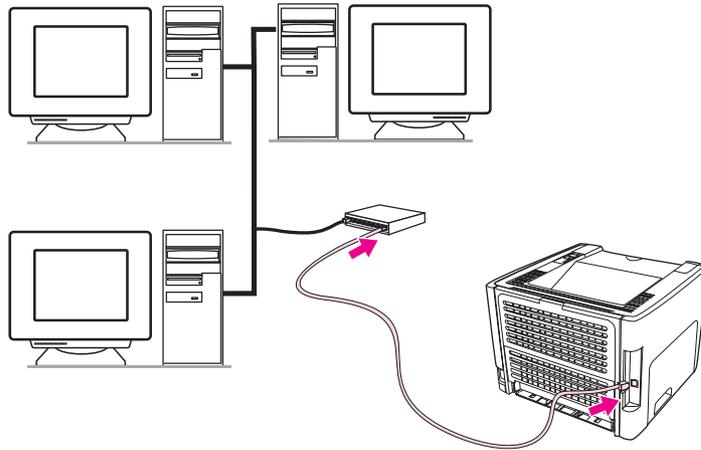
### Networking options

HP LaserJet model	10Base-T	10/100Base-TX	802.11b/g	Bluetooth®
1160	HP Jetdirect 170x	HP Jetdirect 175x (HP Jetdirect 300x, HP Jetdirect 500x) HP Jetdirect en3700	HP Jetdirect ew2400	HP bt1300
1320	HP Jetdirect 170x	HP Jetdirect 175x (HP Jetdirect 300x, HP Jetdirect 500x) HP Jetdirect en3700	HP Jetdirect ew2400	HP bt1300
1320n	Included	Included	HP Jetdirect ew2400 HP Jetdirect 380x (802.11b only)	HP bt1300
1320tn	Included	Included	HP Jetdirect ew2400 HP Jetdirect 380x (802.11b only)	HP bt1300
1320nw	Included	Included	Included	HP bt1300

To order the print server, see [10/100 networking and wireless print servers](#).

## Connecting to the network

Connect one end of a network cable to the network connector on the back of the device, and connect the other end to the network. Be sure to install the printer driver on all computers that connect to the network.



---

### Note

The following procedures are for the HP LaserJet 1320n, HP LaserJet 1320tn, and HP LaserJet 1320nw printers only.

The Ethernet network must be functional before proceeding with the following instructions.

### Connect the printer to the network

To connect the HP LaserJet 1320n, HP LaserJet 1320tn, or HP LaserJet 1320nw printer to a wired network, you need the following:

- Functional wired network
- CAT-5 Ethernet cable

To connect the printer to the network, perform the following steps:

1. Connect the CAT-5 Ethernet cable to an available port on the Ethernet hub or router.
2. Connect the Ethernet cable to the Ethernet port on the back of the printer.
3. Check that one of the network lights (10 or 100) on the network port located on the back of the printer comes on.

---

### Note

It might take a few moments for the printer network settings to become active and available for use. If one of the network lights does not come on, see [Wired network setup problemsolving](#)

4. Print a network configuration page. For more information, see [Network Configuration page](#).

### Install the printer software

1. Close all applications.
2. Insert the software installation CD into the computer's CD-ROM drive. The Welcome screen displays.

3. Click **Next**, and follow the instructions that the Installer provides to check and prepare the system, and install drivers, plug-ins, and software.

This might take several minutes.

### Print a Network Configuration page

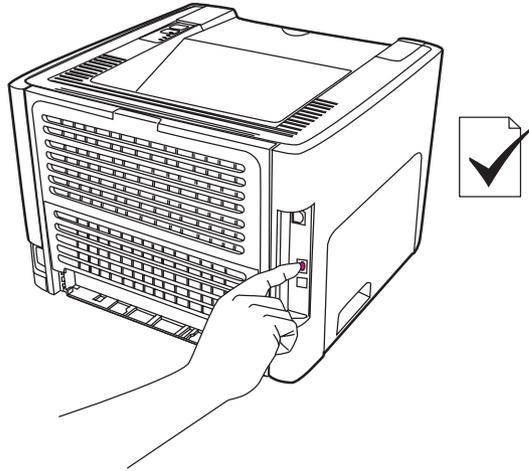
When the printer is in the Ready state, press and hold the **Go** button for 5 seconds. The Network Configuration page automatically prints with the printer Configuration page.

---

#### Note

---

To reset the networking card, when the printer is turned off, press and hold the Reset button located on the back of the printer. While holding down the Reset button, turn on the printer, and continue to hold the Reset button until the printer is in the Ready state.



## Wireless connections

The HP LaserJet 1320nw printer includes the IEEE 802.11b/g standard for wireless networking.

The HP LaserJet 1160 and HP LaserJet 1320 series printer models also support the IEEE 802.11b/g standard for wireless networking and Bluetooth wireless connectivity options through optional external accessories.

For a complete list of available Internal HP Jetdirect wireless print servers and HP bt1300 Wireless Printer Adapters (Bluetooth), see [10/100 networking and wireless print servers](#).

For more information about wireless printing, see [Wireless printing](#).



# 3

## Managing the printer

This chapter provides information on the following topics:

- [Printer information pages](#)
- [Using the hp toolbox](#)
- [Using the embedded Web server](#)
- [Wireless printing](#)

## Printer information pages

Special pages reside within the memory of the printer. These pages help you to diagnose and solve problems with the printer.

### Demo page

The Demo page contains examples of text and graphics. To print the Demo page, press **Go** when the printer is ready (Ready light on) and not printing.

### Configuration page

The Configuration page lists current settings and properties of the printer. It also contains a status log report. You can print a Configuration page from the printer, the embedded web server, or the HP Toolbox.

To print the Configuration page from the printer, press **Go** for 5 seconds when the printer is in the ready state.

---

**Note**

---

You can also get the information contained in the Event log and the Configuration page through the HP Toolbox without printing the pages. See [Using the hp toolbox](#) for more information.

### Supplies Status page

The Supplies Status page provides information about the print cartridge that is installed in the printer, the amount of toner left in the print cartridge, and the number of pages and print jobs that have been processed. The Supplies Status page also provides ordering and recycling information. The Supplies Status page automatically prints when a Configuration page is printed from the control panel.

### Network Configuration page

---

**Note**

---

The Network Configuration page is only available on the HP LaserJet 1320n, HP LaserJet 1320tn, and HP LaserJet 1320nw printers.

The Network Configuration page provides information about the printer's network configuration, including the IP address, firmware revision, network statistics, protocol information, and so on. The Network Configuration page automatically prints when a Configuration page is printed from the control panel.

## Using the hp toolbox

The HP toolbox is a Web application that you can use for the following tasks:

- Check the printer status.
- Configure the printer settings.
- View troubleshooting information.
- View online documentation.

You can view the HP toolbox when the printer is directly connected to your computer or when using a supported network connection. You must have performed a complete software installation to use the HP toolbox.

---

### Note

---

You do not have to have Internet access to open and use the HP toolbox. However, if you click a link in the **Other Links** area, you must have Internet access in order to go to the site associated with the link. See [Other links](#) for more information.

To install the HP Toolbox, you must install the TCP/IP protocol and the most recent version of the Java™ Virtual Machine on the computer. You must also install the DOT4 protocol for all USB connections, LPT connections for Windows 2000 and XP, and LPT1 connections for Windows 98, Me, and NT 4.0. See the system administrator or computer manufacturer's documentation for more information about installing the TCP/IP protocol and the DOT4 protocol. To download the most recent version of the Java Virtual Machine from Sun Microsystems, go to <http://www.sun.com/>.

## Supported operating systems

HP toolbox is supported for the following operating systems:

- Windows 98, 2000, Me, and XP
- Mac OS X v10.2 and later

## Supported browsers

To use the HP toolbox, you must have one of the following browsers:

- Microsoft Internet Explorer 5.5 or later
- Netscape Navigator 6 or later

## To view hp toolbox on Windows

1. On the **Start** menu, point to **Programs**, point to **HP LaserJet 1160** or **HP LaserJet 1320**, and choose the **HP toolbox**.
2. The HP toolbox opens in a Web browser.

---

### Note

---

Once you open the URL, you can bookmark it so that you can return to it quickly in the future.

## To view hp toolbox on Mac

1. Double-click the hard drive icon on the desktop.

2. Click **Applications**, and then click **Utilities**.
3. Double-click **hp toolbox**.

## hp toolbox sections

The HP toolbox software contains these sections:

- [Status tab](#)
- [Troubleshooting tab](#)
- [Alerts tab](#)
- [Documentation tab](#)
- [Advanced Printer Settings window](#)
- [Network window](#) (available only for the HP LaserJet 1320n, HP LaserJet 1320tn, and HP LaserJet 1320nw printers)

## Other links

Each page in the HP toolbox contains links to the HP website for product registration, product support, and for ordering supplies. You must have Internet access in order to use any of these links. If you use a dial-up connection and did not connect when you first opened the HP toolbox, you must connect before you can visit these websites.

## Status tab

The Status tab has links to these main pages:

- **Device Status.** View printer status information. This page will indicate printer conditions such as a paper jam or an empty tray. After you correct a problem with the printer, click the **Refresh** button to update the device status.
- **Supplies Status.** View detailed supplies status such as the percent of toner remaining in the print cartridge and the number of pages printed with the current print cartridge. This page also has links to order supplies and to find recycling information.
- **Print Info pages.** Print the configuration page and various other information pages that are available for the printer.

## Troubleshooting tab

The Troubleshooting tab provides links to various printer troubleshooting information. For example, these pages provide information on how to clear a jam, how to resolve print quality problems, how to interpret the control panel lights, and how to resolve other problems with the printer.

## Alerts tab

The Alerts tab allows you to configure the printer to automatically notify you of printer alerts. The Alerts tab has links to these main pages:

- Set up status alerts
- Set up e-mail alerts
- Administrative settings

### Set up status alerts

On the Set up status alerts page you can choose to turn alerts on or off, specify when the printer should send an alert, and choose from two different types of alerts:

- a pop-up message
- a task bar icon

Click **Apply** to activate the settings.

### Set up e-mail alerts

This page allows you to designate up to two e-mail addresses to notify of printer status alerts. Follow the instructions on the screen to set up e-mail alerts.

### Administrative settings

This page allows you to set the frequency of how often the HP toolbox checks for printer alerts. Three settings are available:

- **Less often**
- **Normal**
- **More often**

If you want to reduce network I/O traffic, reduce the frequency that the printer checks for alerts.

## Documentation tab

The Documentation tab contains links to these information sources:

- **User Guide.** Contains the information about the printer usage, warranty, specifications, and support that you are currently reading. The user guide is available in both .html and .pdf format.
- **Read Me.** Contains additional information that is not included in this user guide.

## Advanced Printer Settings window

When you click the **Advanced Printer Settings** link, a new window opens. The Advanced Printer Settings window has two tabs:

- Information tab
- Settings tab

## Information tab

The Information tab provides quick links to the following information:

- Device status
- Device configuration
- Supplies status
- Event log
- Print Info pages

## Settings tab

The Settings tab has links to several pages that allow you to view and change the printer's configuration.

---

### Note

---

Driver settings can override settings made in the HP Toolbox.

- **Device Information.** View basic information about the printer.
- **Paper Handling.** View and change the settings for the printer's input tray.
- **Printing.** View and change the default printer job settings.
- **PCL.** View and change the PCL font information.
- **PostScript.** This page is available for the HP LaserJet 1320 series printer only. View and change the settings for PS errors and timeout.
- **Print Quality.** View and change the print quality settings.
- **Print Modes.** View and change the print modes for various media types.
- **System Setup.** View and change system information.
- **I/O.** View and change the I/O timeout setting.
- **Resets.** Change all the printer settings back to the factory default settings.

## Network window

---

### Note

---

This option is only available for the HP LaserJet 1320n, HP LaserJet 1320tn, and HP LaserJet 1320nw printers.

When you click the **Network** link on the Advanced Printer Settings page, a new window opens. Use this section to configure network settings.

## Using the embedded Web server

The embedded Web server can be directly accessed on the HP LaserJet 1320n, HP LaserJet 1320tn, and HP LaserJet 1320nw printers. The embedded Web server provides the same functions as the Advanced Printer Settings section of the HP toolbox. The main differences between using the embedded Web server and using the HP toolbox are the following:

- You do not need to install any software on the computer. You only need to have a supported Web browser. To use the embedded Web server, you must have Microsoft Internet Explorer 5.5 or later or Netscape Navigator 4.75 or later.
- The embedded Web server is available in English only.
- The embedded Web server does not provide e-mail or status alerts.

The embedded Web server allows you to view printer and network status and to manage printing functions from your computer instead of from the printer control panel. Below are examples of what you can do using the embedded Web server:

- view printer status information
- view and print internal pages
- determine the remaining life on all supplies and order new ones
- set the size and type of paper loaded in each tray
- view and change tray configurations
- view and change the printer default configuration settings
- view and change network configuration

The embedded Web server works when the printer is connected to an IP-based network. The embedded Web server does not support IPX-based printer connections.

---

### Note

You do not have to have Internet access to open and use the embedded Web server. However, if you click a link in the **Other Links** area, you must have Internet access in order to go to the site associated with the link.

---

## To open the embedded Web server

1. In a supported Web browser, type the IP address or hostname for the printer. To find the IP address, print a Configuration page at the printer by pressing and holding **Go** for 5 seconds.

---

### Note

Once you open the URL, you can bookmark it so that you can return to it quickly in the future.

2. The embedded Web server has three tabs that contain settings and information about the printer: the **Information** tab, the **Settings** tab, and the **Networking** tab. Click the tab that you want to view.

## Information tab

The Information pages group consists of the following pages.

- **Device Status.** This page displays the printer status and shows the life remaining of HP supplies. This page also displays product information such as the network name, network address, and model information.
- **Configuration.** This page shows the information found on the printer Configuration page.
- **Supplies Status.** This page shows the life remaining of HP supplies and provides supplies part numbers.
  - To order new supplies, click **Order Supplies** in the **Other Links** area on the left side of the window.
  - To visit any web site, you must have Internet access.
- **Event log.** This page shows a list of all printer events and errors.
- **Print Info Pages.** This page has links that allow you to print the various information pages that reside within the memory of the printer.

## Settings tab

This tab allows you to configure the printer from your computer. If this printer is networked, always consult with the printer administrator before changing settings on this tab.

The **Settings** tab contains the following pages:

- **Device Information.** View and change basic information about the printer.
- **Paper Handling.** View and change the settings for the printer's input tray.
- **Printing.** View and change the default printer job settings.
- **PCL.** View and change the PCL font information.
- **PostScript.** View and change the settings for PS errors and timeout.
- **Print Quality.** View and change the print quality settings.
- **Print Modes.** View and change the print modes for various media types.
- **System Setup.** View and change system information.
- **I/O.** View and change the I/O timeout setting.
- **Service.** Complete service tasks in the printer, such as changing all the printer settings back to the factory default settings.

## Networking tab

This tab allows the network administrator to control network-related settings for the printer when it is connected to an IP-based network.

## Other links

This section contains links that connect you to the Internet. You must have Internet access in order to use any of these links. If you use a dial-up connection and did not connect when you first opened the embedded Web server, you must connect before you can visit these web sites. Connecting might require that you close the embedded Web server and reopen it.

- **Product Registration.** Connects you to the product registration page on the HP web site.
- **Order Supplies.** Click this link to connect to the Sure Supply web site and order genuine HP supplies from HP or a reseller of your choice.
- **Product Support.** Connects to the support site for the HP LaserJet 1320 series printer. You can search for help regarding general topics.

## Wireless printing

Wireless networks offer a safe, secure, and cost-effective alternative to traditional wired network connections. The HP LaserJet 1320nw printer has built-in wireless connectivity. For the other printer models, see [10/100 networking and wireless print servers](#) for a list of available wireless print servers.

### IEEE 802.11b/g standard

With wireless IEEE 802.11b/g compliant connectivity, the printers can be placed in the office or home and connected to a wireless network running Microsoft, Apple, NetWare, UNIX®, or Linux® network operating systems. This wireless technology provides a high-quality printing solution without the physical constraints of wiring. Peripherals can be conveniently placed in an office or home and can be easily moved without changing network cables.

Optional external HP Jetdirect 802.11b/g print servers are available for USB connections.

See the documentation that came with the HP LaserJet 1320nw printer for more information.

### Bluetooth

Bluetooth wireless technology is a low-power, short-range radio technology that can be used to wirelessly connect computers, printers, personal digital assistants, cell phones, and other devices.

Unlike infra-red technology, Bluetooth's reliance on radio signals means that devices do not have to be in the same room, office, or cubicle with an unobstructed line of sight in order to communicate. This wireless technology increases portability and efficiency within business network applications.

Bluetooth adapters are available for USB and parallel connections.

# 4

## Printing tasks

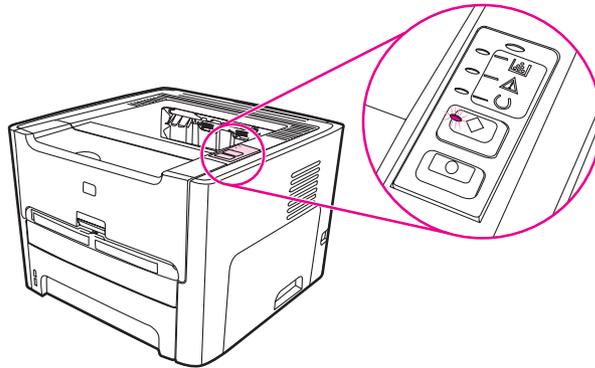
This chapter provides information on the following topics:

- [Manual feed](#)
- [Canceling a print job](#)
- [Understanding print quality settings](#)
- [Using EconoMode \(saves toner\)](#)
- [Optimizing print quality for media types](#)
- [Guidelines for using media](#)
- [Choosing paper and other media](#)
- [Loading media into the input trays](#)
- [Printing an envelope](#)
- [Printing on transparencies or labels](#)
- [Printing on letterhead and preprinted forms](#)
- [Printing on custom-size media and card stock](#)
- [Automatic two-sided printing \(duplex\)](#)
- [Printing on both sides of the paper \(manual two-sided printing\)](#)
- [Printing multiple pages on a single sheet of paper \(N-up printing\)](#)
- [Printing booklets](#)
- [Printing watermarks](#)

## Manual feed

You can use manual feed when printing mixed media, for example, an envelope, then a letter, then an envelope, and so on. Feed an envelope into the single-sheet priority input slot (Tray 1) and load letterhead into the main input tray (Tray 2).

To print using manual feed, access the printer Properties or Printer Setup in your software application, and select **Manual Feed (Tray 1)** from the **Source Tray** drop-down list. See [Printer Properties \(driver\)](#) for instructions. After you have enabled the setting, feed the single sheet of media, and press the **Go** button each time to print.



## Canceling a print job

You can cancel a print job from a software application or a print queue.

To stop the printer immediately, remove the remaining paper from the printer. After the printer stops, use one of the following options.

- **Printer control panel:** To cancel the print job, press and release the **CANCEL** button on the printer control panel.
- **Software application:** Typically, a dialog box appears briefly on your screen, allowing you to cancel the print job.
- **Windows print queue:** If a print job is waiting in a print queue (computer memory) or print spooler, delete the job there. Go to the **Printer** screen in Windows 98, Me, 2000, or XP, click **Start**, **Settings**, and **Printers**. Double-click the **HP LaserJet 1160** or the **HP LaserJet 1320** icon to open the window, select your print job, and click **Delete**.
- **Desktop print queue (Mac OS):** For Mac OS 9, double-click the printer icon in the **Finder** to open the printer queue, highlight the print job, and click **Trash**. For Mac OS X, open **Print Center** (or **Printer Setup Utility** in v10.3), double-click the printer name, select the print job, and click **Delete**.
- **HP Toolbox:** Open HP Toolbox, browse to the printer's **Device Status** page, and click **Cancel Job**. See [Using the hp toolbox](#) for more information.
- **Embedded Web server:** Open the printer's embedded Web server page, and click **Cancel Job**. See [Using the embedded Web server](#) for more information.

If the status lights on the control panel continue to blink after you cancel a print job, the computer is still sending the job to the printer. Either delete the job from the print queue or wait until the computer finishes sending data. The printer will return to the Ready state.

## Understanding print quality settings

Print quality settings affect how light or dark the print is on the page and the style that the graphics are printed. You can also use the print quality settings to optimize the print quality for a specific media type. See [Optimizing print quality for media types](#) for more information.

You can change the settings in the printer Properties to accommodate the types of jobs you are printing. The following are the settings:

- **1200 dpi:** (HP LaserJet 1320 series printer only) This setting uses ProRes 1200 to provide fine-line detail at 1200 x 1200 dpi.
  - **1200 dpi effective output quality:** This setting provides 1200 dpi effective output quality using FastRes 1200.
  - **600 dpi:** This setting provides 600 x 600 dpi output with Resolution Enhancement technology (REt) for improved text.
  - **EconoMode (Saves Toner):** Text is printed using less toner. This setting is useful when you are printing drafts. You can turn on this option independently of other print quality settings. See [Using EconoMode \(saves toner\)](#) for more information.
1. Access the printer Properties (or Printing Preferences in Windows 2000 and XP). See [Printer Properties \(driver\)](#) for instructions.
  2. On the **Paper/Quality** tab or the **Finishing** tab (the **Paper Type/Quality** tab for some Mac drivers), select the print quality setting you want to use.

---

### Note

Not all printer features are available in all drivers or operating systems. See the printer Properties (driver) online Help for information about availability of features for that driver.

---

### Note

To change the print quality settings for all future print jobs, access the Properties through the **Start** menu in the Windows task bar. To change the print quality settings only for the current software application's use, access the Properties through the **Print Setup** menu in the application you are using to print. See [Printer Properties \(driver\)](#) for more information.

---

## Using EconoMode (saves toner)

EconoMode is a feature that allows the printer to use less toner per page. Selecting this option will extend the life of the toner supply and will reduce cost per page. However, it will also reduce print quality. The printed image is lighter, but it is adequate for printing drafts or proofs.

HP does not recommend the full-time use of EconoMode. If EconoMode is used full-time when the average toner coverage is significantly less than 5 percent, it is possible that the toner supply will outlast the mechanical parts in the print cartridge. If print quality begins to degrade under these circumstances, you must install a new print cartridge, even if there is toner supply remaining in the cartridge.

1. To enable EconoMode, access the printer Properties (or Printing Preferences in Windows 2000 and XP). See [Graphics quality](#) for instructions.
2. On the **Paper/Quality** tab or the **Finishing** tab (the **Paper Type/Quality** tab for some Mac drivers), select the **EconoMode** checkbox.

---

**Note**

---

Not all printer features are available in all drivers or operating systems. See the printer Properties (driver) online Help for information about availability of features for that driver.

---

**Note**

---

See [Graphics quality](#) for instructions on enabling EconoMode for all future jobs.

## Optimizing print quality for media types

Media type settings control the temperature of your printer's fuser. You can change the settings for the media that you are using to optimize the print quality.

You can access the optimizing feature from the **Paper** tab in your printer driver, from HP Toolbox, or from the embedded Web server.

The HP LaserJet 1160 and HP LaserJet 1320 series printers provide a number of print modes that allow the unit to adapt more specifically to the printer's media environment. The following tables provide an overview of the driver print modes.

---

**Note**

---

When using the CARDSTOCK, ENVELOPE, LABEL, and ROUGH modes, the printer pauses between pages and the number of pages per minute decreases.

### Driver print modes

Mode	Purpose and media
PLAIN	75 to 104 g/m <sup>2</sup> (20 to 27 lb)
LIGHT	< 75 g/m <sup>2</sup> (20 lb)
HEAVY	90 to 105 g/m <sup>2</sup> (24 to 28 lb)
CARDSTOCK	Card stock or thick media
TRANSPARENCY	4-mil, 0.1 Monochrome Overhead Transparencies (OHTs)
ENVELOPE	Standard HP LaserJet envelopes
LABEL	Standard HP LaserJet labels
BOND	Bond paper
ROUGH	Rough paper

## Guidelines for using media

The following sections provide guidelines and instructions for printing on transparencies, envelopes, and other special media. Guidelines and specifications are included to help you select media that optimizes print quality and avoid media that may cause jams or damage the printer.

### Paper

For best results, use conventional 75 g/m<sup>2</sup> (20 lb) paper. Make sure that the paper is of good quality and free of cuts, nicks, tears, spots, loose particles, dust, wrinkles, voids, and curled or bent edges.

If you are unsure about what type of paper you are loading (such as bond or recycled), check the label on the package of paper.

Some paper causes print quality problems, jamming, or damage to the printer.

#### Paper usage

Symptom	Problem with paper	Solution
Poor print quality or toner adhesion. Problems with feeding.	Too moist, too rough, too smooth, or embossed. Faulty paper lot.	Try another kind of paper: between 100-250 Sheffield and 4-6 percent moisture content. Check the printer and make sure that the appropriate media type has been selected.
Dropouts, jamming, or curl.	Stored improperly.	Store paper flat in its moistureproof wrapping.
Increased gray background shading.	Might be too heavy.	Use lighter paper.
Excessive curl. Problems with feeding.	Too moist, wrong grain direction, or short-grain construction.	Use long-grain paper. Print using the straight-through output path. Check the printer and make sure that the appropriate media type has been selected.
Jamming or damage to printer.	Cutouts or perforations.	Do not use paper with cutouts or perforations.
Problems with feeding.	Ragged edges.	Use good quality paper.

---

**Note**

The printer uses heat and pressure to fuse toner to the paper. Make sure that any colored paper or preprinted forms use inks that are compatible with the printer temperature (200° C (392° F) for 0.1 second).

Do not use letterhead that is printed with low-temperature inks, such as those used in some types of thermography.

Do not use raised letterhead.

Do not use transparencies designed for Inkjet printers or other low temperature printers. Use only transparencies that are specified for use with HP LaserJet printers.

---

## Labels

HP recommends that you print labels from the single-sheet priority input slot (Tray 1) using the straight-through output path. See [Straight-through output path](#) for more information.

---

**CAUTION**

---

Do not feed a sheet of labels through the printer more than once. The adhesive degrades and might damage the printer.

### Label construction

When selecting labels, consider the quality of the following components:

- **Adhesives:** The adhesive material should be stable at 200° C (392° F), the printer's maximum temperature.
- **Arrangement:** Only use labels with no exposed backing between them. Labels can peel off sheets that have spaces between the labels, causing serious jams.
- **Curl:** Prior to printing, labels must lie flat with no more than 13 mm (0.5 in.) of curl in any direction.
- **Condition:** Do not use labels with wrinkles, bubbles, or other indications of separation.

## Transparencies

Transparencies must be able to withstand 200° C (392° F), the printer's maximum temperature.

---

**CAUTION**

---

You can print transparencies from the main input tray (Tray 2). However, do not load more than 75 transparencies at one time.

## Envelopes

HP recommends that you print envelopes from the single-sheet priority input slot (Tray 1) using the straight-through paper path. See [Straight-through output path](#) for more information.

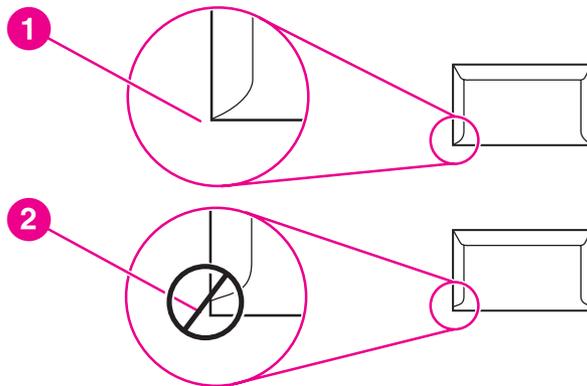
## Envelope construction

Envelope construction is critical. Envelope fold lines can vary considerably, not only between manufacturers, but also within a box from the same manufacturer. Successful printing on envelopes depends upon the quality of the envelopes. When selecting envelopes, consider the following components:

- **Weight:** The weight of the envelope paper should not exceed 90 g/m<sup>2</sup> (24 lb), or jamming might result.
- **Construction:** Prior to printing, envelopes should lie flat with less than 6 mm (0.25 in.) curl and should not contain air. Envelopes that trap air may cause problems. Do not use envelopes that contain clasps, snaps, tie strings, transparent windows, holes, perforations, cut outs, synthetic materials, stamping, or embossing. Do not use envelopes with adhesives that do not require moistening, but rely instead on pressure to seal them.
- **Condition:** Make sure that the envelopes are not wrinkled, nicked, or otherwise damaged. Make sure that the envelopes do not have any exposed adhesive.
- **Sizes:** From 90 x 160 mm (3.5 x 6.3 in.) to 178 x 254 mm (7 x 10 in.).

## Envelopes with double-side seams

An envelope with double-side-seam construction has vertical seams at both ends of the envelope rather than diagonal seams. This style might be more likely to wrinkle. Make sure that the seam extends all the way to the corner of the envelope as shown in the following illustration:



- 1 acceptable envelope construction
- 2 unacceptable envelope construction

## Envelopes with adhesive strips or flaps

Envelopes with a peel-off adhesive strip or with more than one flap that folds over to seal must use adhesives compatible with the heat and pressure in the printer: 200° C (392° F). The extra flaps and strips might cause wrinkling, creasing, or jams.

## Envelope storage

Proper storage of envelopes contributes to good print quality. You should store envelopes flat. If air is trapped in an envelope, creating an air bubble, the envelope might wrinkle during printing.

## Card stock and heavy media

You can print many types of card stock from the paper input tray, including index cards and postcards. Some card stock performs better than others because its construction is better suited for feeding through a laser printer.

For optimum printer performance, do not use paper heavier than 157 g/m<sup>2</sup> (42 lb). Paper that is too heavy might cause misfeeds, stacking problems, paper jams, poor toner fusing, poor print quality, or excessive mechanical wear.

---

### Note

---

You might be able to print on heavier paper if you do not fill the input tray to capacity and if you use paper with a smoothness rating of 100-180 Sheffield.

## Card stock construction

- **Smoothness:** 135-157 g/m<sup>2</sup> (36-42 lb) card stock should have a smoothness rating of 100-180 Sheffield. 60-135 g/m<sup>2</sup> (16-36 lb) card stock should have a smoothness rating of 100-250 Sheffield.
- **Construction:** Card stock should lie flat with less than 5 mm (0.2 in.) of curl.
- **Condition:** Make sure that the card stock is not wrinkled, nicked, or otherwise damaged.
- **Sizes:** Only use card stock within the following size ranges:
  - **Minimum:** 76 x 127 mm (3 x 5 in.)
  - **Maximum:** 216 x 356 mm (8.5 x 14.0 in.)

## Card stock guidelines

Set margins at least 2 mm (0.08 in.) away from the edges.

## Letterhead and preprinted forms

Letterhead is premium paper that often has a watermark, sometimes uses cotton fiber, and is available in a wide range of colors and finishes with matching envelopes. Preprinted forms can be made of a broad spectrum of paper types ranging from recycled to premium.

Many manufacturers now design these grades of paper with properties optimized for laser printing and advertise the paper as laser compatible or laser guaranteed. Some of the rougher surface finishes, such as cockle, laid, or linen, might require the special fuser modes that are available on some printer models to achieve adequate toner adhesion.

---

### Note

---

Some page-to-page variation is normal when printing with laser printers. This variation cannot be observed when printing on plain paper. However, this variation is obvious when printing on preprinted forms because the lines and boxes are already placed on the page.

To avoid problems when using preprinted forms, embossed paper, and letterhead, observe the following guidelines:

- Avoid using low-temperature inks (the kind used with some types of thermography).
- Use preprinted forms and letterhead paper that have been printed by offset lithography or engraving.
- Use forms that have been created with heat-resistant inks that will not melt, vaporize, or release undesirable emissions when heated to 205° C (401° F) for 0.1 second. Typically, oxidation-set or oil-based inks meet this requirement.
- When the form is preprinted, be careful not to change the moisture content of the paper, and do not use materials that change the paper's electrical or handling properties. Seal the forms in moisture-proof wrap to prevent moisture changes during storage.
- Avoid processing preprinted forms that have a finish or coating.
- Avoid using heavily embossed or raised-letterhead papers.
- Avoid papers that have heavily textured surfaces.
- Avoid using offset powders or other materials that prevent printed forms from sticking together.

## Choosing paper and other media

HP LaserJet printers produce excellent print quality documents. You can print on a variety of media, such as paper (including up to 100% recycled fiber content paper), envelopes, labels, transparencies, and custom-size media. The following are the supported media sizes:

- Minimum: 76 by 127 mm (3 by 5 in.)
- Maximum: 216 by 356 mm (8.5 by 14 in)

Properties such as weight, grain, and moisture content are important factors that affect printer performance and quality. To achieve the best possible print quality, only use high-quality media designed for laser printers. See [Printer media specifications](#) for detailed paper and media specifications.

---

### Note

Always test a sample of the media before you purchase large quantities. Your media supplier should understand the requirements specified in the *HP LaserJet printer family print media guide* (HP part number 5963-7863). See [Printer media specifications](#) for more information.

---

## HP media

HP recommends the following HP media:

- HP Multipurpose Paper
- HP Office Paper
- HP All-in-One Printing Paper
- HP LaserJet Paper
- HP Premium Choice LaserJet Paper

## Media to avoid

The HP LaserJet 1160 and HP LaserJet 1320 series printers can handle many types of media. Use of media outside the printer's specifications will cause a loss of print quality and increase the chance of paper jams occurring.

- Do not use paper that is too rough.
- Do not use paper with cutouts or perforations other than standard 3-hole punched paper.
- Do not use multipart forms.
- Do not use paper with a watermark if you are printing solid patterns.

## Media that may damage the printer

In rare circumstances media can damage the printer. The following media must be avoided to prevent possible damage:

- Do not use media with staples attached.
- Do not use transparencies designed for Inkjet printers or other low temperature printers. Use only transparencies that are specified for use with HP LaserJet printers.
- Do not use photo paper intended for Inkjet printers.

- Do not use paper that is embossed or coated and is not designed for the temperatures of the printer's image fuser. Select media that can tolerate temperatures of 200° C (392° F) for 0.1 second. HP produces a selection of media that is designed for the HP LaserJet 1160 and HP LaserJet 1320 series printers.
- Do not use letterhead paper with low temperature dyes or thermography. Preprinted forms or letterhead must use inks that can tolerate temperatures of 200° C (392° F) for 0.1 second.
- Do not use any media that produces hazardous emissions, or that melts, offsets, or discolors when exposed to 200° C (392° F) for 0.1 second.

To order HP LaserJet printing supplies, go to <http://www.hp.com/go/ljsupplies/> in the U.S. or to <http://www.hp.com/ghp/buyonline.html/> worldwide.

## Loading media into the input trays

The following sections describe how to load media into the different input trays.

---

### CAUTION

---

If you try to print on media that is wrinkled, folded, or damaged in any way, a jam might occur. See [Printer media specifications](#) for more information.

### Single-sheet priority input slot (Tray 1)

The single-sheet priority input slot holds one sheet of media up to 163 g/m<sup>2</sup> (43 lb) or one envelope, transparency, or card. Load media with the top forward and the side to be printed facing up. To prevent jams and skewing, always adjust the side media guides before feeding the media.

---

### Note

---

When feeding media into the single-sheet priority input slot, the printer pulls the media partially into the engine and waits for you to press the **Go** button (blinking light). You must wait for the printer to stop before feeding another sheet of media. You can only feed one sheet of media at a time.

### 250-sheet input tray (Tray 2 or optional Tray 3)

The input tray holds up to 250 pages of 75 g/m<sup>2</sup> (20 lb) paper or fewer pages of heavier media (25 mm (0.9 in) or less stack height). Load media with the top forward and the side to be printed facing down. To prevent jams and skewing, always adjust the side and rear media guides.

---

### Note

---

When you add new media, make sure that you remove all of the media from the input tray and straighten the stack of new media. This helps prevent multiple sheets of media from feeding through the printer at one time, reducing media jams.

## Printing an envelope

Only use envelopes that are recommended for laser printers. See [Printer media specifications](#) for more information.

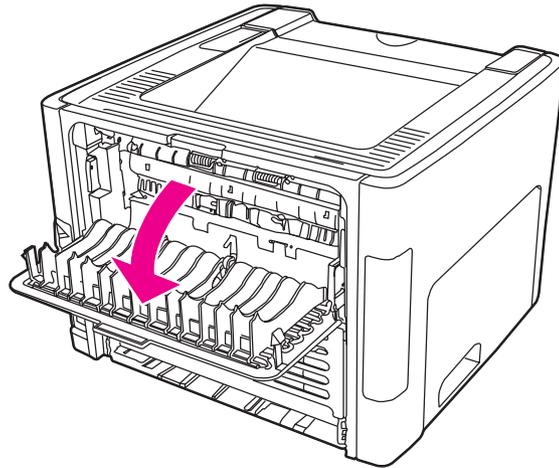
---

### Note

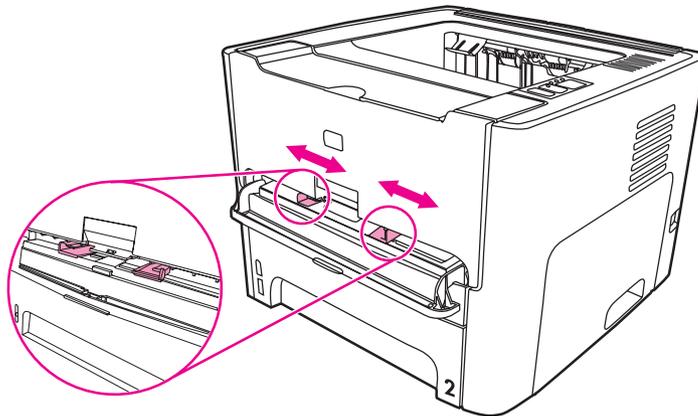
---

You must load envelopes one at a time in the single-sheet priority input slot (Tray 1).

1. To prevent the envelope from curling as it prints, open the straight-through output door.



2. Before loading the envelope, open the single-sheet priority input slot (Tray 1), and adjust the media guides to the width of the envelope.

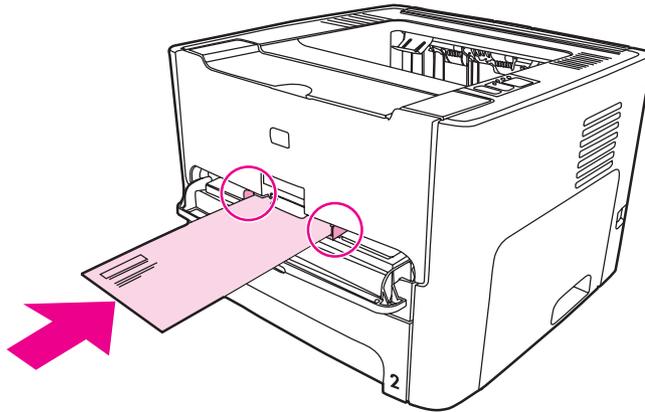


3. Place the envelope with the side to be printed facing up and the top edge along the left media guide. Feed the envelope into the slot. The envelope will partially feed into the printer, and the printer will pause.

---

**Note**

If the envelope has a flap on the short edge, feed that edge into the printer first.



4. Access the printer Properties (or Printing Preferences in Windows 2000 and XP). See [Printer Properties \(driver\)](#) for instructions.
5. On the **Paper/Quality** tab or the **Paper** tab (the **Paper Type/Quality** tab for some Mac drivers), select **Envelope** as the media type.

---

**Note**

Not all printer features are available in all drivers or operating systems. See the printer Properties (driver) online Help for information about availability of features for that driver.

6. Print the document.  
To print using manual feed, see [Manual feed](#).

## Printing on transparencies or labels

Only use transparencies and labels that are recommended for use in laser printers, such as HP transparency film and HP LaserJet labels. See [Printer media specifications](#) for more information.

---

### CAUTION

Be sure to set the correct media type in the printer settings as instructed below. The printer adjusts the fuser temperature according to the media type setting. When printing on special media such as transparencies or labels, this adjustment prevents the fuser from damaging the media as it passes through the printer.

---

### CAUTION

Inspect the media to make sure that it is not wrinkled or curled and that it does not have any torn edges or missing labels.

1. Open the straight-through output door.
2. Before feeding the media, open the single-sheet priority input slot (Tray 1), and adjust the media guides to the width of the media.
3. Feed a single page in the single-sheet priority input slot (Tray 1). Make sure that the top of the media is forward and the side to be printed (rough side) is facing up. The media will partially feed into the printer, and the printer will pause.

---

### Note

You can load multiple transparencies in the main input tray (Tray 2). However, do not load more than 75 transparencies at a time.

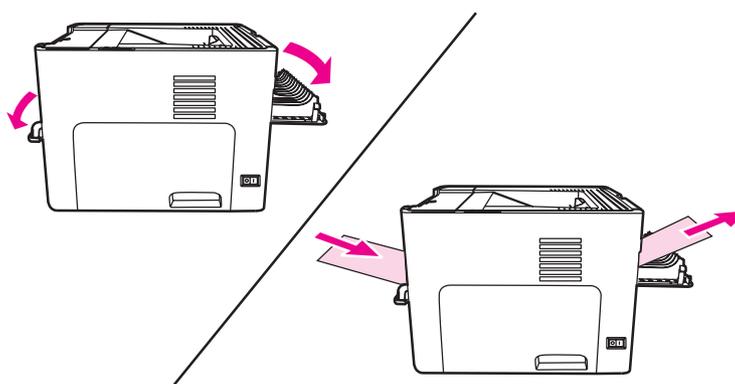
4. Access the printer Properties (or Printing Preferences in Windows 2000 and XP). See [Printer Properties \(driver\)](#) for instructions.
5. On the **Paper/Quality** tab or the **Paper** tab (the **Paper Type/Quality** tab for some Mac drivers), choose the correct media type.

---

### Note

Not all printer features are available in all drivers or operating systems. See the printer Properties (driver) online Help for information about availability of features for that drivers.

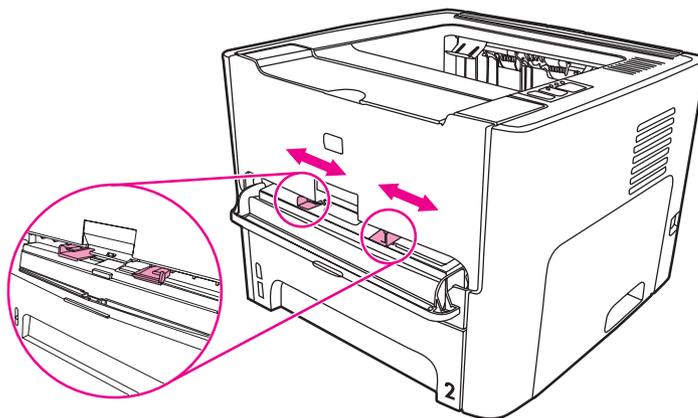
6. Print the document. Remove the media from the back of the printer as it prints to prevent it from sticking together, and place the printed pages on a flat surface.



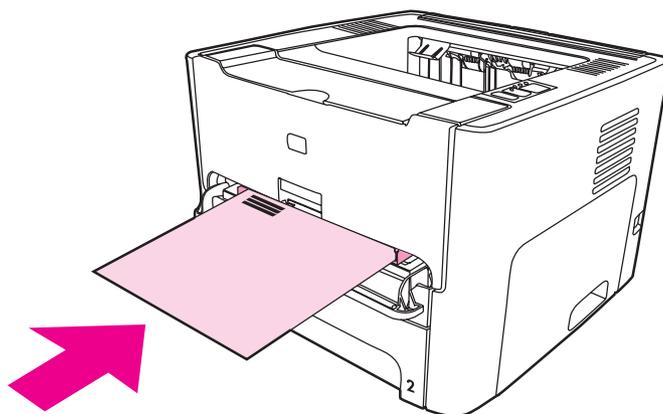
## Printing on letterhead and preprinted forms

The HP LaserJet 1160 and HP LaserJet 1320 series printers can print on letterhead and preprinted forms that can withstand temperatures of 205° C (401° F).

1. Before feeding the media, open the single-sheet priority input slot, and adjust the media guides to the width of the media.



2. Feed the media with the top forward and the side to be printed facing up. The media will partially feed into the printer and the printer will pause.



3. Print the document.

To print using manual feed, see [Manual feed](#).

---

### Note

To print a single-page cover letter on letterhead, followed by a multiple-page document, feed the letterhead face up in the single-sheet priority input slot (Tray 1), and load the standard paper in the main input tray (Tray 2). The printer automatically prints from the single-sheet priority input slot first.

## Printing on custom-size media and card stock

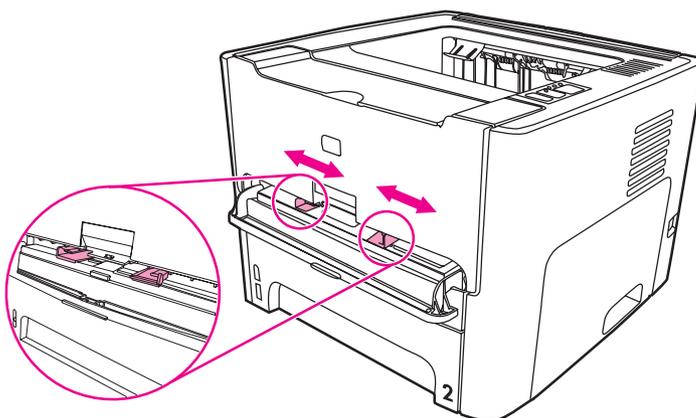
The HP LaserJet 1160 and HP LaserJet 1320 series printer can print on custom-size media or card stock between 76 by 127 mm (3 by 5 inches) and 216 by 356 mm (8.5 by 14 inches).

Use the main input tray for multiple sheets. See [Main input tray \(Tray 2\)](#) for the supported media sizes.

### CAUTION

Make sure that the sheets are not stuck together before you load them.

1. Open the straight-through output door.
2. Before feeding the media, open the single-sheet priority input slot (Tray 1), and adjust the media guides to the width of the media.



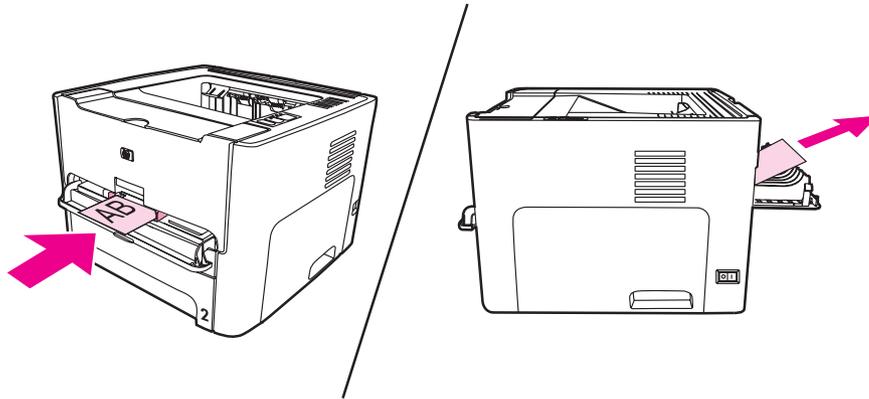
3. Feed the media in the single-sheet priority input slot (Tray 1) with the narrow side forward and the side to be printed facing up. The media will partially feed into the printer, and the printer will pause.
4. Select the correct size in the printer settings. (Software settings can override printer Properties.)
5. Access the printer Properties (or Printing Preferences in Windows 2000 and XP). See [Printer Properties \(driver\)](#) for instructions.
6. On the **Paper/Quality** tab or the **Paper** tab (the **Paper Type/Quality** tab for some Mac drivers), select the custom size option. Specify the dimensions of the custom-size media.

### Note

Not all printer features are available in all drivers or operating systems. See the printer Properties (driver) online Help for information about availability of features for that driver.

7. Print the document.

To print using manual feed, see [Manual feed](#).



## Automatic two-sided printing (duplex)

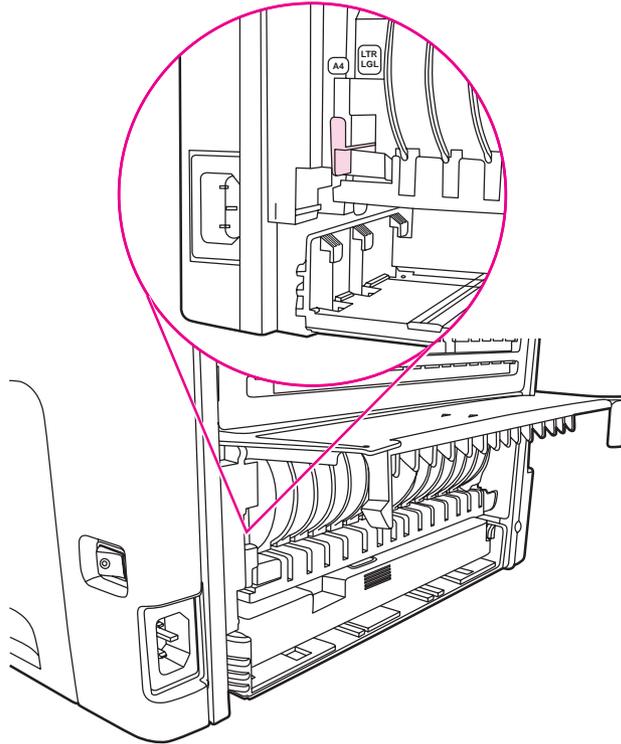
Automatic two-sided printing is standard for the HP LaserJet 1320 series printer. Automatic two-sided printing supports A4, letter, and legal paper.

---

### Note

---

Depending on the media size, you might have to adjust the automatic two-sided printing media-size selector to the appropriate size. Push in the media-size selector for letter/legal-size media. Pull out the media-size selector for A4-size media.



The following sections provide instructions for the different operating systems.

### Windows

To automatically print on both sides of the paper (HP LaserJet 1320 series printer only), perform the following steps:

1. Make sure that the straight-through output door is closed.
2. Access the printer Properties (or Printing Preferences in Windows 2000 and XP).
3. On the **Finishing** tab, select **Print On Both Sides**.
4. Print the document.

### Mac OS 9

1. Do a **File-Print**, select **Layout**, and select **Print on Both Sides**.
2. If the **Print on Both Sides** check box does not appear, perform the following steps:
  - a. On the desktop, click **Printer queue**.

- b. On the **Menu** bar, select **Printing-Change Setup**.
- c. On the **Installable Options-Change** menu, select **Duplex Unit**.
- d. On the **To** menu, select **Installed**.
- e. Click **OK**.

## Mac OS X

1. Do a **File-Print**, select **Duplex**, and select **Print on Both Sides**.
2. If the **Print on Both Sides** check box does not appear, perform the following steps:
  - a. In **Print Center (Printer Setup Utility for Mac OS X v10.3)**, click **Printer queue**.
  - b. On the **Menu** bar, select **Printers-Show Info**.
  - c. On the **Installable Options** menu, check **Duplex Unit**.
  - d. Click **Apply Changes**.
  - e. Close the menu.

## Printing on both sides of the paper (manual two-sided printing)

To print on both sides of the paper (manual two-sided printing), you must run the paper through the printer twice. You can print using the top output bin or the straight-through output door. Hewlett-Packard recommends that you use the top output bin for lightweight paper and use the straight-through output path for any heavy media or media that curls when printed.

---

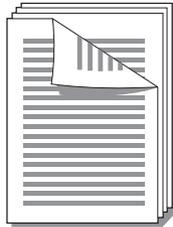
### Note

This feature is not supported in Mac OS X.

---

### Note

Manual two-sided printing can cause the printer to become dirty, reducing print quality. See [Cleaning the printer](#) for instructions if the printer becomes dirty.

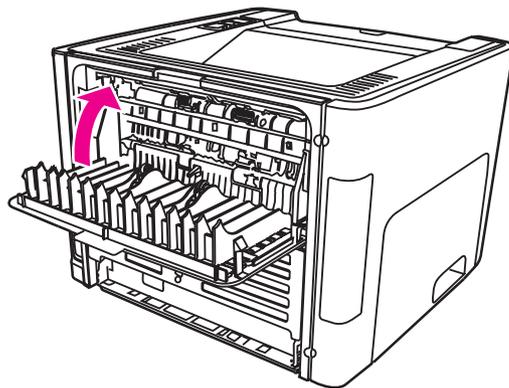


## Manual two-sided printing using the top output bin

The following sections provide instructions for the different operating systems.

### Windows

1. Make sure that the straight-through output door is closed.



2. Access the printer Properties (or Printing Preferences in Windows 2000 and XP). See [Printer Properties \(driver\)](#) for instructions.
3. On the **Device Settings** tab, select the option to allow manual two-sided printing.
4. On the **Finishing** tab, select **Print On Both Sides**. Make sure that **Correct Order for Straight Paper Path** or **Straight Paper Path** is *not* checked.

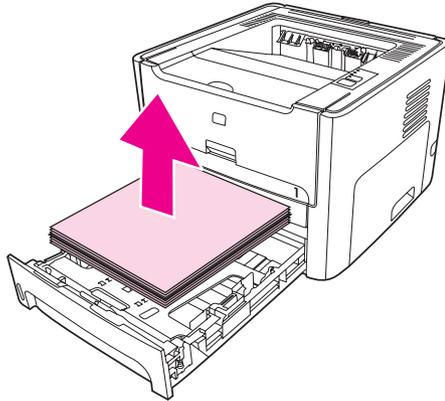
---

### Note

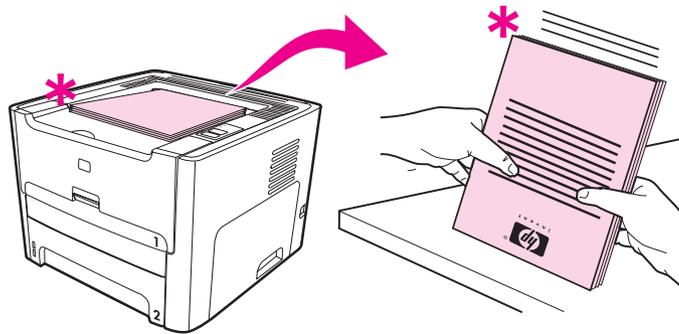
Not all printer features are available in all drivers or operating systems. See the printer Properties (driver) online Help for information about availability of features for that driver.

5. Print the document.

6. After side one has printed, remove the remaining paper from the input tray, and set it aside until after you finish the manual two-sided print job.



7. Gather the printed pages, and straighten the stack.

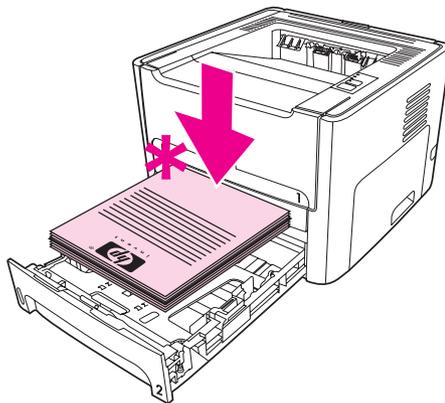


---

**Note**

The asterisk (\*) in the illustration identifies the page corner.

8. Place the stack back in the input tray. The printed side should be facing up with the bottom edge towards the printer.



9. Press the **Go** button on the control panel to print side two.

## Mac OS 9 (HP LaserJet 1160 printer)

---

### Note

---

For the HP LaserJet 1160 printer, two-sided printing is not supported in Mac OS X.

1. Make sure that the straight-through output door is closed.
2. Do a **File-Print**, select **Layout**, and select **Print on Both Sides**.
3. Print the document.
4. After side one has printed, remove the remaining paper from the input tray, and set it aside until after you finish the manual two-sided print job.
5. Gather the printed pages, and straighten the stack.
6. Place the stack back in the input tray. The printed side should be facing up with the bottom edge towards the printer first.
7. Press the **Go** button on the control panel to print side two.

## Mac OS 9 (HP LaserJet 1320 series printer)

---

### Note

---

For the HP LaserJet 1320 series printer, two-sided printing is not supported in Mac OS X.

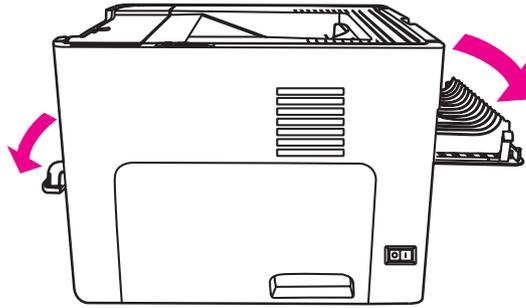
1. Make sure that the straight-through output door is closed.
2. If **Manual Duplex** does not appear as a printer option, perform the following steps:
  - a. Verify that **hp Manual Duplex&Booklet (Classic)** was selected when the software driver was installed with the **Custom Install** option.
  - b. Do a **File-Print**, select **Plug-In Preferences**, and click the right-facing arrow. The right-facing arrow changes to a down-facing arrow, and the hp Manual Duplex&Booklet feature displays.
  - c. Select **Print Time Filters**, select **hp Manual Duplex&Booklet**, and click **Save Settings**.
  - d. Select **Manual Duplex**, and select **Print on Both Sides**.
3. Print the document.
4. After side one has printed, remove the remaining paper from the input tray, and set it aside until after you finish the manual two-sided print job.
5. Gather the printed pages, and straighten the stack.
6. Place the stack back in the input tray. The printed side should be facing up with the bottom edge towards the printer first.
7. Press the **Go** button on the control panel to print side two.

## Manual two-sided printing using the straight-through output door

The following sections provide instructions for the different operating systems.

## Windows

1. Open the straight-through output door.



2. Access the printer Properties (or Printing Preferences in Windows 2000 and XP). See [Printer Properties \(driver\)](#) for instructions.
3. On the **Device Settings** tab, select the option to allow manual two-sided printing.
4. On the **Finishing** tab, select **Print On Both Sides**. Ensure that **Straight Paper Path** is checked.

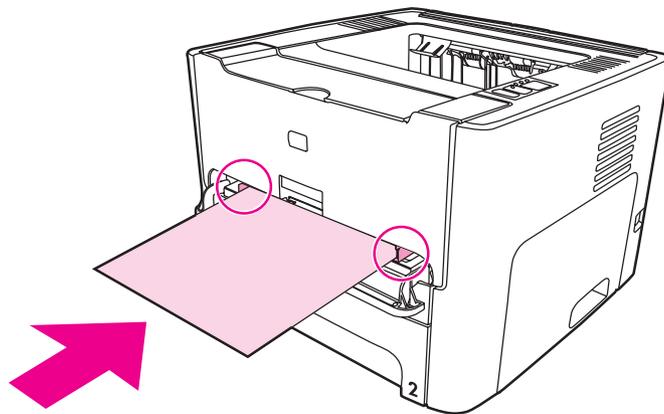
---

### Note

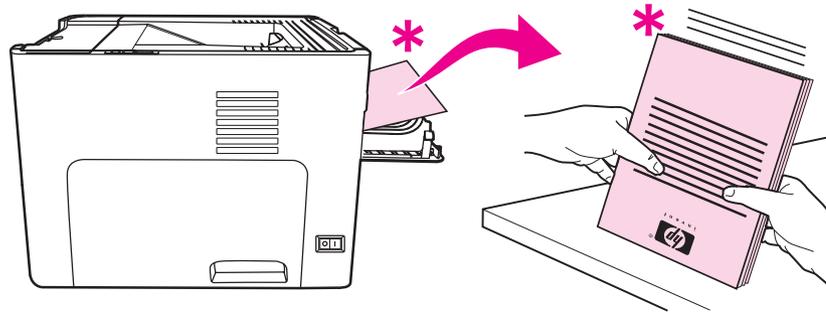
---

Not all printer features are available in all drivers or operating systems. See the printer Properties (driver) online Help for information about availability of features for that driver.

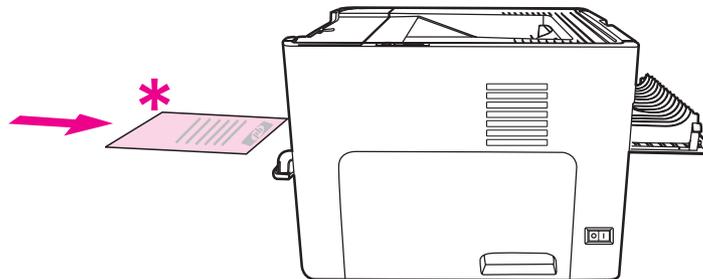
5. Print the document using the single-sheet priority input slot (Tray 1). Feed the pages into the slot one at a time.



6. Gather the printed pages, and straighten the stack. Turn the printed side down with the top edge toward the printer.



7. Feed the pages into the single-sheet priority input slot (Tray 1) one at a time, starting with the first sheet printed. Feed the printed side facing down and the top edge forward.



### Mac OS 9 (HP LaserJet 1160 printer)

#### Note

For the HP LaserJet 1160 printer, two-sided printing is not supported in Mac OS X.

1. Open the straight-through output door.
2. Do a **File-Print**, select **Layout**, and select **Print on Both Sides**.
3. Select **Correct Order for Straight Paper Path**.
4. Print the document using the single-sheet priority input slot (Tray 1). Feed the pages into the slot one at a time.
5. After side one has printed, remove the remaining paper from the input tray, and set it aside until after you finish the manual two-sided print job.
6. Gather the printed pages, and straighten the stack. Turn the printed side down with the top edge toward the printer.
7. Feed the pages into the single-sheet priority input slot (Tray 1) one at a time, starting with the first sheet printed.

### Mac OS 9 (HP LaserJet 1320 series printer)

#### Note

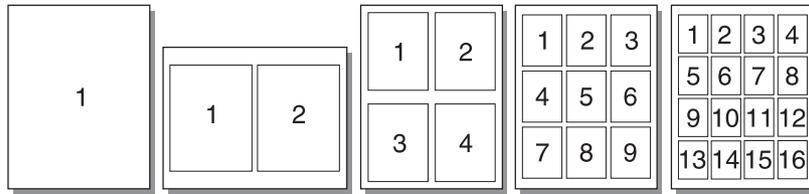
For the HP LaserJet 1320 series printer, two-sided printing is not supported in Mac OS X.

1. Open the straight-through output door.
2. If **Manual Duplex** does not appear as a printer option, perform the following steps:

- a. Verify that **hp Manual Duplex&Booklet (Classic)** was selected when the software driver was installed with the **Custom Install** option.
  - b. Do a **File-Print**, select **Plug-In Preferences**, and click the right-facing arrow. The right-facing arrow changes to a down-facing arrow, and the hp Manual Duplex&Booklet feature displays.
  - c. Select **Print Time Filters**, select **hp Manual Duplex&Booklet**, and click **Save Settings**.
  - d. Select **Manual Duplex**, and select **Print on Both Sides**.
  - e. Select **Alternate output bin is open (straight through paper path)**.
3. Print the document using the single-sheet priority input slot (Tray 1). Feed the pages into the slot one at a time.
  4. After side one has printed, remove the remaining paper from the input tray, and set it aside until after you finish the manual two-sided print job.
  5. Gather the printed pages, and straighten the stack. Turn the printed side down with the top edge toward the printer.
  6. Feed the pages into the single-sheet priority input slot (Tray 1) one at a time, starting with the first sheet printed.

## Printing multiple pages on a single sheet of paper (N-up printing)

You can select the number of pages that you want to print on a single sheet of paper. If you choose to print more than one page per sheet, the pages appear smaller and are arranged on the sheet in the order that they would otherwise be printed.



1. From your software application, access the printer Properties (or Printing Preferences in Windows 2000 and XP). See [Printer Properties \(driver\)](#) for instructions.
2. On the **Finishing** tab (the **Layout** tab for some Mac drivers), select the correct number of pages per sheet.

---

### Note

---

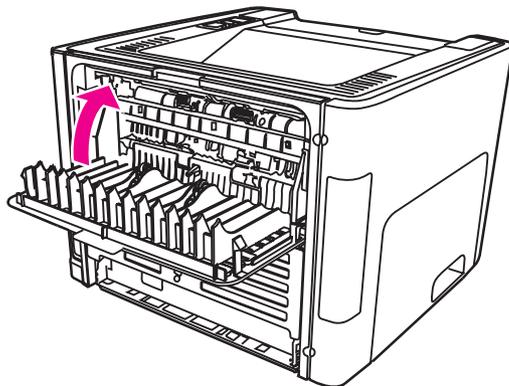
Not all printer features are available in all drivers or operating systems. See the printer Properties (driver) online Help for information about availability of features for that driver.

3. There is also a check box for page borders and a pull-down menu to specify the order of pages printed on the sheet.

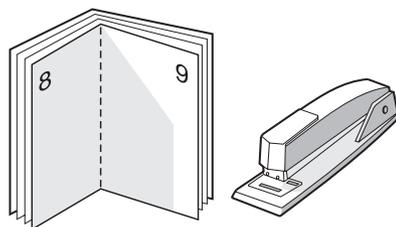
## Printing booklets

You can print booklets on letter, legal, or A4 paper.

1. Load the paper, and make sure that the straight-through output door is closed.



2. Access the printer Properties (or Printing Preferences in Windows 2000 and XP). See [Printer Properties \(driver\)](#) for instructions.
3. On the **Device Settings** tab, select the option to allow manual two-sided printing.
4. On the **Finishing** tab (the **Paper Type/Quality** tab for some Mac drivers), select the option to **Print On Both Sides**. Ensure that **Straight Paper Path** is *not* checked.
5. Set the number of pages per sheet to **2**. Select the appropriate binding option, and click **OK**. Print the document.
6. If you are printing on card stock or heavy media, see [Manual two-sided printing using the straight-through output door](#) for instructions.  
For all other media types, see [Manual two-sided printing using the top output bin](#) for instructions.
7. Fold and staple the pages.



---

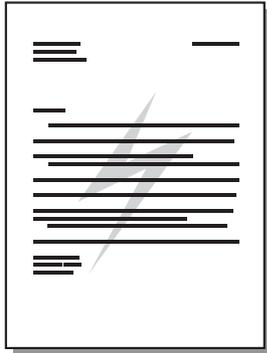
### Note

---

This feature is not available for Mac OS X v10.1 and later on the HP LaserJet 1320 series printer.

## Printing watermarks

You can use the watermark option to print text "underneath" (in the background) of an existing document. For example, you might want to have large gray letters reading *Draft* or *Confidential* printed diagonally across the first page or all of the pages of a document.



1. From your software application, access the printer Properties (or Printing Preferences in Windows 2000 and XP). See [Printer Properties \(driver\)](#) for instructions.
2. On the **Effects** tab (the **Watermark/Overlay** tab for some Mac drivers), select the watermark you want to use.

---

### Note

---

Not all printer features are available in all drivers or operating systems. See the printer Properties (driver) online Help for information about availability of features for that driver.



# 5

## Maintenance

This chapter provides information on the following topics:

- [Cleaning the printer](#)
- [Changing the pickup roller](#)
- [Cleaning the pickup roller](#)
- [Changing the printer separation pad](#)

## Cleaning the printer

Clean the outside of the printer with a clean, damp cloth when necessary.

---

### CAUTION

Do not use ammonia-based cleaners on or around the printer.

During the printing process, paper, toner, and dust particles can accumulate inside the printer. Over time, this buildup can cause print quality problems, such as toner specks or smearing, and paper jams. To correct and prevent these types of problems, you can clean the print cartridge area and the printer media path.

### Cleaning the print cartridge area

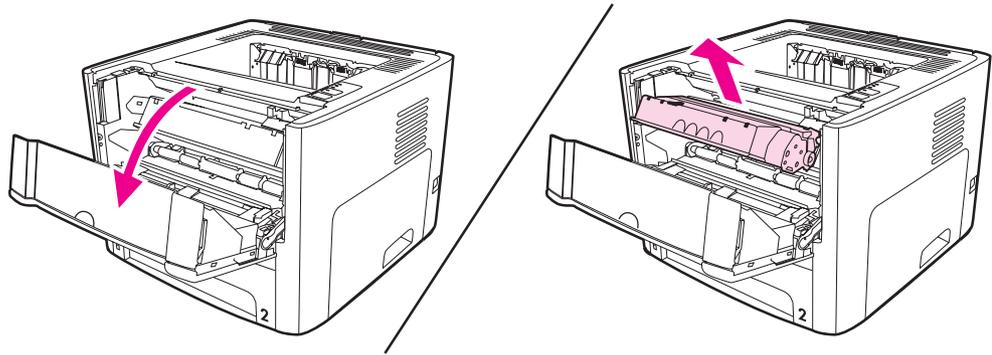
You do not need to clean the print cartridge area often. However, cleaning this area can improve the quality of your printed sheets.

---

### WARNING!

Before cleaning the printer, turn the printer off by unplugging the power cord, and wait for the printer to cool.

1. Open the print cartridge door, and remove the print cartridge.

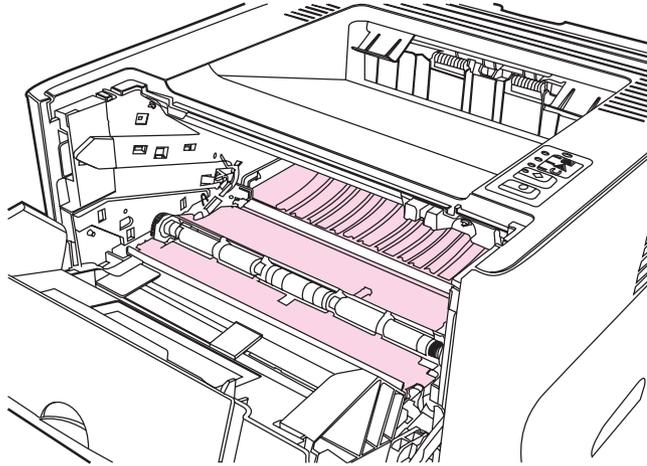


---

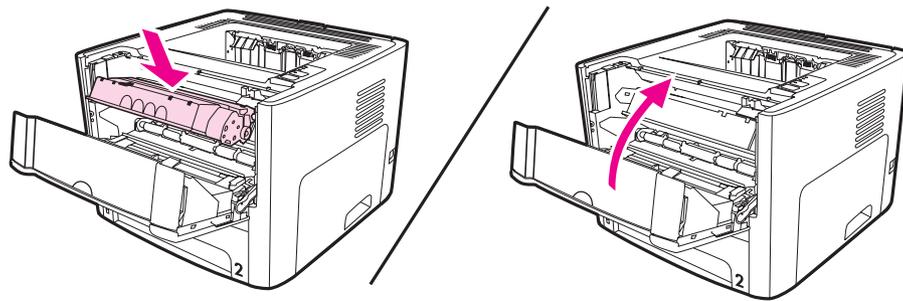
### CAUTION

To prevent damage, do not expose the print cartridge to light. Cover the print cartridge if necessary. Also, do not touch the black sponge transfer roller inside the printer. By doing so, you can damage the printer.

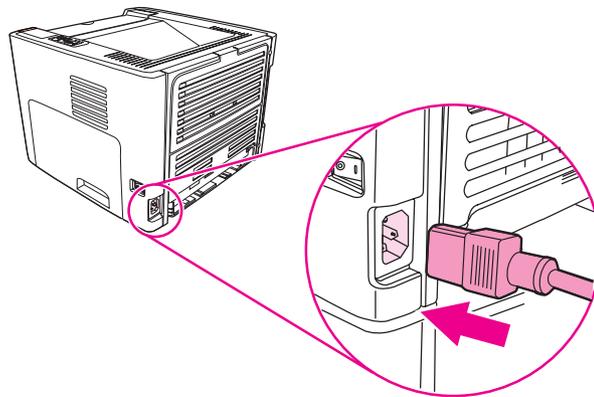
2. With a dry, lint-free cloth, wipe any residue from the media path area and the print cartridge cavity.



3. Replace the print cartridge, and close the print cartridge door.

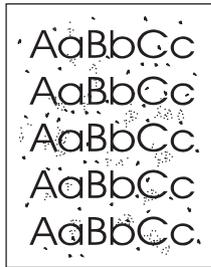


4. Plug the power cord back into the printer.



## Cleaning the printer media path

If you are experiencing toner specks or dots on the printouts, clean the printer media path. This process uses a transparency to remove dust and toner from the media path. Do not use bond or rough paper.



---

### Note

---

For best results use a sheet of transparency. If you do not have any transparencies, you can use copier grade media (70 to 900 g/m<sup>2</sup> (18 to 24 lb.)) with a smooth surface.

1. Make sure that the printer is idle and the Ready light is on.
2. Load the media in the input tray.
3. Print a cleaning page using one of the following methods:
  - Access the HP toolbox. See [Using the hp toolbox](#) for instructions. Click the **Troubleshooting** tab, and click **Print Quality Tools**. Select the cleaning page. Or
  - On the printer control panel, press and hold the **Go** button until all three lights come on (about 10 seconds). When all three lights come on, release the **Go** button.

---

### Note

---

The cleaning process takes approximately 2 minutes. The cleaning page will stop periodically during the cleaning process. Do not turn the printer off until the cleaning process has finished. You might need to repeat the cleaning process several times to thoroughly clean the printer.

## Changing the pickup roller

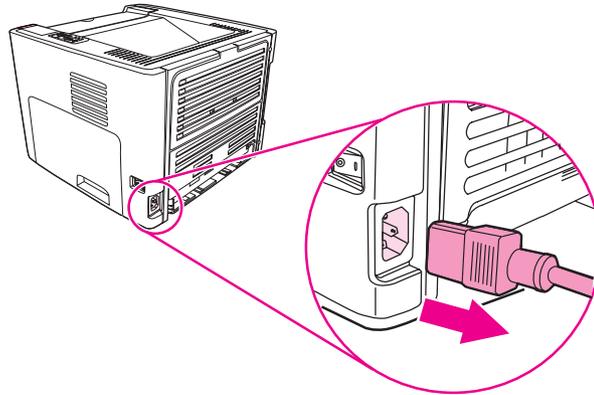
Normal use with good media causes wear. The use of poor media might require more frequent replacement of the pickup roller.

If the printer regularly mispicks (no media feeds through), you might need to change or clean the pickup roller. See [Ordering supplies and accessories](#) to order a new pickup roller.

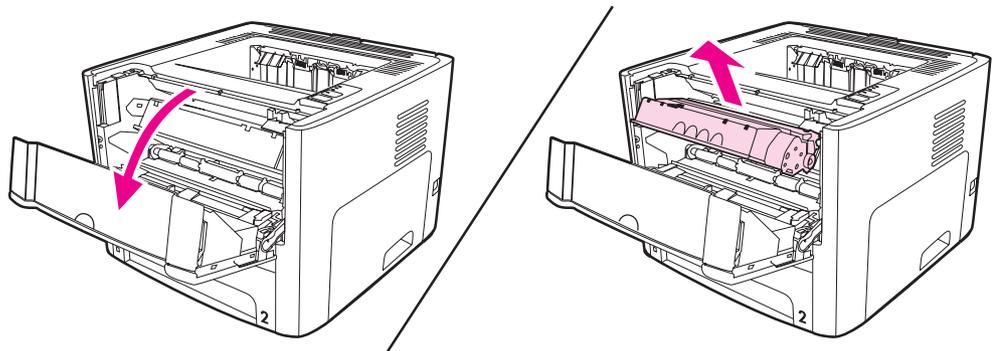
### CAUTION

Failure to complete this procedure might damage the printer.

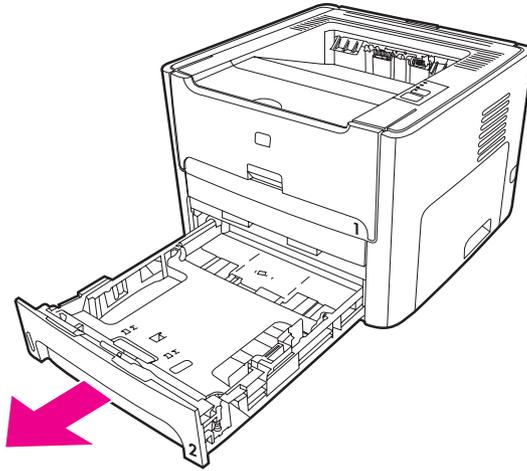
1. Unplug the power cord from the printer, and allow the printer to cool.



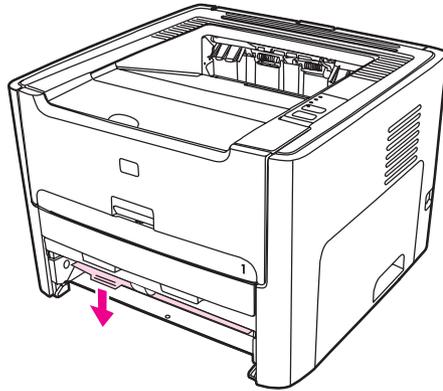
2. Open the print cartridge door, and remove the print cartridge.



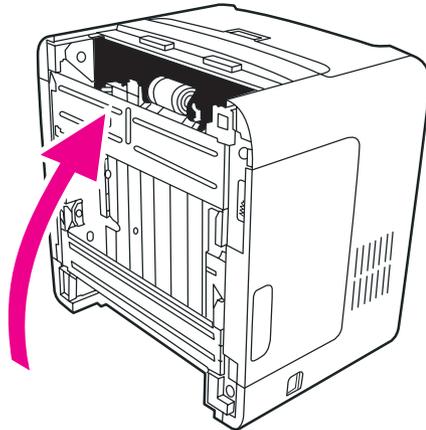
3. Remove the main input tray (Tray 2).



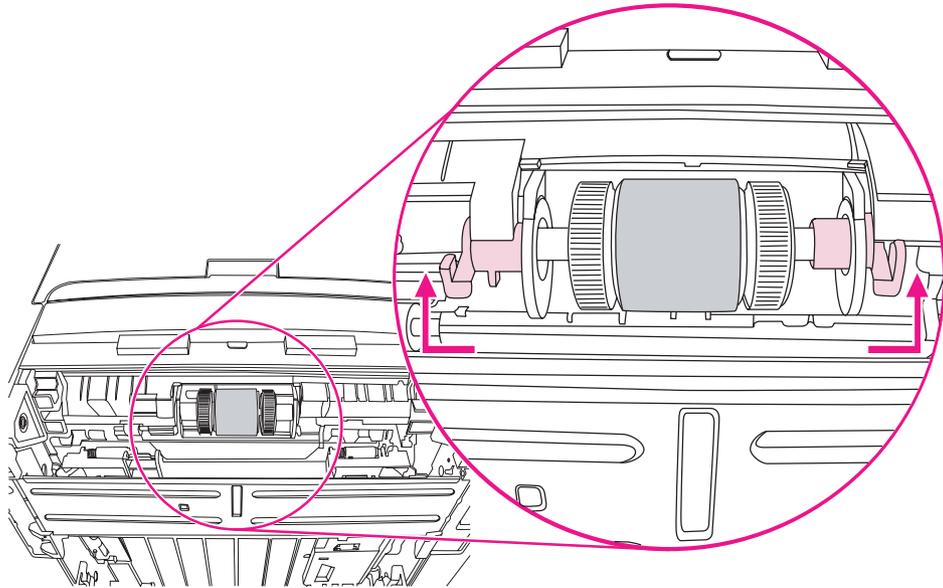
4. Open the front automatic two-sided path door (HP LaserJet 1320 series printer only).



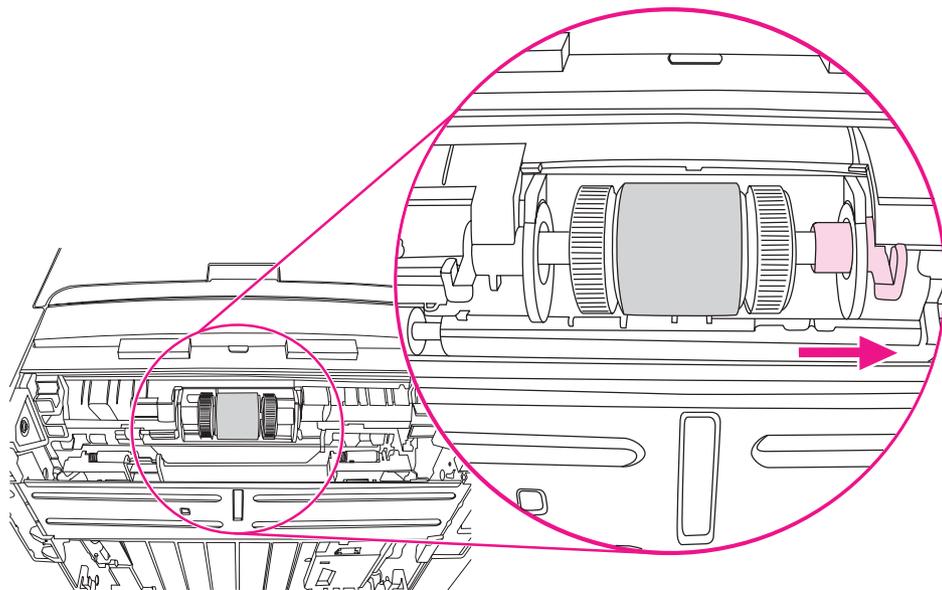
5. Place the printer on the work surface with the front of the printer facing up.



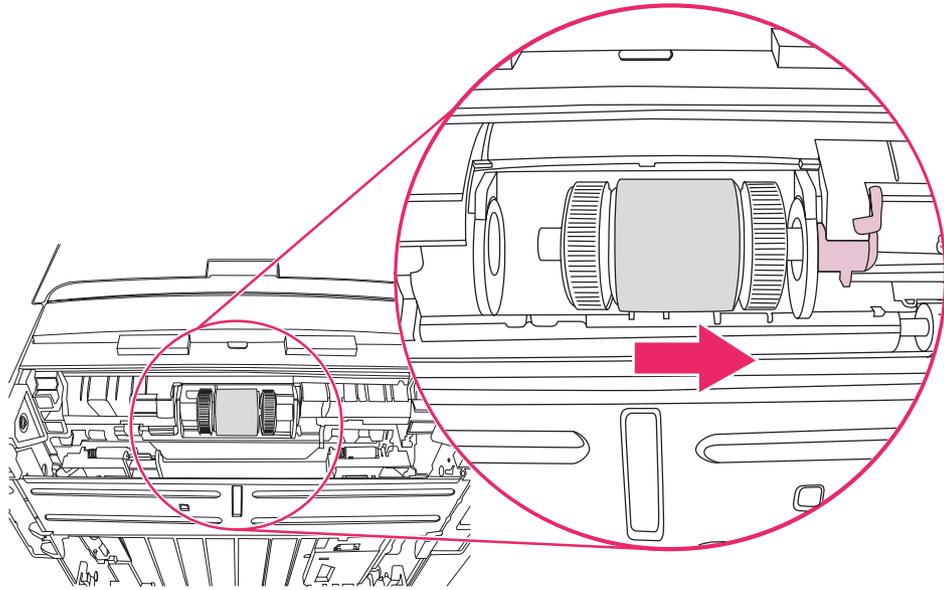
6. Pull the white tabs outward, and rotate the tabs up.



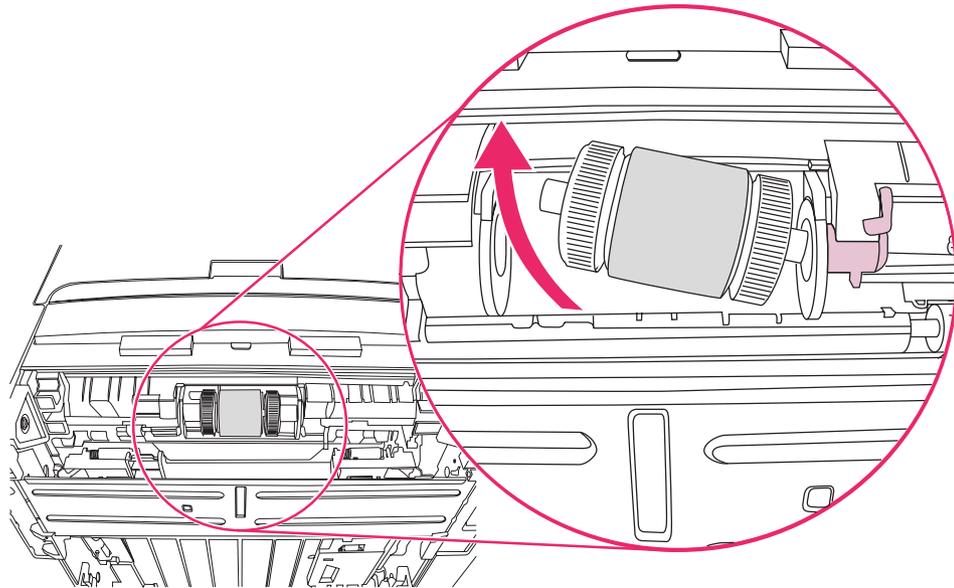
7. Slide the right tab to the right, and leave the tab in this position throughout the procedure.



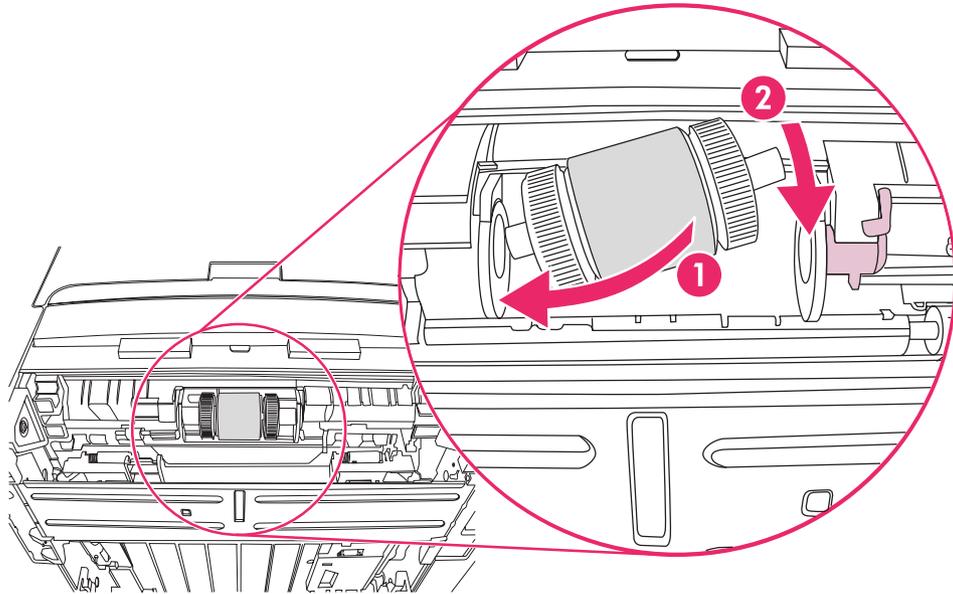
8. Slide the pickup roller assembly to the right, and remove the left end cap.



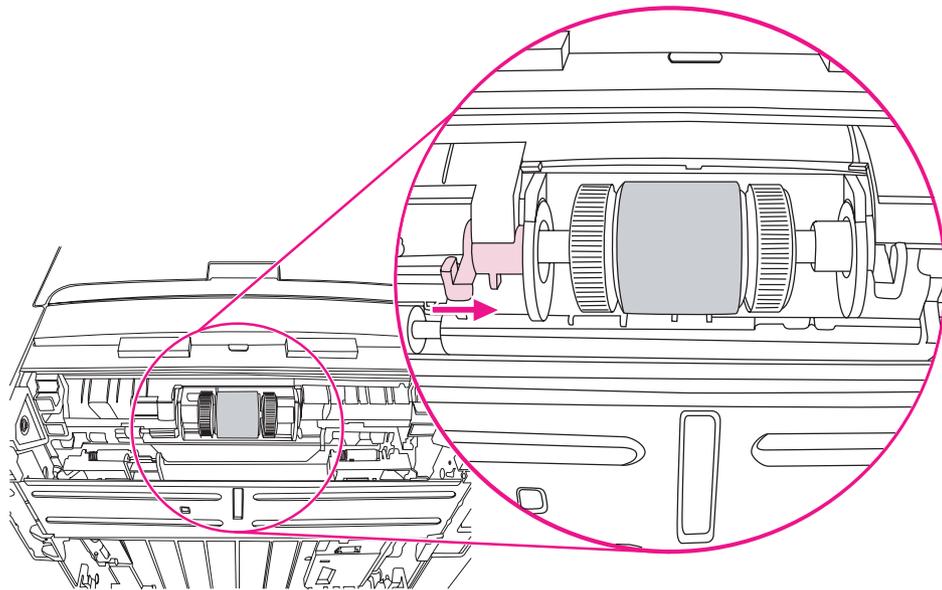
9. Remove the pickup roller.



10. Insert the left side of the new pickup roller into the left slot (1), and insert the right side (with notches in the shaft) into the right slot (2).

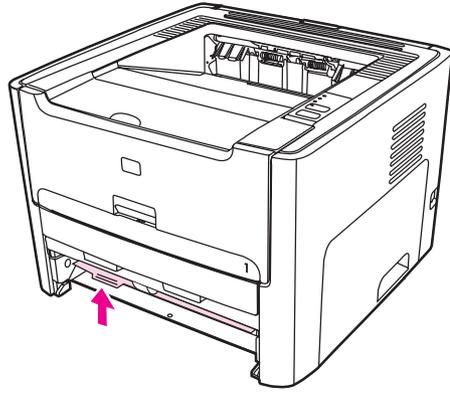


11. Rotate the shaft until the notches engage and the shaft clicks into place.
12. Place the end cap over the shaft on the left side, push the end cap to the right, and rotate the tab downward into position.

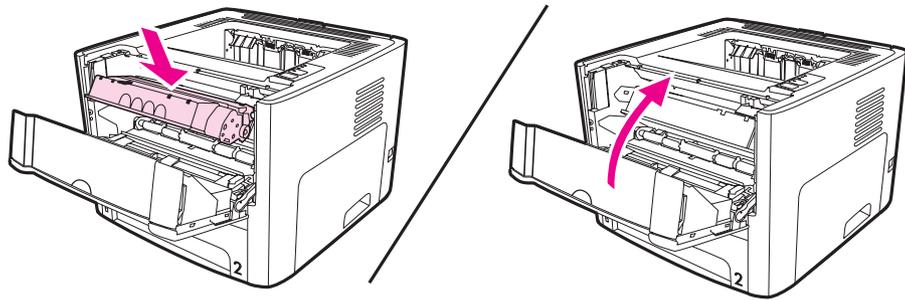


13. Push the right tab to the left, and rotate the tab downward into position.
14. Place the printer on the work surface with the top of the printer facing up.

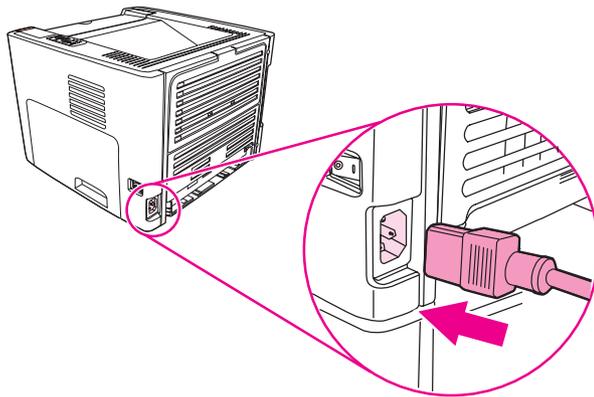
15. Close the front automatic two-sided path door.



16. Reinstall the print cartridge, and close the print cartridge door.



17. Plug the printer in to turn it back on.



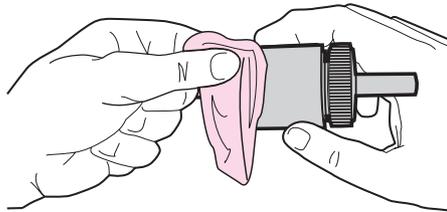
## Cleaning the pickup roller

If you want to clean the pickup roller rather than replace it, follow the instructions below:

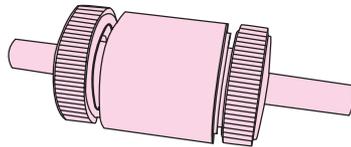
1. Remove the pickup roller as described in steps 1 through 9 of [Changing the pickup roller](#).
2. Dab a lint-free cloth in water, and scrub the roller.



3. Using a dry, lint-free cloth, wipe the pickup roller to remove loosened dirt.



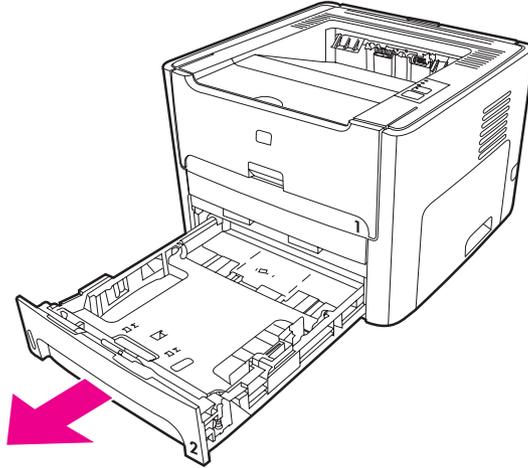
4. Allow the pickup roller to dry completely before you reinstall it in the printer (see steps 10 through 17 of [Changing the pickup roller](#)).



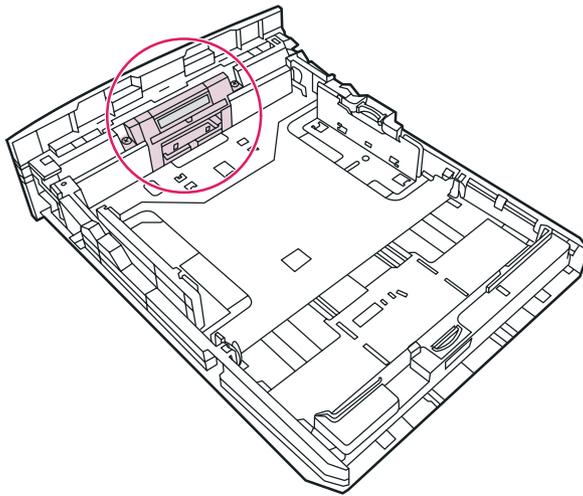
## Changing the printer separation pad

Normal use with good media causes wear. The use of poor media might require more frequent replacement of the separation pad. If the printer regularly pulls multiple sheets of media at a time, you might need to change the separation pad.

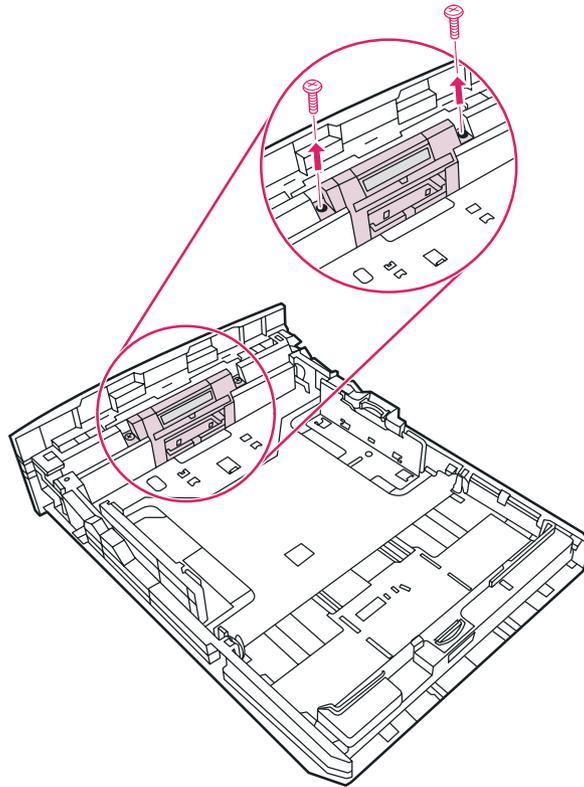
1. Remove the main input tray (Tray 2).



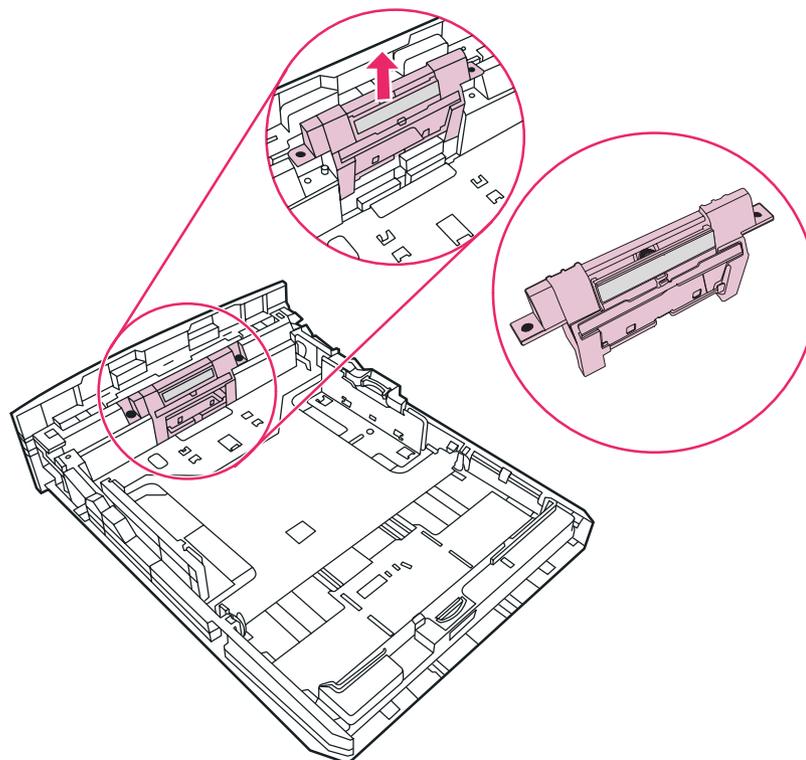
2. Locate the separation pad.



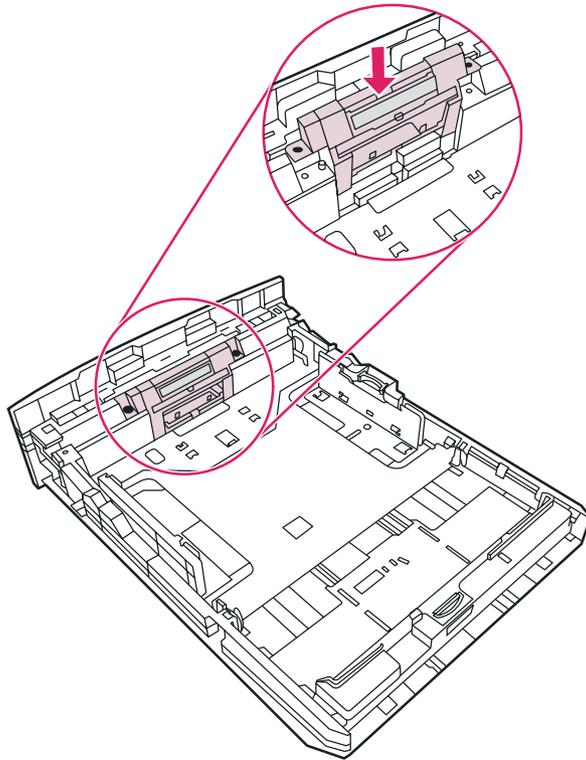
3. Remove the screws.



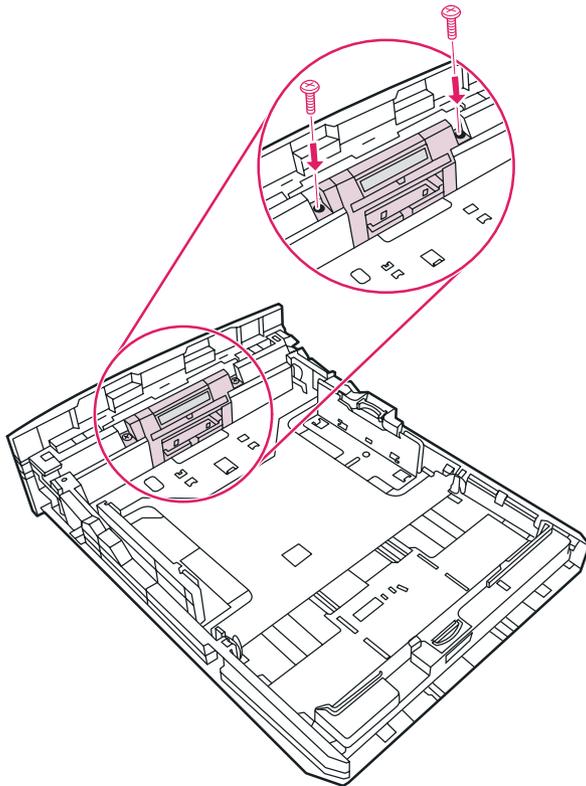
4. Remove the separation pad.



5. Insert the new separation pad.



6. Replace the screws.



# 6

# Problemsolving

This chapter provides information on the following topics:

- [Finding the solution](#)
- [Status light patterns](#)
- [Common Macintosh problems](#)
- [Troubleshooting PostScript \(PS\) errors](#)
- [Paper handling problems](#)
- [Printed page is different than what appeared on screen](#)
- [Printer software problems](#)
- [Improving print quality](#)
- [Clearing jams](#)
- [Wired network setup problemsolving](#)

## Finding the solution

You can use this section to find the solution to common printer problems.

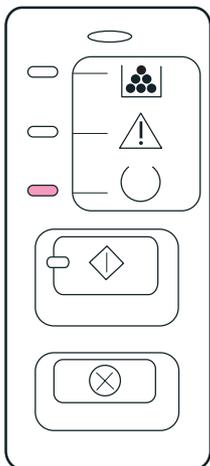
### Step 1: Is the printer set up correctly?

- Is the printer plugged into a power outlet that is known to work?
- Is the on/off switch in the on position?
- Is the print cartridge properly installed? See [Changing the print cartridge](#).
- Is paper properly loaded in the input tray? See [Loading media into the input trays](#).

<b>Yes</b>	If you answered yes to the questions above, go to <a href="#">Step 2: Is the Ready light on?</a>
<b>No</b>	If the printer will not turn on, <a href="#">Contact HP support</a> .

### Step 2: Is the Ready light on?

Do the control panel lights look like this picture?



#### Note

See [Printer control panel](#) for a description of the lights and buttons on the control panel.

<b>Yes</b>	Go to <a href="#">Step 3: Can you print a demo page?</a>
<b>No</b>	If the control panel lights do not look like the picture above, see <a href="#">Status light patterns</a> . If you are unable to resolve the problem, <a href="#">Contact HP support</a> .

### Step 3: Can you print a demo page?

Press the **Go** button to print a demo page.

<b>Yes</b>	If the demo page printed, go to <a href="#">Step 4: Is the print quality acceptable?</a>
<b>No</b>	If no paper came out, see <a href="#">Paper handling problems</a> .  If you are unable to resolve the problem, <a href="#">Contact HP support</a> .

### Step 4: Is the print quality acceptable?

<b>Yes</b>	If the print quality is acceptable, go to <a href="#">Step 5: Is the printer communicating with the computer?</a>
<b>No</b>	If the print quality is poor, see <a href="#">Improving print quality</a> .  Verify that the print settings are correct for the media you are using. See <a href="#">Choosing paper and other media</a> for information on adjusting the settings for various types of media.  If you are unable to resolve the problem, <a href="#">Contact HP support</a> .

### Step 5: Is the printer communicating with the computer?

Try printing a document from a software application.

<b>Yes</b>	If the document prints, go to <a href="#">Step 6: Does the printed page look like you expected?</a>
<b>No</b>	If the document does not print, see <a href="#">Printer software problems</a> .  If you are using a Macintosh computer, see <a href="#">Common Macintosh problems</a> .  If you are using a PS driver, see <a href="#">Troubleshooting PostScript (PS) errors</a> .  If you are unable to resolve the problem, <a href="#">Contact HP support</a> .

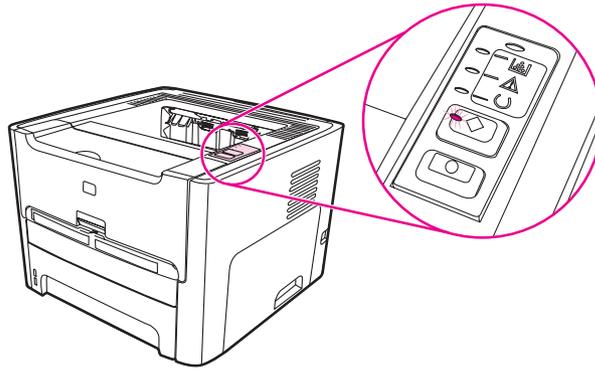
### Step 6: Does the printed page look like you expected?

<b>Yes</b>	The problem should be resolved. If it is not resolved, <a href="#">Contact HP support</a> .
<b>No</b>	See <a href="#">Printed page is different than what appeared on screen</a> .  If you are unable to resolve the problem, <a href="#">Contact HP support</a> .

## Contact HP support

- In the United States, see <http://www.hp.com/support/lj1160/> for the HP LaserJet 1160 printer, or see <http://www.hp.com/support/lj1320/> for the HP LaserJet 1320 series printer.
- In other locations, see <http://www.hp.com/>.

# Status light patterns



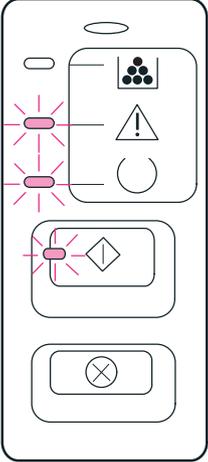
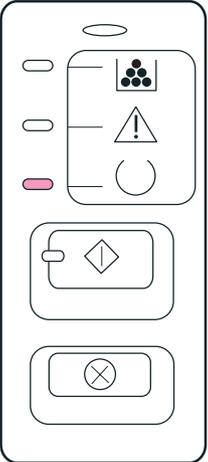
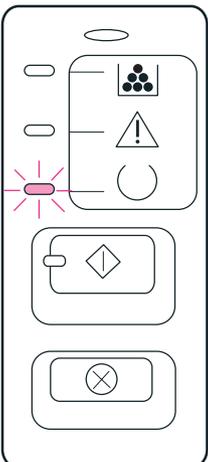
## Light status legend

	Symbol for "light off"
	Symbol for "light on"
	Symbol for "light blinking"

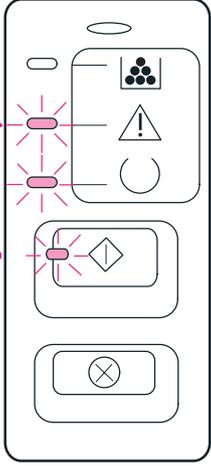
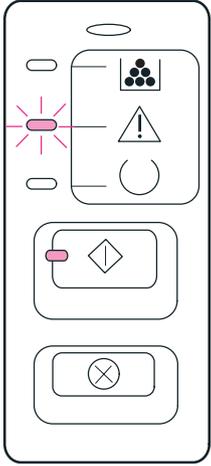
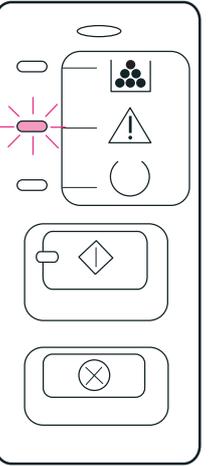
## Control panel light message

Light status	State of the printer	Action
	<p>Initialization/Startup</p> <p>While in the Startup state, the Go, Ready, and Attention lights cycle (at the rate of 500 ms) one after another.</p>	<p>During the Initialization process, pressing buttons has no effect.</p>

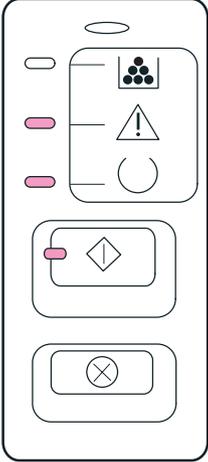
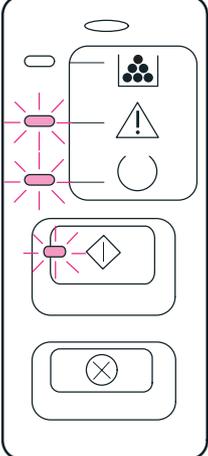
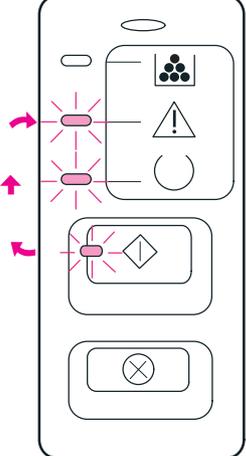
**Control panel light message (continued)**

Light status	State of the printer	Action
	<p>Reconfiguration Initialization</p> <p>During the printer start up, you can request special initialization sequences that reconfigure the printer. When one of the sequences is requested, such as Cold Reset, the lights cycle as in the Initialization/Startup state.</p>	<p>During the Reconfiguration process, pressing buttons has no effect.</p>
	<p>Ready</p> <p>The printer is ready with no job activity.</p>	<p>To print a Configuration page, press and hold the <b>Go</b> button for 5 seconds.</p> <p>To print a Demo page, press and release the <b>Go</b> button.</p>
	<p>Processing Data</p> <p>The printer is processing or receiving data.</p>	<p>To cancel the current job, press the <b>CANCEL</b> button.</p>

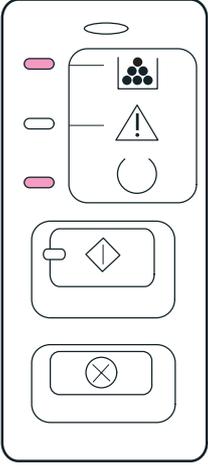
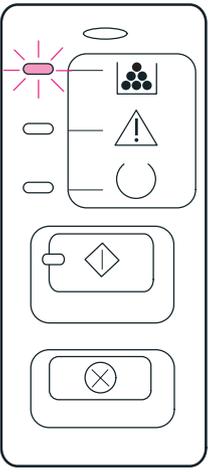
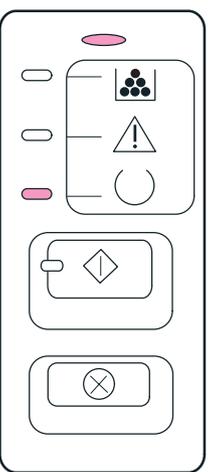
### Control panel light message (continued)

Light status	State of the printer	Action
	<p>Job Cancel</p>	<p>Pressing the <b>Go</b> button has no effect.</p> <p>Once the cancellation process has been completed, the printer returns to the Ready state.</p>
	<p>Manual Feed or Continuable Error</p> <p>This state can be reached in the following circumstances:</p> <ul style="list-style-type: none"> <li>• Manual feed</li> <li>• Out of paper for the specified tray</li> <li>• General continuable error</li> <li>• Memory configuration error</li> <li>• Personality/Job related error</li> </ul>	<p>To recover from the error and print whatever data is possible, press the <b>Go</b> button.</p> <p>If the recovery is successful, the printer goes to the Processing Data state and completes the job.</p> <p>If the recovery is unsuccessful, the printer returns to the Continuable Error state.</p>
	<p>Attention</p> <p>This state can be reached in the following circumstances:</p> <ul style="list-style-type: none"> <li>• Paper tray is empty</li> <li>• Door open</li> <li>• Paper jam</li> <li>• Misfeed from tray</li> </ul>	<p>To reset the printer after a jam, press the <b>Go</b> button.</p> <p>You might need to clear the error manually, and press the <b>Go</b> button or close the top cover.</p> <p>If the error persists, the printer returns to the Attention state.</p>

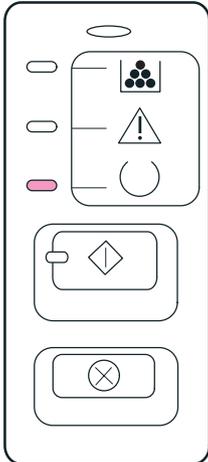
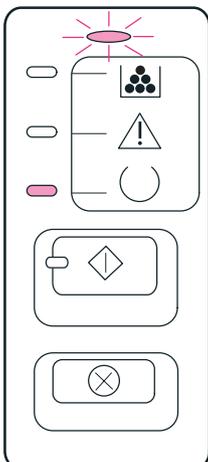
**Control panel light message (continued)**

Light status	State of the printer	Action
	<p>Fatal Error</p>	<ul style="list-style-type: none"> <li>• Turn off the printer, wait 10 seconds, and turn on the printer.</li> <li>• If you are unable to resolve the problem, <a href="#">Contact HP support</a>.</li> </ul>
	<p>Accessory Error (HP LaserJet 1320 series printer only)</p>	<p>To display additional error information, press the Go button. The light pattern changes. For more information about the light pattern now displayed, see <a href="#">Accessory error indicators</a>. When you release the Go button, the printer returns to the initial Accessory Error state.</p>
	<p>Cleaning Page</p> <p>The cleaning page feature is not available through the control panel. The cleaning page can be activated using the HP Toolbox, which is included as part of the overall printer software package.</p>	<p>During cleaning mode, pressing buttons has no effect. The printer motor slows down and the printer prints a page.</p>

**Control panel light message (continued)**

Light status	State of the printer	Action
	<p><b>Toner Low</b></p> <p>The Go, Ready, and Attention lights act independently of the Toner Low state.</p>	<p>Insert a new print cartridge.</p>
	<p><b>Toner Missing</b></p> <p>The print cartridge has been removed from the printer.</p>	<p>Reinsert the print cartridge in the printer.</p>
	<p><b>Wireless Connection Established</b></p> <p>The Go, Ready, Attention, and Toner lights act independently of the Wireless light.</p>	<p>No action is necessary.</p>

### Control panel light message (continued)

Light status	State of the printer	Action
	<p>Wireless Disabled</p> <p>The Go, Ready, Attention, and Toner lights act independently of the Wireless light.</p>	<p>No action is necessary.</p>
	<p>Attempting to Establish Wireless Connection</p> <p>The Wireless light blinks at one-half second intervals.</p> <p>The Go, Ready, Attention, and Toner lights act independently of the Wireless light.</p>	<p>No action is necessary.</p>

Return to [Finding the solution](#).

### Accessory error indicators

Accessory error	Attention light	Ready light	Go light
Internal HP Jetdirect error	On	Off	Off
DIMM slot incompatible error	Off	Off	On

# Common Macintosh problems

Choose the item that best describes the problem:

- [Problems in the Chooser](#)
- [Printing errors](#)
- [USB problems](#)
- [OS X problems](#)

## Problems in the Chooser

Symptom	Possible cause	Solution
LaserWriter icon does not appear in the Chooser. (HP LaserJet 1320 series printer)	Software not installed correctly.	The LaserWriter 8 driver should be present as a part of the Mac OS. Make sure that the LaserWriter driver is in the Extensions folder within the systems folder. If not, install the LaserWriter driver from your Mac OS CD.
The HP LaserJet printer driver icon does not appear in the Chooser. (HP LaserJet 1160 printer)	The software was not installed properly.	Reinstall the software.
Printer name does not appear in the printer list.		<p>Make sure the cables are connected correctly, the printer is on, and the Ready light is on.</p> <p>Verify that the printer driver is installed.</p> <p>Make sure the correct printer driver has been selected in the Chooser.</p> <p>Use the HP LaserJet driver for the HP LaserJet 1160 printer.</p> <p>Use the LaserWriter 8 driver for the HP LaserJet 1320 series printer.</p>
The printer driver does not automatically set up your selected printer even though you clicked Auto Setup in the Chooser. (HP LaserJet 1320 series printer)		<p>Reinstall the printer software.</p> <p>Select an alternate PPD.</p>

## Printing errors

Symptom	Possible cause	Solution
You cannot use the computer while the printer is printing.	Background Printing has not been selected.	<b>LaserWriter 8.3</b> Turn Background Printing on in the Chooser. Status messages will now be redirected to the Print Monitor allowing you to continue working while the computer is processing data to be sent to the printer. <b>LaserWriter 8.4 and higher</b> Turn Background Printing on by selecting File, Print Desktop, and Background Printing.
An encapsulated PostScript (EPS) file does not print with the correct fonts.	This problem occurs with some software applications.	Try downloading the fonts contained in the EPS file to the printer before printing. Send the file in ASCII format instead of binary encoding.
Your document is not printing with New York, Geneva, or Monaco fonts.		Select Options in the Page Setup dialog box to deselect substituted fonts.

## USB problems

Symptom	Possible cause	Solution
Unable to print from a third-party USB card.	This error occurs when the software for USB printers is not installed.	When adding a third-party USB card, you might need Apple's USB Adapter Card Support software. The most current version of this software is available from Apple's web site.

**USB problems (continued)**

Symptom	Possible cause	Solution
A USB-connected HP LaserJet printer does not appear in the Chooser.	This problem is caused by either a software or hardware component.	<p><b>Software troubleshooting</b></p> <ul style="list-style-type: none"><li>• Check that your Macintosh supports USB.</li><li>• Verify if your Macintosh has Mac OS 8.6 or later.</li></ul> <p><b>Hardware troubleshooting</b></p> <ul style="list-style-type: none"><li>• Check that the printer is turned on.</li><li>• Verify that the USB cable is properly connected.</li><li>• Check that you are using the appropriate high-speed USB cable.</li><li>• Ensure that there are not too many USB devices drawing power from the chain. Disconnect all devices from the chain and connect the cable directly to the USB port on the host computer.</li><li>• Check to see if there are more than two non-powered USB hubs in a row on the chain. Disconnect all devices from the chain and connect the cable directly to the USB port on the host computer.</li></ul> <hr/> <p><b>Note</b></p> <p>The iMac keyboard is a non-powered USB hub.</p> <hr/>
	The LaserWriter driver does not display USB devices in the Chooser.	For the HP LaserJet 1320 series printer, use the Apple Desktop utility to set up the printer.

## OS X problems

Symptom	Possible cause	Solution
Printer features do not appear.	The wrong PPD is selected for the printer.	Verify which PPD is selected as follows:  In the Print dialog box, click <b>Summary</b> . Verify that the "PPD for:" setting is correct.  If the PPD setting is incorrect, delete the printer in the Print Center and add it again. You might need to manually select the PPD.
When using OS X v10.2, the printer is not using "Rendezvous" (mDNS)		You might need to upgrade your Internal HP Jetdirect card to a version that supports Rendezvous.
Tray 2 does not appear as an installed option, even though it is installed on the printer.  (HP LaserJet 1320 series printer only)		The ability to manually select installable options is supported only in Mac OS X v10.2 and later.

# Troubleshooting PostScript (PS) errors

The following situations are PS language specific and may occur when several printer languages are being used.

---

**Note**

---

To receive a printed or screen displayed message when PS errors occur, open the Print Options dialog box and click the desired selection next to the PS Errors section. You can also access this from the embedded Web server.

### PS errors

Symptom	Possible cause	Solution
The job prints in Courier (the printer's default typeface) instead of the typeface you requested.	The requested typeface is not downloaded. A personality switch may have been performed to print a PCL job just before the PS printing job was received.	Download the desired font and send the print job again. Verify the type and location of the font. Download to printer if applicable. Check with the software documentation.
A legal page prints with clipped margins.	Print job too complex.	You may need to print your job at 600 dots per inch, reduce the complexity of the page, or install more memory.
A PS error page prints.	Print job may not be PS.	Make sure the print job is a PS job. Check to see whether the software application expected a setup or PS header file to be sent to the printer.
Limit Check Error	Print job is too complex.	You may need to print your job at 600 dots per inch, reduce the complexity of the page, or install more memory.
VM Error	Font Error	Select unlimited downloadable fonts from printer driver.
Range Check	Font Error	Select unlimited downloadable fonts from printer driver.

Return to [Finding the solution](#).

# Paper handling problems

Choose the item that best describes the problem:

- [Paper jam](#)
- [Print is skewed \(crooked\)](#)
- [More than one sheet of media feeds through the printer at one time](#)
- [Printer does not pull media from the media input tray](#)
- [Printer curled the media](#)
- [Printed media does not exit to the correct path](#)
- [Print job is extremely slow](#)

## Paper jam

- See [Clearing jams](#) for more information.
- Make sure that you are printing with media that meets specifications. See [Printer media specifications](#) for more information.
- Make sure that you are printing with media that is not wrinkled, folded, or damaged.
- Make sure that the printer is clean. See [Cleaning the printer](#) for more information.
- If you are printing to the straight-through output path, close and open the door again to make sure that the green release levers are closed.
- If you are using the automatic two-sided printing feature, make sure that the media indicator is set to the correct paper size.

## Print is skewed (crooked)

A small amount of skew is normal and might become obvious when using preprinted forms.

- See [Page skew](#) for more information.
- Adjust the media guides to the width and length of the media that you are using and try reprinting. See [Media paths](#) or [Loading media into the input trays](#) for more information.

## More than one sheet of media feeds through the printer at one time

- The media input tray might be too full. See [Loading media into the input trays](#) for more information.
- Make sure that the media is not wrinkled, folded, or damaged.
- Try paper from a new ream. Do not fan the paper before loading it into the input tray.
- The printer separation pad might be worn. See [Changing the printer separation pad](#) for more information.

## Printer does not pull media from the media input tray

- Make sure that the printer is not in manual feed mode. See [Status light patterns](#) for more information.
- Make sure that the media guides are adjusted properly.
- The pickup roller might be dirty or damaged. See [Cleaning the pickup roller](#) or [Changing the pickup roller](#) for instructions.

## Printer curled the media

- See [Curl or wave](#) for more information.
- Open the straight-through output door to print straight through. See [Media paths](#) or [Choosing paper and other media](#) for more information.

## Printed media does not exit to the correct path

Open or close the straight-through output door to reflect the output path that you want to use. See [Media paths](#) for more information.

## Print job is extremely slow

The maximum speed of the printer is up to 20 pages per minute for the HP LaserJet 1160 printer and up to 22 pages per minute for the HP LaserJet 1320 series printer. Your print job might be very complex. Try the following:

- Reduce the complexity of your document (for example, reduce the number of multiple graphics).
- In the printer driver, set the media type to plain paper.

---

### Note

This may cause toner to fuse improperly if using heavy media.

- Add printer memory. See [Installing a memory DIMM \(HP LaserJet 1320 series printer only\)](#).
- Narrow media or heavy media will slow printing. Use normal media.

Return to [Finding the solution](#).

# Printed page is different than what appeared on screen

Choose the item that best describes the problem:

- [Garbled, incorrect, or incomplete text](#)
- [Missing graphics or text, or blank pages](#)
- [Page format is different than on another printer](#)
- [Graphics quality](#)

## Garbled, incorrect, or incomplete text

- The wrong printer driver might have been selected when the software was installed. Make sure that the HP LaserJet 1160 or HP LaserJet 1320 printer driver is selected in the printer Properties.
- If a specific file prints garbled text, there might be a problem with that specific file. If a specific application prints garbled text, there might be a problem with that application. Make sure that the appropriate printer driver is selected.
- There might be a problem with your software application. Try printing from another software application.
- The parallel cable might be loose or defective. Try the following:
  - Disconnect the cable and reconnect it at both ends.
  - Try printing a job that you know works.
  - If possible, attach the cable and printer to another computer, and try printing a job that you know works.
  - Try using a new IEEE-1284B compliant parallel cable that is 3 m (10 ft) or less. See [Ordering supplies and accessories](#).
  - Turn off the printer and the computer. Remove the parallel cable, and inspect both ends of the cable for damage. Reconnect the parallel cable, making sure that the connections are tight. Make sure that the printer is directly connected to the computer. Remove any switchboxes, tape backup drives, security keys, or any other devices that are attached between the parallel port on the computer and the printer. These devices can sometimes interfere with communication between the computer and the printer. Restart the printer and the computer.

## Missing graphics or text, or blank pages

- Make sure that your file does not contain blank pages.
- The sealing tape might still be in the print cartridge. Remove the print cartridge, and pull the tab on the end of the cartridge until the entire length of the tape is removed. Reinstall the print cartridge. See [Changing the print cartridge](#) for instructions. To check the printer, print a demo page by pressing the **Go** button.
- The graphic settings in the printer Properties might not be correct for the type of job that you are printing. Try a different graphic setting in the printer Properties. See [Printer Properties \(driver\)](#) for more information.
- Clean the printer, particularly the contacts between the print cartridge and the power supply.

## Page format is different than on another printer

If you used an older or different printer driver (printer software) to create the document or the printer Properties settings in the software are different, the page format might change when you try to print using your new printer driver or settings. To help eliminate this problem, try the following:

- Create documents and print them using the same printer driver (printer software) and printer Properties settings regardless of which HP LaserJet printer you use to print them.
- Change the resolution, paper size, font settings, and other settings. See [Printer Properties \(driver\)](#) for more information.

## Graphics quality

The graphics settings might be unsuitable for your print job. Check the graphic settings, such as resolution, in the printer Properties and adjust them as necessary. See [Printer Properties \(driver\)](#) for more information.

---

### Note

Some resolution may be lost when converting from one graphics format to another.

Return to [Finding the solution](#).

# Printer software problems

## Printer software problems

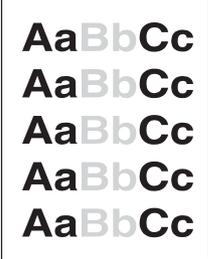
Problem	Solution
<p>A printer driver for the HP LaserJet 1160 or HP LaserJet 1320 printer is not visible in the <b>Printer</b> folder</p>	<ul style="list-style-type: none"> <li>● Reinstall the printer software. In the Windows task bar, click <b>Start</b>, select <b>Programs</b>, select <b>HP LaserJet 1160</b> or <b>HP LaserJet 1320</b>, and click <b>Uninstall</b>. Turn the printer off. Install the printer software from the CD-ROM. Turn the printer back on.</li> </ul> <hr/> <p><b>Note</b></p> <p>Close any applications that are running. To close an application that has an icon in the system tray, right-click the icon, and select <b>Close</b> or <b>Disable</b>.</p> <hr/> <ul style="list-style-type: none"> <li>● Try plugging the USB cable into a different USB port on the PC.</li> <li>● If you are trying to print to a shared printer, in the Windows task bar, click <b>Start</b>, select <b>Settings</b>, and select <b>Printers</b>. Double-click the Add Printer icon. Follow the instructions in the Add Printer Wizard.</li> </ul>
<p>An error message was displayed during the software installation</p>	<ul style="list-style-type: none"> <li>● Reinstall the printer software. In the Windows task bar, click <b>Start</b>, select <b>Programs</b>, select <b>HP LaserJet 1160</b> or <b>HP LaserJet 1320</b>, and click <b>Uninstall</b>. Turn the printer off. Install the printer software from the CD-ROM. Turn the printer back on.</li> </ul> <hr/> <p><b>Note</b></p> <p>Close any applications that are running. To close an application that has an icon in the task bar, right-click the icon, and select <b>Close</b> or <b>Disable</b>.</p> <hr/> <ul style="list-style-type: none"> <li>● Check the amount of free space on the drive where you are installing the printer software. If necessary, free up as much space as you can, and reinstall the printer software.</li> <li>● If necessary, run the Disk Defragmenter, and reinstall the printer software.</li> </ul>
<p>The printer is in Ready mode, but nothing prints</p>	<ul style="list-style-type: none"> <li>● Print a Configuration page from the control panel of the printer, and verify the printer functionality.</li> <li>● Verify that all of the cables are properly seated and within specifications. This includes the USB, parallel, network, and power cables. Try a new cable.</li> </ul>

Return to [Finding the solution](#).

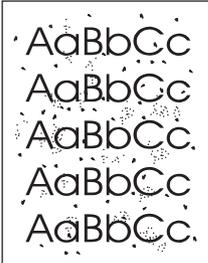
# Improving print quality

This section provides information about identifying and correcting print defects.

## Light print or faded

	<ul style="list-style-type: none"><li>• The toner supply is low. See <a href="#">Redistributing toner</a> for more information.</li><li>• The media might not meet Hewlett-Packard's media specifications (for example, the media is too moist or too rough). See <a href="#">Printer media specifications</a> for more information.</li><li>• If the whole page is light, the print density adjustment is too light or EconoMode might be turned on. Adjust the print density, and disable EconoMode in the printer Properties. See <a href="#">Saving toner</a> for more information.</li></ul>
---	---

## Toner specks

	<ul style="list-style-type: none"><li>• The media might not meet Hewlett-Packard's media specifications (for example, the media is too moist or too rough). See <a href="#">Printer media specifications</a> for more information.</li><li>• The printer might need to be cleaned. See <a href="#">Cleaning the printer</a> or <a href="#">Cleaning the printer media path</a> for instructions.</li></ul>
---	--

## Dropouts

	<ul style="list-style-type: none"><li>• A single sheet of media might be defective. Try reprinting the job.</li><li>• The media's moisture content is uneven or the media has moist spots on its surface. Try printing with new media. See <a href="#">Printer media specifications</a> for more information.</li><li>• The media lot is bad. The manufacturing processes can cause some areas to reject toner. Try a different type or brand of media.</li><li>• The print cartridge might be defective. See <a href="#">Changing the print cartridge</a> for more information.</li></ul>
--	--

### Note

If these steps do not correct the problem, contact an HP-authorized dealer or service representative.

## Vertical lines

	<p>The photosensitive drum inside the print cartridge has probably been scratched. Install a new HP print cartridge. See <a href="#">Changing the print cartridge</a> for instructions.</p>
--	---

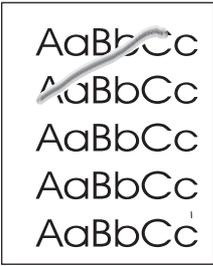
## Gray background

	<ul style="list-style-type: none"><li>• Make sure that the single-sheet priority input slot (Tray 1) is in place.</li><li>• Decrease the print density setting through HP Toolbox or the embedded Web server. This decreases the amount of background shading. See <a href="#">Using the hp toolbox</a>.</li><li>• Change the media to a lighter basis weight. See <a href="#">Printer media specifications</a> for more information.</li><li>• Check the printer's environment. Very dry (low humidity) conditions can increase the amount of background shading.</li><li>• Install a new HP print cartridge. See <a href="#">Changing the print cartridge</a> for instructions.</li></ul>
--	---

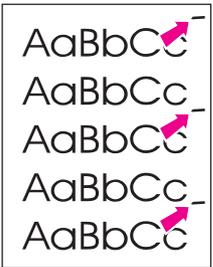
## Toner smear

	<ul style="list-style-type: none"><li>• If toner smears appear on the leading edge of the media, the media guides might be dirty. Wipe the media guides with a dry, lint-free cloth. See <a href="#">Cleaning the printer</a> for more information.</li><li>• Check the media type and quality.</li><li>• Try installing a new HP print cartridge. See <a href="#">Changing the print cartridge</a> for instructions.</li><li>• The fuser temperature might be too low. In your printer driver, make sure the appropriate media type is selected.</li></ul>
---	---

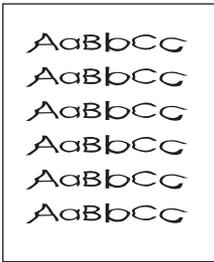
## Loose toner

	<ul style="list-style-type: none"><li>• Clean the inside of the printer. See <a href="#">Cleaning the printer</a> for instructions.</li><li>• Check the media type and quality. See <a href="#">Printer media specifications</a> for more information.</li><li>• Try installing a new HP print cartridge. See <a href="#">Changing the print cartridge</a> for instructions.</li><li>• In your printer driver, make sure the appropriate media type is selected.</li><li>• Plug the printer directly into an AC outlet instead of into a power strip.</li></ul>
--	---

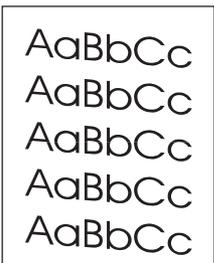
## Vertical repetitive defects

	<ul style="list-style-type: none"><li>• The print cartridge might be damaged. If a repetitive mark occurs at the same spot on the page, install a new HP print cartridge. See <a href="#">Changing the print cartridge</a> for instructions.</li><li>• The internal parts might have toner on them. See <a href="#">Cleaning the printer</a> for more information. If the defects occur on the back of the page, the problem will probably correct itself after a few more printed pages.</li><li>• In your printer driver, make sure the appropriate media type is selected.</li></ul>
---	---

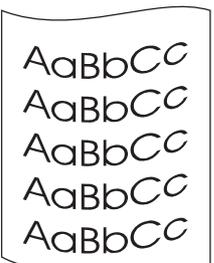
## Misformed characters

	<ul style="list-style-type: none"><li>• If characters are improperly formed, producing hollow images, the media stock might be too slick. Try a different media. See <a href="#">Printer media specifications</a> for more information.</li><li>• If characters are improperly formed, producing a wavy effect, the printer might need service. Print a configuration page. If the characters are improperly formed, contact an HP-authorized dealer or service representative. See <a href="#">How to contact HP</a> for more information.</li></ul>
---	---

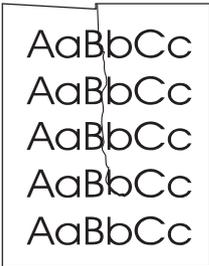
## Page skew

	<ul style="list-style-type: none"><li>• Make sure that the media is loaded correctly and the media guides are not too tight or too loose against the media stack. See <a href="#">Loading media into the input trays</a> for more information.</li><li>• The input bin might be too full. See <a href="#">Loading media into the input trays</a> for more information.</li><li>• Check the media type and quality. See <a href="#">Printer media specifications</a> for more information.</li></ul>
--	---

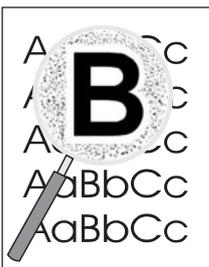
## Curl or wave

	<ul style="list-style-type: none"><li>• Check the media type and quality. Both high temperature and humidity cause media to curl. See <a href="#">Printer media specifications</a> for more information.</li><li>• The media might have been in the input tray too long. Turn over the stack of media in the tray. Also, try rotating the media 180° in the input tray.</li><li>• Open the straight-through output door and try printing straight through. See <a href="#">Media paths</a> for more information.</li><li>• The fuser temperature might be too high. In your printer driver, make sure the appropriate media type is selected. If the problem persists, select a media type that uses a lower fuser temperature, such as transparencies or light media.</li></ul>
---	--

## Wrinkles or creases

	<ul style="list-style-type: none"><li>• Make sure that media is loaded properly. See <a href="#">Loading media into the input trays</a> for more information.</li><li>• Check the media type and quality. See <a href="#">Printer media specifications</a> for more information.</li><li>• Open the straight-through output door and try printing straight through. See <a href="#">Media paths</a> for more information.</li><li>• Turn over the stack of media in the tray. Also, try rotating the media 180° in the input tray.</li><li>• For envelopes, this can be caused by air pockets inside the envelope. Remove the envelope, flatten the envelope, and try printing again.</li></ul>
---	---

## Toner scatter outline

	<ul style="list-style-type: none"><li>• If large amounts of toner have scattered around the characters, the media might be resisting the toner. (A small amount of toner scatter is normal for laser printing.) Try a different media type. See <a href="#">Printer media specifications</a> for more information.</li><li>• Turn over the stack of media in the tray.</li><li>• Use media designed for laser printers. See <a href="#">Printer media specifications</a> for more information.</li></ul>
--	--

Return to [Finding the solution](#).

## Clearing jams

Occasionally, media becomes jammed during a print job. You are notified of a media jam by an error in the software and the printer control panel lights. See [Status light patterns](#) for more information.

The following are some of the causes of media jams:

- The input trays are loaded improperly or too full. See [Loading media into the input trays](#) for more information.

---

### Note

---

When you add new media, always remove all of the media from the input tray and straighten the stack of new media. This helps prevent multiple sheets of media from feeding through the printer at one time, reducing media jams.

- The media does not meet HP specifications. See [Printer media specifications](#) for more information.
- The printer might need to be cleaned to remove paper dust and other particles from the paper path. See [Cleaning the printer](#) for instructions.

There might be loose toner in the printer after a media jam. This toner clears up after a few sheets print.

---

### CAUTION

---

Media jams might result in loose toner on the page. If you get any toner on your clothes, wash them in cold water. *Hot water will permanently set the toner into the fabric.*

Return to [Finding the solution](#).

## Print cartridge area

To clear a jam in the print cartridge area, perform the following steps:

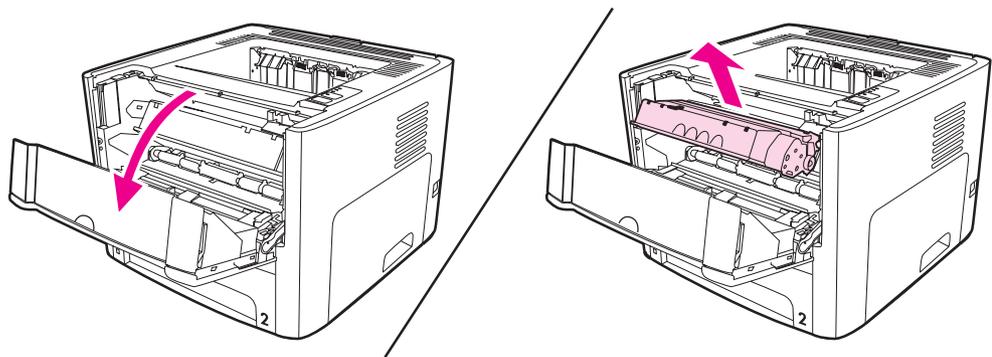
---

### CAUTION

---

Do not use sharp objects, such as tweezers or needlenose pliers, to remove jams. Damage caused by sharp objects will not be covered by the warranty.

1. Open the print cartridge door, and remove the print cartridge.



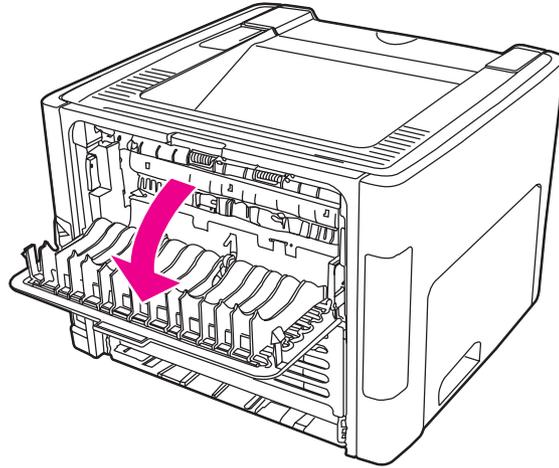
---

### CAUTION

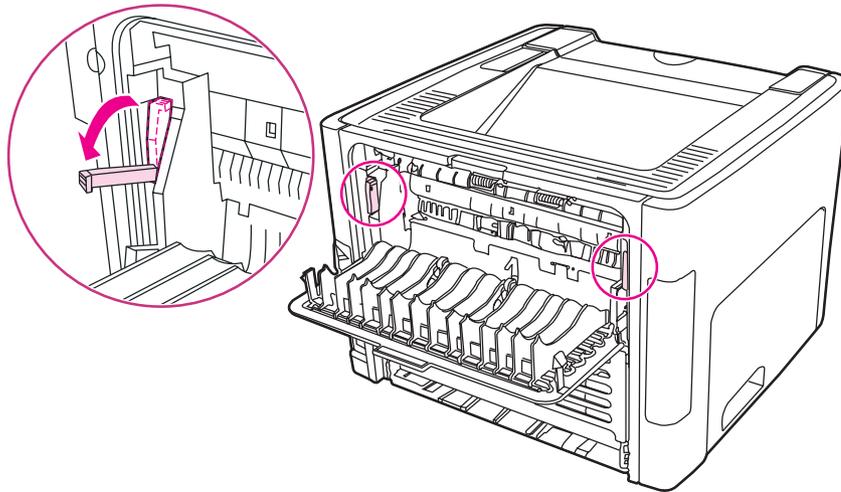
---

To prevent damage to the print cartridge, minimize its exposure to direct light.

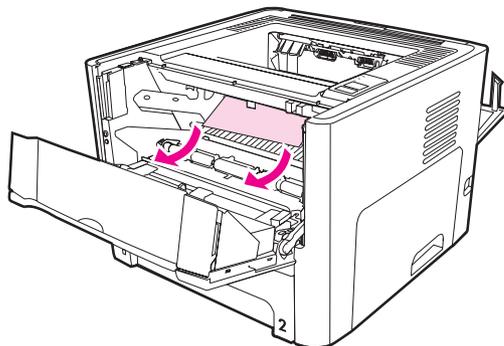
2. Open the straight-through output door.



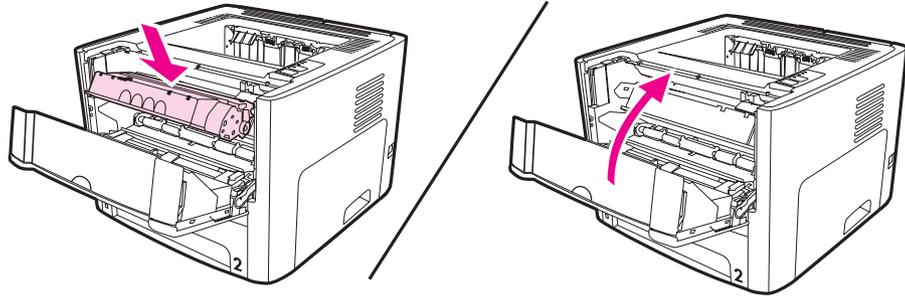
3. Rotate the green pressure release levers downward.



4. With both hands, grasp the side of the media that is most visible (this includes the middle), and carefully pull it free from the printer.



5. Replace the print cartridge, and close the print cartridge door.



## Input trays

To clear a jam in the input trays, perform the following steps:

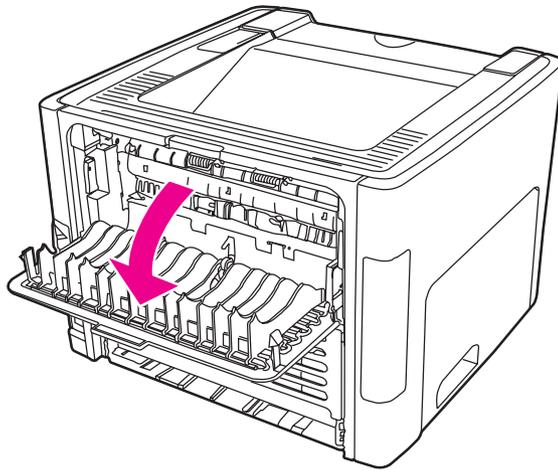
---

### CAUTION

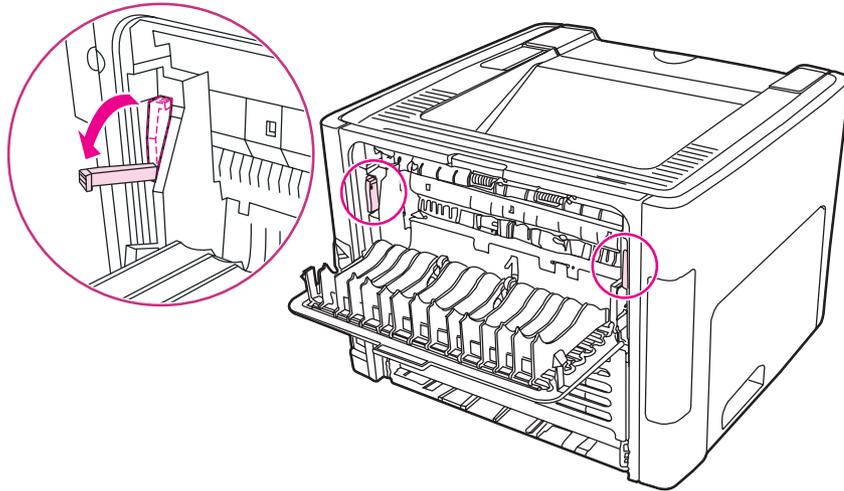
---

Do not use sharp objects, such as tweezers or needlenose pliers, to remove jams. Damage caused by sharp objects will not be covered by the warranty.

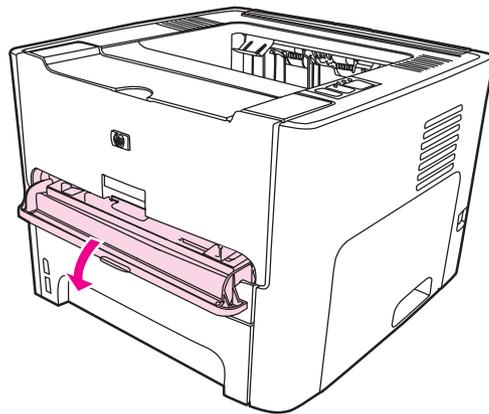
1. Open the straight-through output door.



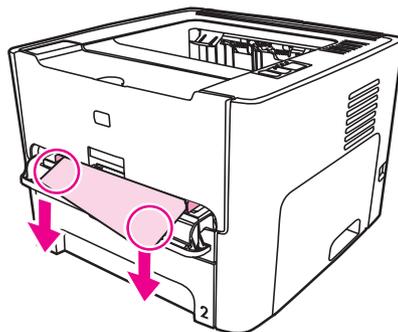
2. Rotate the green pressure release levers downward.



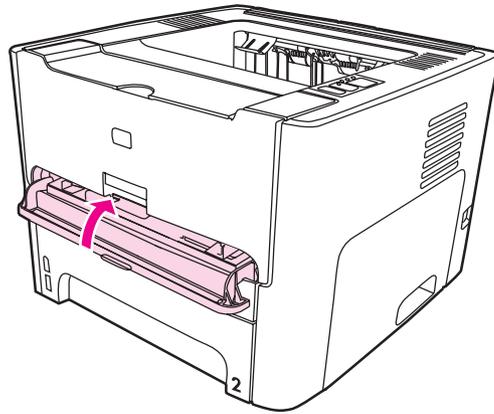
3. Open the single-sheet priority input slot (Tray 1) door.



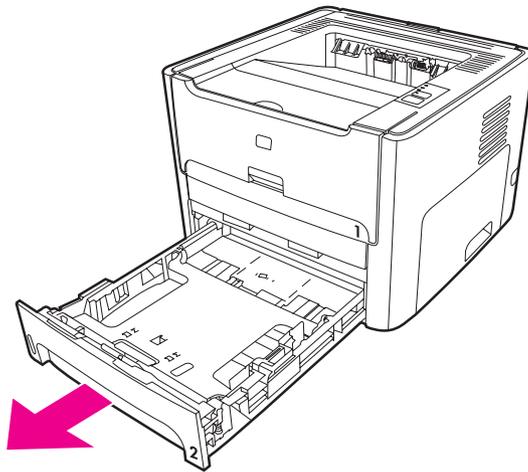
4. With both hands, grasp the side of the media that is most visible (this includes the middle), and carefully pull it free from the printer.



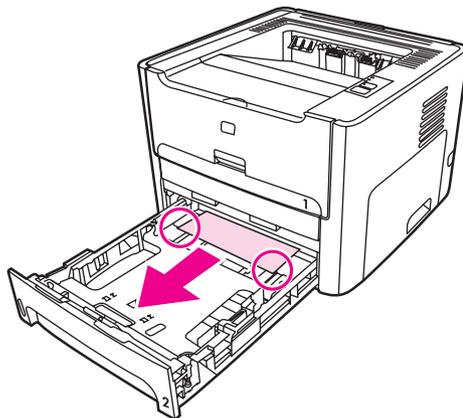
5. Close the single-sheet priority input slot (Tray 1) door.



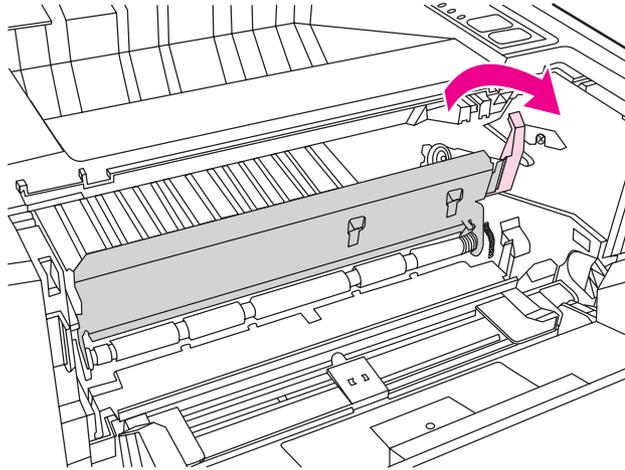
6. Open the main input tray (Tray 2).



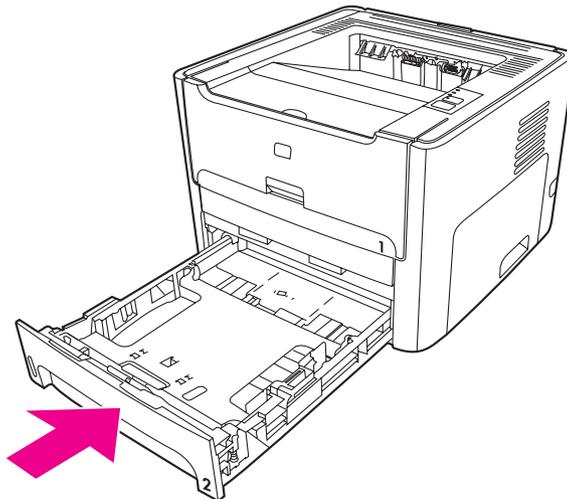
7. With both hands, grasp the side of the media that is most visible (this includes the middle), and carefully pull it free from the printer.



8. If no media is visible, open the print cartridge door, remove the print cartridge, and rotate the upper media guide. Carefully pull the media up and out of the printer.



9. Close the main input tray (Tray 2).



## Output bin

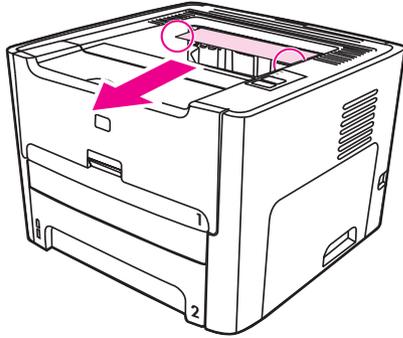
---

### CAUTION

---

Do not use sharp objects, such as tweezers or needlenose pliers, to remove jams. Damage caused by sharp objects will not be covered by the warranty.

With both hands, grasp the side of the media that is most visible (this includes the middle), and carefully pull it free from the printer.



## Straight-through output path

To clear a jam in the straight-through output path, perform the following steps:

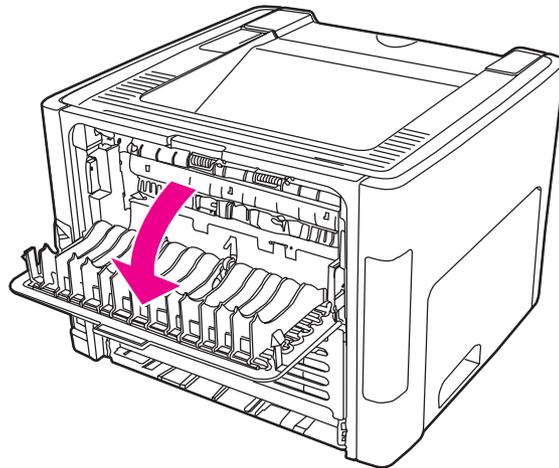
---

### CAUTION

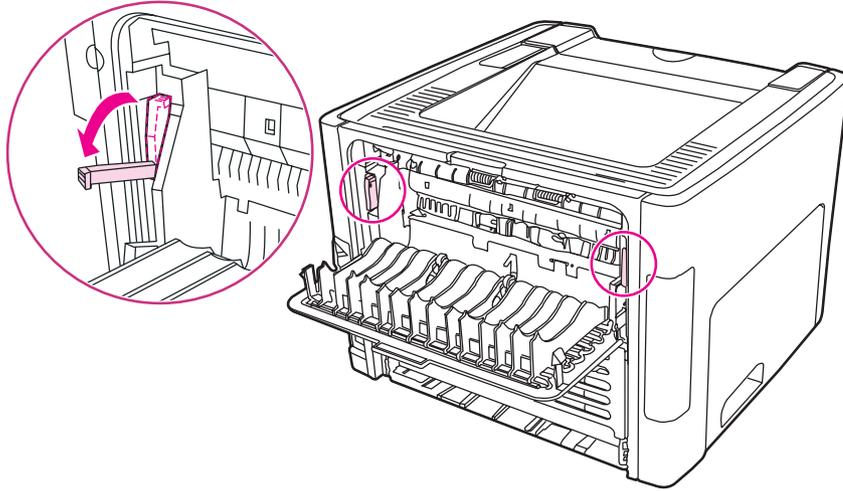
---

Do not use sharp objects, such as tweezers or needlenose pliers, to remove jams. Damage caused by sharp objects will not be covered by the warranty.

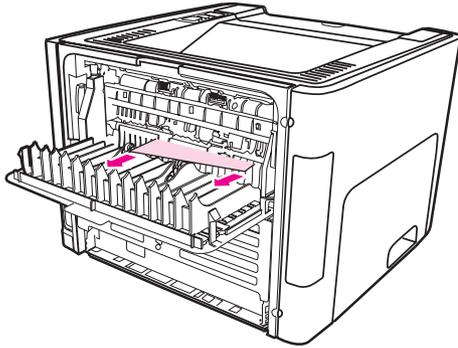
1. Open the straight-through output door.



2. Rotate the green pressure release levers downward.



3. With both hands, grasp the side of the media that is most visible (this includes the middle), and carefully pull it free from the printer.

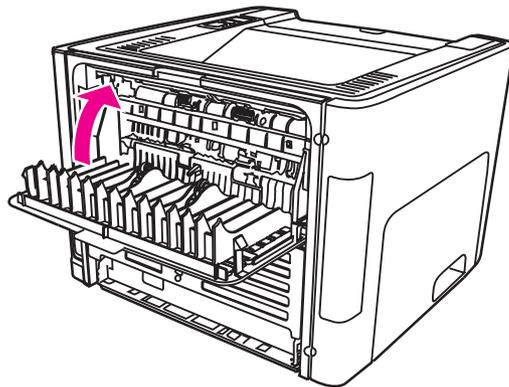


---

**Note**

If you cannot grasp the media with your hands, perform the procedure in [Print cartridge area](#).

4. Close the straight-through output door.



---

**Note**

---

The pressure release levers automatically close when you close the straight-through output door.

## Automatic two-sided printing (duplexing) path

To clear a jam in the automatic two-sided path, perform the following steps:

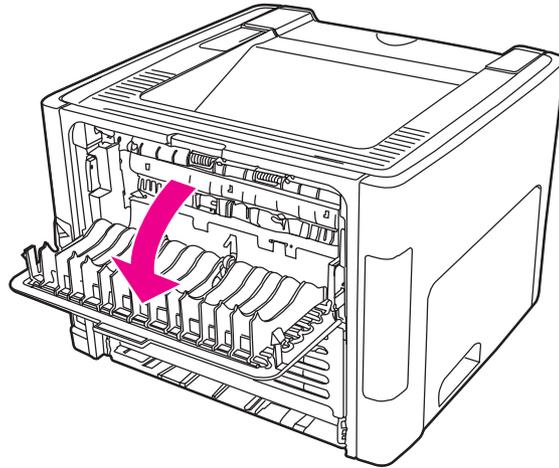
---

### CAUTION

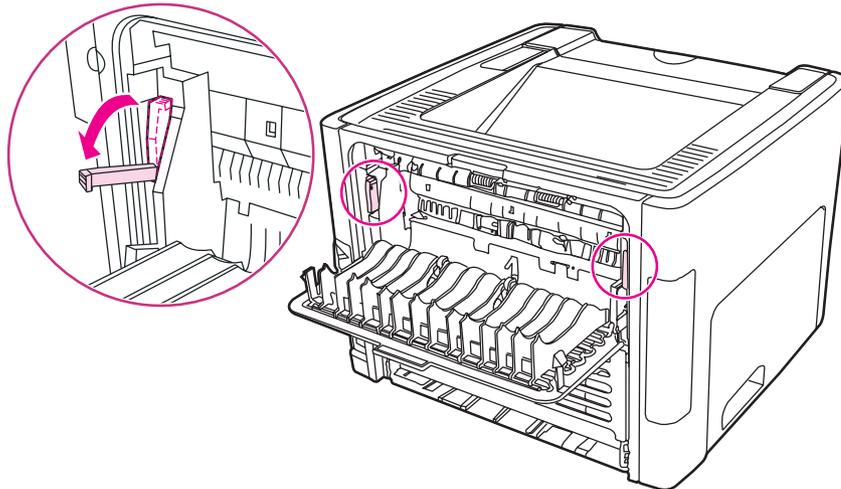
---

Do not use sharp objects, such as tweezers or needle-nose pliers, to remove jams. Damage caused by sharp objects will not be covered by the warranty.

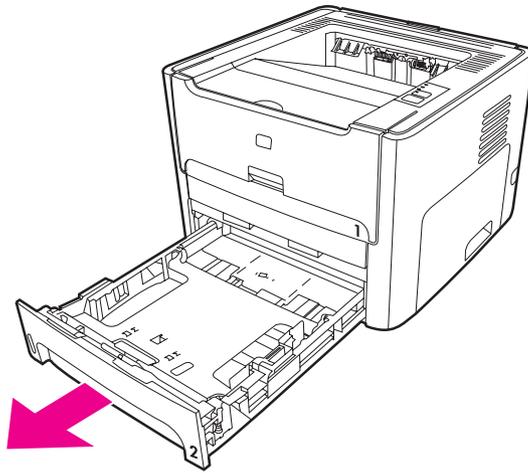
1. Open the straight-through output door.



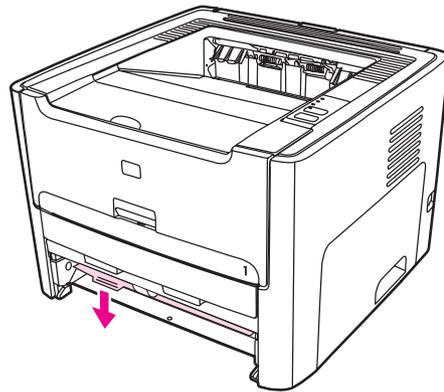
2. Rotate the green pressure release levers downward.



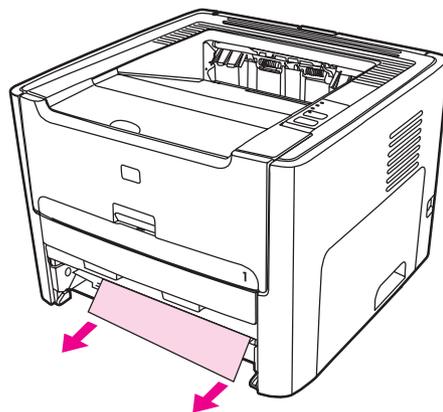
3. Remove the main input tray (Tray 2).



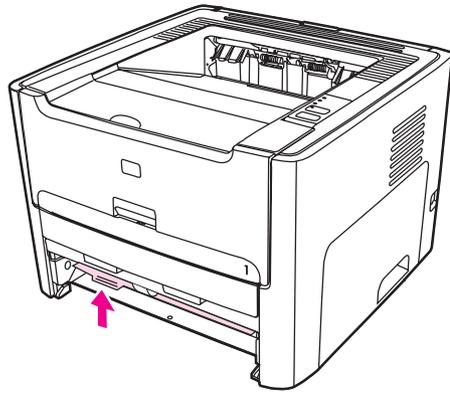
4. Push down on the green lever on the automatic two-sided path door on the front of the printer.



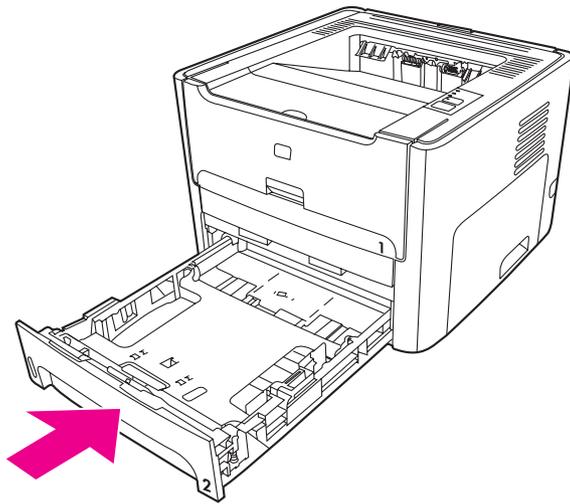
5. With both hands, grasp the side of the media that is most visible (this includes the middle), and carefully pull it free from the printer.



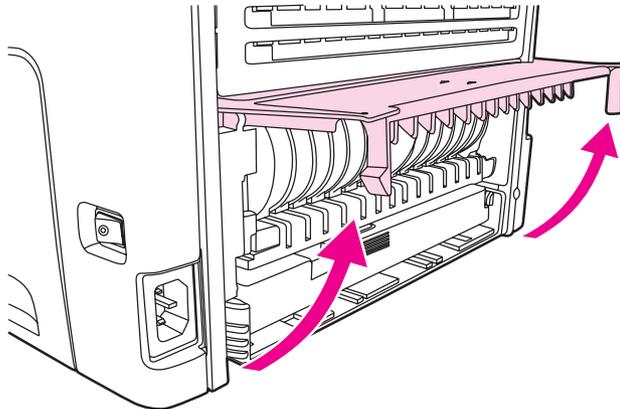
6. Close the automatic two-sided path door.



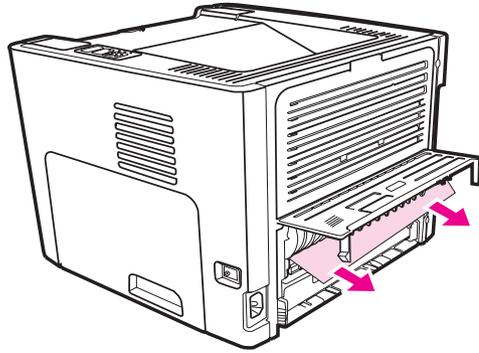
7. Reinsert the main input tray (Tray 2).



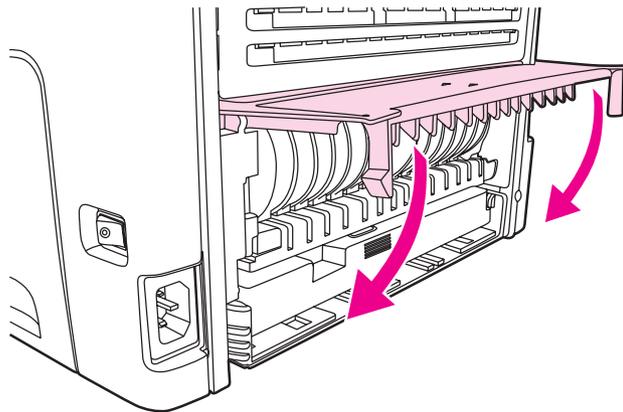
8. Open the automatic two-sided path door on the back of the printer.



9. With both hands, grasp the side of the media that is most visible (this includes the middle), and carefully pull it free from the printer.



10. Close the automatic two-sided path door.

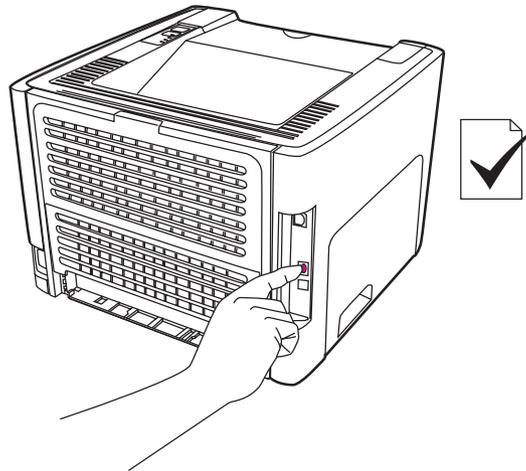


## Wired network setup problemsolving

If the computer is unable to discover the HP LaserJet 1320n, HP LaserJet 1320tn, or HP LaserJet 1320nw printer, perform the following steps:

1. Check the cables to ensure that they are properly connected. Check all of the following connections:
  - Power cables
  - Cables between the printer and the hub or switch
  - Cables between the hub or switch and the computer
  - Cables to and from the modem or Internet connection, if applicable
2. To make sure that the computer's network connections are working properly (Windows only), perform the following steps:
  - On the Windows desktop, double-click **My Network Places** or **Network Neighborhood**.
  - Click the **Entire Network** link.
  - Click the **Entire Contents** link.
  - Double-click one of the network icons, and make sure that some devices are listed.
3. To verify that the network connection is active, perform the following steps:
  - Check the network light on the network (RJ-45) connector on the back of the printer.
  - If one of the lights is on solid, the printer is connected to the network.
  - If both network lights are off, check the cable connections from the printer to the gateway, switch, or hub to ensure that the connections are secure.
  - If the connections are secure, turn off the power to the printer for at least 10 seconds, and then turn on the power to the printer.

4. To print a network configuration page, press the network Reset button located on the back of the printer.



- On the Network Configuration page, check to see if a non-zero IP address is assigned to the printer.
- If the Network Configuration page does not have a valid, non-zero IP address, reset the Internal HP Jetdirect print server to the factory defaults. To cold reset the Internal HP Jetdirect print server, turn off the printer. While pressing the Reset button on the back of the printer, turn on the printer. Continue to press the Reset button until the printer is in the Ready state (from 5 to 30 seconds).
- Two minutes after the printer reaches the Ready state, print another Network Configuration page, and check to see if a valid IP address is assigned to the printer.
- If the IP address is still zeros, [Contact HP support](#).



# A

# Printer specifications

This appendix provides information on the following topics:

- [Environmental specifications](#)
- [Acoustic emissions](#)
- [Electrical specifications](#)
- [Physical specifications](#)
- [Printer capacities and ratings](#)
- [Memory specifications](#)
- [Port availability](#)

## Environmental specifications

Operating environment	Printer plugged into an AC outlet: <ul style="list-style-type: none"><li>• Temperature: 10° C to 32.5° C (50° F to 90.5° F)</li><li>• Humidity: 20 to 80 percent (no condensation)</li></ul>
Storage environment	Printer unplugged from an AC outlet: <ul style="list-style-type: none"><li>• Temperature: 0° C to 40° C (32° F to 104° F)</li><li>• Humidity: 10 to 80 percent (no condensation)</li></ul>

---

### Note

Values are current as of April 1, 2004. Values are subject to change without notice. See <http://www.hp.com/support/lj1160/> or <http://www.hp.com/support/lj1320/> for current information.

# Acoustic emissions

Declared per ISO 9296

## HP LaserJet 1160 printer

Sound power level	Printing (20 ppm): $L_{WA_d} = 6.2$ Bels A and 62 dB (A) Ready (PowerSave): essentially inaudible
Sound pressure level bystander position	Printing (20 ppm): $L_{pAm} = 48$ dB (A) Ready (PowerSave): essentially inaudible

## HP LaserJet 1320 printer

Sound power level	Printing (22 ppm): $L_{WA_d} = 6.2$ Bels A and 62 dB (A) Ready (PowerSave): essentially inaudible
Sound pressure level bystander position	Printing (22 ppm): $L_{pAm} = 48$ dB (A) Ready (PowerSave): essentially inaudible

## HP LaserJet 1320n printer

Sound power level	Printing (22 ppm): $L_{WA_d} = 6.2$ Bels A and 62 dB (A) Ready (PowerSave): essentially inaudible
Sound pressure level bystander position	Printing (22 ppm): $L_{pAm} = 48$ dB (A) Ready (PowerSave): essentially inaudible

---

**Note**

Values are current as of April 1, 2004. Values are subject to change without notice. See <http://www.hp.com/support/lj1160/> or <http://www.hp.com/support/lj1320/> for current information.

---

**Note**

Configuration tested: HP LaserJet 1320 base unit, standard tray, A4 paper, and simplex continuous print.

## Electrical specifications

### WARNING!

Power requirements are based on the country/region where the printer is sold. Do not convert operating voltages. Doing so might damage the printer and void the product warranty.

#### HP LaserJet 1160 printer

Power requirements (110)	110-127v (+/-10%), 50/60 Hz (+/-2)
Power requirements (220)	220v-240v (+/-10%), 50/60 Hz (+/-2 Hz)
Power consumption	<ul style="list-style-type: none"> <li>● During printing (20 ppm): 340 watts (average)</li> <li>● During Ready (Standby) and PowerSave*: 4 Watts</li> </ul> <p>* Instant on fuser technology</p> <ul style="list-style-type: none"> <li>● Off: &lt;1 watts</li> </ul>
Minimum recommended circuit capacity for typical product	<ul style="list-style-type: none"> <li>● 4.5 amps at 115 volts</li> <li>● 2.6 amps at 230 volts</li> </ul>

#### HP LaserJet 1320 printer

Power requirements (110)	110-127v (+/-10%), 50/60 Hz (+/-2)
Power requirements (220)	220v-240v (+/-10%), 50/60 Hz (+/-2 Hz)
Power consumption	<ul style="list-style-type: none"> <li>● During printing (22 ppm): 340 watts (average)</li> <li>● During Ready (Standby) and PowerSave*: 6 Watts</li> </ul> <p>* Instant on fuser technology</p> <ul style="list-style-type: none"> <li>● Off: &lt;1 watts</li> </ul>
Minimum recommended circuit capacity for typical product	<ul style="list-style-type: none"> <li>● 4.5 amps at 115 volts</li> <li>● 2.6 amps at 230 volts</li> </ul>

#### HP LaserJet 1320n printer

Power requirements (110)	110-127v (+/-10%), 50/60 Hz (+/-2)
Power requirements (220)	220v-240v (+/-10%), 50/60 Hz (+/-2 Hz)
Power consumption	<ul style="list-style-type: none"> <li>● During printing (22 ppm): 345 watts (average)</li> <li>● During Ready (Standby) and PowerSave*: 6 Watts</li> </ul> <p>* Instant on fuser technology</p> <ul style="list-style-type: none"> <li>● Off: &lt;1 watts</li> </ul>
Minimum recommended circuit capacity for typical product	<ul style="list-style-type: none"> <li>● 4.5 amps at 115 volts</li> <li>● 2.6 amps at 230 volts</li> </ul>

## HP LaserJet 1320nw printer

Power requirements (110)	110-127v (+/-10%), 50/60 Hz (+/-2)
Power requirements (220)	220v-240v (+/-10%), 50/60 Hz (+/-2 Hz)
Power consumption	<ul style="list-style-type: none"><li>• During printing (22 ppm): 345 watts (average)</li><li>• During Ready (Standby) and PowerSave*: 6 Watts</li></ul> * Instant on fuser technology <ul style="list-style-type: none"><li>• Off: &lt;1 watts</li></ul>
Minimum recommended circuit capacity for typical product	<ul style="list-style-type: none"><li>• 4.5 amps at 115 volts</li><li>• 2.6 amps at 230 volts</li></ul>

---

**Note**

Values are current as of April 1, 2004. Values are subject to change without notice. See <http://www.hp.com/support/lj1160/> or <http://www.hp.com/support/lj1320/> for current information.

---

**Note**

The power reported is the highest value measured for monochrome printing using all standard voltages.

---

**Note**

The default time from Ready mode to PowerSave mode and the recovery time from PowerSave mode to the start of printing is negligible (less than 10 seconds) because of the instant on fusing.

---

**Note**

The heat dissipation in Ready mode is 20 BTU/hour.

## Physical specifications

Dimensions	<ul style="list-style-type: none"><li>• Width: 350 mm (16.8 inches)</li><li>• Depth: 352 mm (13.9 inches)</li><li>• Height: 256 mm (10.0 inches)</li></ul>
Weight (2,500-page cartridge installed)	HP LaserJet 1160 printer: 10.7 kg (23.6 lb) HP LaserJet 1320 series printer: 11.3 kg (24.9 lb)

---

### Note

Values are current as of April 1, 2004. Values are subject to change without notice. See <http://www.hp.com/support/lj1160/> or <http://www.hp.com/support/lj1320/> for current information.

---

## Printer capacities and ratings

Print speed	<p>HP LaserJet 1160 printer:</p> <ul style="list-style-type: none"> <li>• 20 ppm (Letter), 19 ppm (A4)</li> <li>• First page out in as low as 8.5 seconds</li> </ul> <p>HP LaserJet 1320 series printer:</p> <ul style="list-style-type: none"> <li>• 22 ppm (Letter), 21 ppm (A4)</li> <li>• First page out in as low as 8.5 seconds</li> </ul>
Main input tray (Tray 2) capacity	250 sheets of regular weight 75 g/m <sup>2</sup> (20 lb) paper
Single-sheet priority input slot (Tray 1) capacity	1 sheet of paper up to 163 g/m <sup>2</sup> (43 lb) paper or 1 envelope
Optional input tray (Tray 3) capacity (HP LaserJet 1320 series printer or Q2485A)	250 sheets of regular weight 75 g/m <sup>2</sup> (20 lb) paper
Top (face down) output bin capacity	125 sheets of regular weight 75 g/m <sup>2</sup> (20 lb) paper
Minimum paper size	76 by 127 mm (3 by 5 inches)
Maximum paper size	216 by 356 mm (8.5 by 14 inches)
Media weight	<p>Output bin: 60 to 105 g/m<sup>2</sup> (16 to 28 lbs)</p> <p>Straight through media path: 60 to 163 g/m<sup>2</sup> (16 to 43 lbs)</p>
Base memory	16 MB of RAM
Upgrade memory expansion HP LaserJet 1320 series printer only	One DIMM slot available for a 16, 32, 64, or 128 MB RAM DIMM
Print resolution	<ul style="list-style-type: none"> <li>• <b>1200 dpi:</b> (HP LaserJet 1320 series printer only) This setting uses ProRes 1200 to provide fine-line detail at 1200 x 1200 dpi.</li> <li>• <b>1200 effective dpi:</b> This setting provides 1200 dpi effective output quality using FastRes 1200.</li> <li>• <b>600 dpi:</b> This setting provides 600 x 600 dpi output with Resolution Enhancement technology (REt) for improved text.</li> </ul>
Duty cycle	<ul style="list-style-type: none"> <li>• 10,000 single-sided pages per month (maximum)</li> <li>• 1,000 single-sided pages per month (average)</li> </ul>
PCL	PCL 5e, PCL 6
PS	PostScript Level 2 emulation

## Memory specifications

Base memory	16 MB RAM
Upgrade memory expansion	100-pin, 66 MHz minimum speed

## Port availability

USB	Compatible with USB 2.0 specifications
Network (HP LaserJet 1320n, HP LaserJet 1320tn, and HP LaserJet 1320nw printers only)	RJ-45, Ethernet 10/100
Wireless (HP LaserJet 1320nw printer only)	802.11b/g
Parallel (HP LaserJet 1160 and HP LaserJet 1320 printers only)	<ul style="list-style-type: none"><li>• IEEE-1284B receptacle</li><li>• Set host computer to ECP</li></ul>



# B

## Regulatory information

### FCC compliance

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy. If it is not installed and used in accordance with the instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase separation between equipment and receiver.
- Connect equipment to an outlet on a circuit different from that to which the receiver is located.
- Consult your dealer or an experienced radio/TV technician.

---

#### Note

Any changes or modifications to the printer that are not expressly approved by Hewlett-Packard could void the user's authority to operate this equipment.

Use of a shielded interface cable is required to comply with the Class B limits of Part 15 of FCC rules.

---

# Declaration of Conformity statements

## Declaration of Conformity

according to ISO/IEC Guide 22 and EN 45014

**Manufacturer's Name:** Hewlett-Packard Company  
**Manufacturer's Address:** 11311 Chinden Boulevard  
Boise, Idaho 83714-1021, USA

## declares that the product

**Product Name:** HP LaserJet 1160  
**Regulatory Model <sup>3)</sup>:** BOISB-0402-02  
**Product Options:** ALL

## conforms to the following Product Specifications:

**Safety:** IEC 60950:1999 / EN 60950:2000  
IEC 60825-1:1993 +A1:1997 +A2:2001 / EN 60825-1:1994 +A11:1996 +A2:2001 (Class 1 Laser/LED Product)  
GB4943-2001

**EMC:** CISPR 22:1997 / EN 55022:1998 Class B<sup>1)</sup>  
EN 61000-3-2:2000  
EN 61000-3-3:1995 / A1  
EN 55024:1998  
FCC Title 47 CFR, Part 15 Class B<sup>2)</sup> / ICES-003, Issue 3  
GB9254-1998, GB17625.1-1998 / CNS13438

## Supplementary Information:

The product herewith complies with the requirements of the EMC Directive 89/336/EEC and the Low Voltage Directive 73/23/EEC, and carries the CE-marking accordingly.

- 1) The product was tested in a typical configuration with Hewlett-Packard Personal Computer Systems.
- 2) This Device complies with Part 15 of the FCC Rules. Operation is subject to the following two Conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
- 3) For regulatory purposes, this product is assigned a Regulatory model number. This number should not be confused with the product name or the product number(s).

Boise, Idaho 83714, USA

**30 April 2004**

## For Regulatory Topics ONLY, contact:

**Australia Contact:** Product Regulations Manager, Hewlett-Packard Australia Ltd., 31-41 Joseph Street, Blackburn, Victoria 3130, Australia

**European Contact:** Your Local Hewlett-Packard Sales and Service Office or Hewlett-Packard GmbH, Department HQ-TRE / Standards Europe, Herrenberger Straße 140, Böblingen, D-71034, Germany (FAX: +49-7031-14-3143)

**USA Contact:** Product Regulations Manager, Hewlett-Packard Company, PO Box 15, Mail Stop 160, Boise, Idaho 83707-0015, USA (Phone: 208-396-6000)

**Declaration of Conformity**

according to ISO/IEC Guide 22 and EN 45014

**Manufacturer's Name:** Hewlett-Packard Company  
**Manufacturer's Address:** 11311 Chinden Boulevard  
Boise, Idaho 83714-1021, USA

**declares that the product**

**Product Name** <sup>4)</sup>: HP LaserJet 1320, HP LaserJet 1320n, HP LaserJet 1320tn/HP LaserJet 1320nw  
**Regulatory Model** <sup>3)</sup>: BOISB-0402-00/BOISB-0402-01  
Including  
Q5931A - Optional 250-Sheet Input Tray  
**Product Options:** ALL

**conforms to the following Product Specifications:**

**Safety:** IEC 60950:1999 / EN 60950:2000  
IEC 60825-1:1993 +A1:1997 +A2:2001 / EN 60825-1:1994 +A11:1996 +A2:2001 (Class 1 Laser/LED Product)  
GB4943-2001

**EMC:** CISPR 22:1997 / EN 55022:1998 Class B<sup>1)</sup>  
EN 61000-3-2:2000  
EN 61000-3-3:1995 / A1  
EN 55024:1998  
FCC Title 47 CFR, Part 15 Class B<sup>2)</sup> / ICES-003, Issue 3  
GB9254-1998, GB17625.1-1998 / CNS13438

**Supplementary Information:**

The product herewith complies with the requirements of the EMC Directive 89/336/EEC and the Low Voltage Directive 73/23/EEC, and carries the CE-marking accordingly.

- 1) The product was tested in a typical configuration with Hewlett-Packard Personal Computer Systems.
- 2) This Device complies with Part 15 of the FCC Rules. Operation is subject to the following two Conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
- 3) For regulatory purposes, this product is assigned a Regulatory model number. This number should not be confused with the product name or the product number(s).
- 4) Regulatory information regarding radio module approvals for the HP LaserJet 1320nw (Regulatory Model Number: BOISB-0402-01) can be found in the wireless user guide for that product.

Boise, Idaho 83714, USA

**30 April 2004**

**For Regulatory Topics ONLY, contact:**

**Australia Contact:** Product Regulations Manager, Hewlett-Packard Australia Ltd., 31-41 Joseph Street, Blackburn, Victoria 3130, Australia

**European Contact:** Your Local Hewlett-Packard Sales and Service Office or Hewlett-Packard GmbH, Department HQ-TRE / Standards Europe, Herrenberger Straße 140, Böblingen, D-71034, Germany (FAX: +49-7031-14-3143)

**USA Contact:** Product Regulations Manager, Hewlett-Packard Company, PO Box 15, Mail Stop 160, Boise, Idaho 83707-0015, USA (Phone: 208-396-6000)

## Regulatory statements

### Laser safety statement

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration has implemented regulations for laser products manufactured since August 1, 1976. Compliance is mandatory for products marketed in the United States. The printer is certified as a "Class 1" laser product under the U.S. Department of Health and Human Services (DHHS) Radiation Performance Standard according to the Radiation Control for Health and Safety Act of 1968.

Since radiation emitted inside the printer is completely confined within protective housings and external covers, the laser beam cannot escape during any phase of normal user operation.

#### **WARNING!**

Using controls, making adjustments, or performing procedures other than those specified in this user guide could result in exposure to hazardous radiation.

### Canadian DOC regulations

Complies with Canadian EMC Class B requirements.

«Conforme à la classe B des normes canadiennes de compatibilité électromagnétiques.  
«CEM».»

### Korean EMI statement

사용시 안내문 (A급 기기)

이 기기는 업무용으로 전자파장애감정을 받은  
기기이오니, 만약 잘못된 구입하셨을 때에는 구입  
한 곳에서 비업무용으로 교환하시기 바랍니다.

## Laser statement for Finland

### LASERTURVALLISUUS

#### LUOKAN 1 LASERLAITE

#### KLASS 1 LASER APPARAT

HP LaserJet 1160, HP LaserJet 1320, HP LaserJet 1320n, HP LaserJet 1320tn, HP LaserJet 1320nw -laserkirjoitin on käyttäjän kannalta turvallinen luokan 1 laserlaite. Normaalisissa käytössä kirjoittimen suojakotelointi estää lasersäteen pääsyn laitteen ulkopuolelle.

Laitteen turvallisuusluokka on määritetty standardin EN 60825-1 (1994) mukaisesti.

#### **VAROITUS!**

Laitteen käyttäminen muulla kuin käyttöohjeessa mainitulla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteilylle.

#### **WARNING!**

Om apparaten används på annat sätt än i bruksanvisning specificerats, kan användaren utsättas för osynlig laserstrålning, som överskrider gränsen för laserklass 1.

#### **HUOLTO**

HP LaserJet 1160, HP LaserJet 1320, HP LaserJet 1320n, HP LaserJet 1320tn, HP LaserJet 1320nw -kirjoittimen sisällä ei ole käyttäjän huollettavissa olevia kohteita. Laitteen saa avata ja huoltaa ainoastaan sen huoltamiseen koulutettu henkilö. Tällaiseksi huoltotoimenpiteeksi ei katsota väriainekasetin vaihtamista, paperiradan puhdistusta tai muita käyttäjän käsikirjassa lueteltuja, käyttäjän tehtäväksi tarkoitettuja ylläpitotoimia, jotka voidaan suorittaa ilman erikoistyökaluja.

#### **VARO!**

Mikäli kirjoittimen suojakotelo avataan, olet alttiina näkymättömälle lasersäteilylle laitteen ollessa toiminnassa. Älä katso säteeseen.

#### **WARNING!**

Om laserprinterns skyddshölje öppnas då apparaten är i funktion, utsättas användaren för osynlig laserstrålning. Betrakta ej strålen.

Tiedot laitteessa käytettävän laserdiodin säteilyominaisuuksista:

Aallonpituus 785-800 nm

Teho 5 mW

Luokan 3B laser

# Environmental product stewardship program

## Protecting the environment

Hewlett-Packard Company is committed to providing quality products in an environmentally sound manner. This product has been designed with several attributes to minimize the impact on our environment.

## Ozone production

This product generates no appreciable ozone gas (O<sub>3</sub>).

## Energy consumption

Energy usage drops significantly while in PowerSave mode, which saves money without affecting the high performance of this product. This product qualifies for Energy Star, which is a voluntary program to encourage the development of energy-efficient office products.



---

Energy Star® is a U.S. registered service mark of the U.S. EPA. As an Energy Star® partner, Hewlett-Packard Company has determined that this product meets Energy Star® guidelines for energy efficiency. For more information, see <http://www.energystar.gov/>.

## Toner consumption

EconoMode uses significantly less toner, which might extend the life of the print cartridge.

## Paper use

This product's automatic/manual two-sided printing (duplexing) and N-up printing (multiple pages printed on one page) features can reduce paper usage and the resulting demands on natural resources.

## Plastics

Plastic parts over 25 grams (0.9 oz) are marked according to international standards that enhance the ability to identify plastics for recycling purposes at the end of the product's life.

## HP LaserJet printing supplies

In many countries/regions, this product's printing supplies (such as print cartridge, drum, and fuser) can be returned to Hewlett-Packard through the HP printing supplies returns and recycling program. This easy-to-use, free takeback program is available in over 48 countries/regions. Multilingual program information and instructions are included in every new HP print cartridge and consumables package.

## HP printing supplies returns and recycling program information

Since 1990, the HP printing supplies returns and recycling program has collected millions of used print cartridges that otherwise might have been discarded in the world's landfills. The HP LaserJet print cartridges and consumables are collected and bulk-shipped to our resource and recovery partners who disassemble the print cartridge. After a thorough quality inspection, selected parts are reclaimed for use in new print cartridges. Remaining materials are separated and converted into raw materials for use by other industries to make a variety of useful products.

### U.S. recycling returns

For a more environmentally responsible return of used print cartridges and consumables, Hewlett-Packard encourages you to use bulk returns. Simply bundle two or more print cartridges together and use the single, prepaid, pre-addressed label that is supplied in the package. For more information in the U.S., call (800) 340-2445 or visit the HP LaserJet supplies Web site at <http://www.hp.com/recycle>.

### Non-U.S. recycling returns

Non-U.S. customers should call the local HP sales and service office or visit the <http://www.hp.com/recycle> website for more information regarding availability of the HP printing supplies returns and recycle program.

## Paper

This printer is suited for the use of recycled papers when the paper meets the guidelines in the *HP LaserJet printer family print media guide*. See [Ordering supplies and accessories](#) for ordering information. This product is suitable for the use of recycled paper according to DIN 19309.

## Material restrictions

This product does not contain added mercury (except lamps containing less than 10 mg (2.2 lb)).

This product contains lead in solder that may require handling at end-of-life.

This product does not contain batteries.

## For more information

For more information on the following HP environmental programs, see <http://www.hp.com/go/environment/>.

- Product environmental profile sheet for this and many related HP products
- HP's commitment to the environment
- HP's environmental management system
- HP's end-of-life product return and recycling program
- Material safety data sheets

## Material safety data sheet

Material safety data sheets (MSDS) can be obtained by contacting the HP LaserJet supplies website at <http://www.hp.com/hpinfo/globalcitizenship/environment/productdata/index.html/>.





# Warranty and licensing

## Hewlett-Packard limited warranty statement

### HP PRODUCT

HP LaserJet 1160 and HP LaserJet 1320 series printers

### DURATION OF LIMITED WARRANTY

One year from date of purchase

HP warrants to you, the end-user customer, that HP hardware and accessories will be free from defects in materials and workmanship after the date of purchase, for the period specified above. If HP receives notice of such defects during the warranty period, HP will, at its option, either repair or replace products which prove to be defective. Replacement products may be either new or equivalent in performance to new.

HP warrants to you that HP software will not fail to execute its programming instructions after the date of purchase, for the period specified above, due to defects in material and workmanship when properly installed and used. If HP receives notice of such defects during the warranty period, HP will replace software which does not execute its programming instructions due to such defects.

HP does not warrant that the operation of HP products will be uninterrupted or error free. If HP is unable, within a reasonable time, to repair or replace any product to a condition as warranted, you will be entitled to a refund of the purchase price upon prompt return of the product.

HP products may contain remanufactured parts equivalent to new in performance or may have been subject to incidental use.

Warranty does not apply to defects resulting from (a) improper or inadequate maintenance or calibration, (b) software, interfacing, parts or supplies not supplied by HP, (c) unauthorized modification or misuse, (d) operation outside of the published environmental specifications for the product, or (e) improper site preparation or maintenance.

HP's limited warranty is valid in any country/region or locality where HP has a support presence for this product and where HP has marketed this product. The level of warranty service you receive may vary according to local standards. HP will not alter form, fit or function of the product to make it operate in a country/region for which it was never intended to function for legal or regulatory reasons. TO THE EXTENT ALLOWED BY LOCAL LAW, THE ABOVE WARRANTIES ARE EXCLUSIVE AND NO OTHER WARRANTY OR CONDITION, WHETHER WRITTEN OR ORAL, IS EXPRESSED OR IMPLIED AND HP SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY, SATISFACTORY QUALITY, AND FITNESS FOR A PARTICULAR PURPOSE. Some countries/regions, states or provinces do not allow limitations on the duration of an implied warranty, so the above limitation or exclusion might not apply to you. This warranty gives you specific legal rights and you might also have other rights that vary from country/region to country/region, state to state, or province to province.

TO THE EXTENT ALLOWED BY LOCAL LAW, THE REMEDIES IN THIS WARRANTY STATEMENT ARE YOUR SOLE AND EXCLUSIVE REMEDIES. EXCEPT AS INDICATED ABOVE, IN NO EVENT WILL HP OR ITS SUPPLIERS BE LIABLE FOR LOSS OF DATA OR FOR DIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFIT OR DATA), OR OTHER DAMAGE, WHETHER BASED IN CONTRACT, TORT, OR OTHERWISE. Some countries/regions, states or provinces do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

THE WARRANTY TERMS CONTAINED IN THIS STATEMENT, EXCEPT TO THE EXTENT LAWFULLY PERMITTED, DO NOT EXCLUDE, RESTRICT OR MODIFY AND ARE IN ADDITION TO THE MANDATORY STATUTORY RIGHTS APPLICABLE TO THE SALE OF THIS PRODUCT TO YOU.

# Hewlett-Packard software license agreement

ATTENTION: USE OF THE SOFTWARE IS SUBJECT TO THE HP SOFTWARE LICENSE TERMS SET FORTH BELOW. USING THE SOFTWARE INDICATES YOUR ACCEPTANCE OF THESE LICENSE TERMS.

## HP SOFTWARE LICENSE TERMS

The following License Terms govern your use of the accompanying Software unless you have a separate signed agreement with Hewlett-Packard.

**License Grant.** Hewlett-Packard grants you a license to use one copy of the Software. "Use" means storing, loading, installing, executing, or displaying the Software. You may not modify the Software or disable any licensing or control features of the Software. If the Software is licensed for "concurrent use," you may not allow more than the maximum number of authorized users to Use the Software concurrently.

**Ownership.** The Software is owned and copyrighted by Hewlett-Packard or its third-party suppliers. Your license confers no title to, or ownership in, the Software and is not a sale of any rights in the Software. Hewlett-Packard's third-party suppliers may protect their rights in the event of any violation of these License Terms.

**Copies and Adaptations.** You may only make copies or adaptations of the Software for archival purposes or when copying or adaptation is an essential step in the authorized Use of the Software. You must reproduce all copyright notices in the original Software on all copies or adaptations. You may not copy the Software onto any public network.

**No Disassembly or Decryption.** You may not disassemble or decompile the Software unless HP's prior written consent is obtained. In some jurisdictions, HP's consent may not be required for limited disassembly or decompilation. Upon request, you will provide HP with reasonably detailed information regarding any disassembly or decompilation. You may not decrypt the Software unless decryption is a necessary part of the operation of the Software.

**Transfer.** Your license will automatically terminate upon any transfer of the Software. Upon transfer, you must deliver the Software, including any copies and related documentation, to the transferee. The transferee must accept these License Terms as a condition to the transfer.

**Termination.** HP may terminate your license upon notice for failure to comply with any of these License Terms. Upon termination, you must immediately destroy the Software, together with all copies, adaptations, and merged portions in any form.

**Export Requirements.** You may not export or re-export the Software or any copy or adaptation in violation of any applicable laws or regulations.

**U.S. Government Restricted Rights.** The Software and any accompanying documentation have been developed entirely at private expense. They are delivered and licensed as "commercial computer software" as defined in DFARS 252.227-7013 (Oct 1988), DFARS 252.211-7015 (May 1991), or DFARS 252.227-7014 (Jun 1995), as a "commercial item" as defined in FAR 2.101(a) (Jun 1987), or as "Restricted computer software" as defined in FAR 52.227-19 (Jun 1987) (or any equivalent agency regulation or contract clause), whichever is applicable. You have only those rights provided for such Software and any accompanying documentation by the applicable DFARS or FAR clause or the HP standard software agreement for the product involved.

## Limited warranty for print cartridge life

---

**Note**

The following warranty applies to the print cartridge that came with this printer.

This HP product is warranted to be free from defects in materials and workmanship. This warranty does not apply to products that (a) have been refilled, refurbished, remanufactured or tampered with in any way, (b) experience problems resulting from misuse, improper storage, or operation outside of the published environmental specifications for the printer product or (c) exhibit wear from ordinary use. To obtain warranty service, please return the product to place of purchase (with a written description of the problem and the print samples) or contact HP customer support. At HP's option, HP will either replace products that prove to be defective or refund your purchase price. TO THE EXTENT ALLOWED BY LOCAL LAW, THE ABOVE WARRANTY IS EXCLUSIVE AND NO OTHER WARRANTY OR CONDITION, WHETHER WRITTEN OR ORAL, IS EXPRESSED OR IMPLIED AND HP SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY, SATISFACTORY QUALITY, AND FITNESS FOR A PARTICULAR PURPOSE. TO THE EXTENT ALLOWED BY LOCAL LAW, IN NO EVENT WILL HP OR ITS SUPPLIERS BE LIABLE FOR DIRECT, SPECIAL INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFIT OR DATA), OR OTHER DAMAGE, WHETHER BASED IN CONTRACT, TORT, OR OTHERWISE. THE WARRANTY TERMS CONTAINED IN THIS STATEMENT, EXCEPT TO THE EXTENT LAWFULLY PERMITTED, DO NOT EXCLUDE, RESTRICT OR MODIFY AND ARE IN ADDITION TO THE MANDATORY STATUTORY RIGHTS APPLICABLE TO THE SALE OF THIS PRODUCT TO YOU.

# D

## HP parts and accessories

This appendix provides information on the following topics:

- [Ordering supplies and accessories](#)
- [10/100 networking and wireless print servers](#)
- [Using HP print cartridges](#)
- [DIMMs \(memory or font\)](#)

## Ordering supplies and accessories

You can increase the printer's capabilities with optional accessories and supplies. Use accessories and supplies specifically designed for the HP LaserJet 1160 and HP LaserJet 1320 series printers to ensure optimum performance.

The HP LaserJet 1320 series printer features Smart Printing Supplies. When you print a Configuration page by pressing and holding the **Go** button for 5 seconds, a Supplies Status page prints after the Configuration page. The Supplies Status page has information on the amount of toner remaining in the print cartridge, part numbers for ordering supplies, and whether the installed print cartridge is a genuine HP supply item.

### Ordering information

	Item	Description or use	Order number
Printing supplies	HP Multipurpose paper	HP brand paper for a variety of uses (1 box of 10 reams, 500 sheets each). To order a sample, in the U.S., call 1-800-471-4701.	HPM1120
	HP LaserJet paper	Premium HP brand paper for use with HP LaserJet printers (1 box of 10 reams, 500 sheets each). To order a sample, in the U.S., call 1-800-471-4701.	HPJ1124
	HP LaserJet transparency film	HP brand transparency film for use with HP LaserJet monochrome printers.	92296T (letter) 92296U (A4)
Print cartridge for the HP LaserJet 1160 printer	UltraPrecise print cartridge	Replacement print cartridge for the HP LaserJet 1160 printer.	Q5949A (2,500-page cartridge)
Print cartridges for the HP LaserJet 1320 series printer	UltraPrecise print cartridges	Replacement print cartridges for the HP LaserJet 1320 series printer.	Q5949A (2,500-page cartridge) Q5949X (6,000-page cartridge)
Supplementary documentation	<i>HP LaserJet family print media guide</i>	A guide to using paper and other print media with HP LaserJet printers.	5963-7863 <b>Note</b> This document can be downloaded from <a href="http://www.hp.com/support/ljpaperguide/">http://www.hp.com/support/ljpaperguide/</a> .

**Ordering information (continued)**

	<b>Item</b>	<b>Description or use</b>	<b>Order number</b>
Replacement parts	Media pickup roller	Used to pick the media from the input tray and advance it through the printer.	RL1-0540-000
	Input tray	Used to hold media for the printer.	RM1-1292-000 (LJ1320) RM1-1322-000 (LJ1160)
	Separation pad for the printer	Used to keep multiple sheets from feeding through the printer path.	RM1-1298-000
Accessories	250-sheet paper feeder (Tray 3)	This is an accessory for the HP LaserJet 1320 series printer. It provides an additional 250-sheet input tray.	Q5931A

## 10/100 networking and wireless print servers

### hp LaserJet 1160 and hp LaserJet 1320 series printer

Item and description	Order number
HP Jetdirect 170x external print server for Ethernet (parallel port)	J3258B
HP Jetdirect 175x fast-Ethernet external print server (value line, USB port) Must be Version C or later.	J6035C
HP Jetdirect 300x print server for fast Ethernet (parallel port)	J3263A
HP Jetdirect 500x print server for fast Ethernet (parallel port)	J3265A
HP Jetdirect 380x 802.11b wireless external print server (full featured, USB port)	J6061A
HP Jetdirect en3700 fast Ethernet print server	J7942A
HP Jetdirect ew2400 802.11b/g	J7951A
HP bt1300 Bluetooth Wireless Printer Adapter (both USB and parallel)	J6072A

# Using HP print cartridges

The following sections provide information about HP print cartridges and instructions for redistributing toner and changing the print cartridge.

## HP policy on non-HP print cartridges

Hewlett-Packard Company cannot recommend the use of non-HP print cartridges, either new, refilled, or remanufactured. Since they are not HP products, Hewlett-Packard cannot influence their design or control their quality. Service or repair that is required as a result of using non-HP print cartridges will not be covered under the printer warranty.

---

### Note

---

The warranty does not apply to defects resulting from software, interfacing, or parts not supplied by Hewlett-Packard.

## Storing print cartridges

Do not remove the print cartridge from its package until you are ready to use it.

---

### CAUTION

---

To prevent damage to the print cartridge, minimize its exposure to direct light.

Some HP LaserJet print cartridge packages are stamped with an alphanumeric date code. This code represents a 30-month period beyond the date of production that facilitates efficient inventory management processes between HP and its resellers. It does not serve as an indication of toner life (shelf-life) or relate in any way to warranty terms and conditions.

## Print cartridge life expectancy

The life of the print cartridge depends on the amount of toner that your print jobs require. When printing text at 5 percent coverage, the print cartridge lasts for the following average amounts:

- HP LaserJet 1160 printer: 2,500 pages
- HP LaserJet 1320 series printer: 2,500 pages (a replacement cartridge that lasts for 6,000 pages is also available)

This life expectancy assumes that you set the print density to 3 and turn EconoMode off. (These are the default settings.)

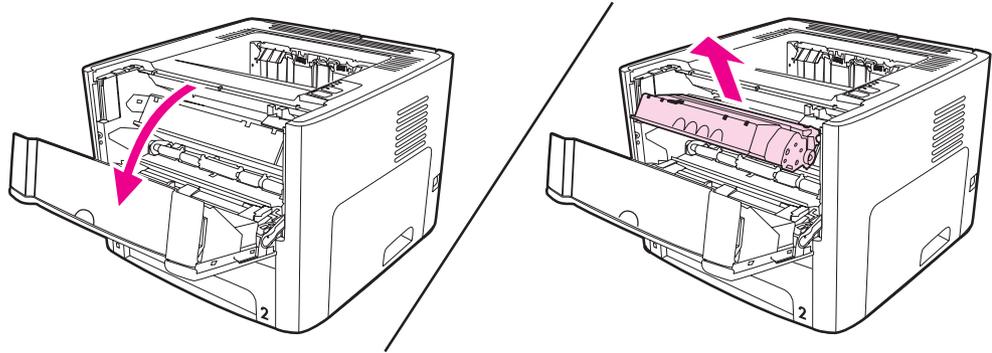
## Saving toner

While in EconoMode, the printer uses less toner on each page. Selecting this option will extend the life of the print cartridge and reduce your cost per page, but it will reduce print quality. HP does not recommend the full-time use of EconoMode. See [Using EconoMode \(saves toner\)](#) for more information.

## Redistributing toner

When toner is low, faded or light areas appear on the printed page. You might be able to temporarily improve print quality by redistributing the toner, which means that you might be able to finish the current print job before replacing the print cartridge.

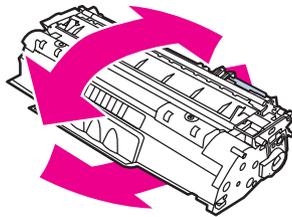
1. Open the print cartridge door, and remove the print cartridge from the printer.



### CAUTION

To prevent damage, do not expose the print cartridge to light. Cover it with a sheet of paper.

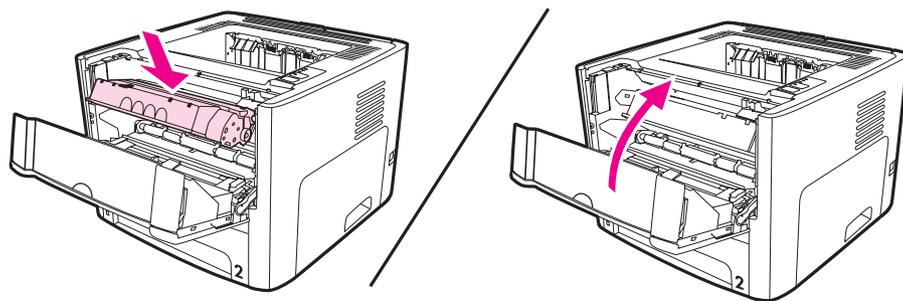
2. To redistribute the toner, gently rock the print cartridge from front to back.



### CAUTION

If toner gets on your clothing, wipe it off with a dry cloth and wash the clothing in cold water. *Hot water sets toner into the fabric.*

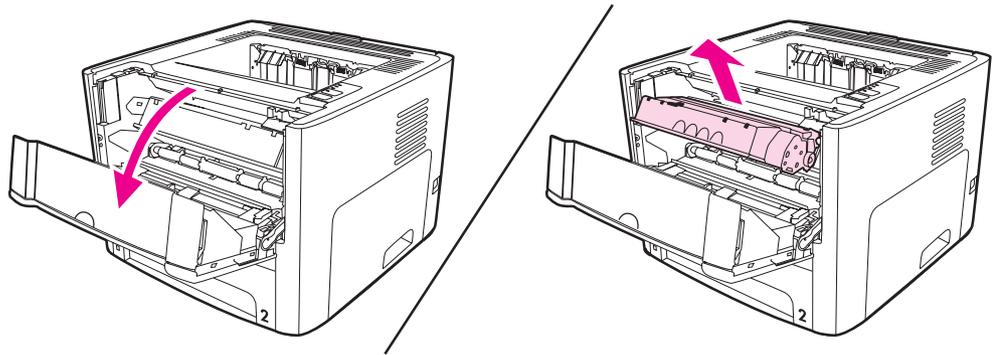
3. Reinsert the print cartridge into the printer, and close the print cartridge door.



If the print is still light, install a new print cartridge. See [Changing the print cartridge](#) for instructions.

## Changing the print cartridge

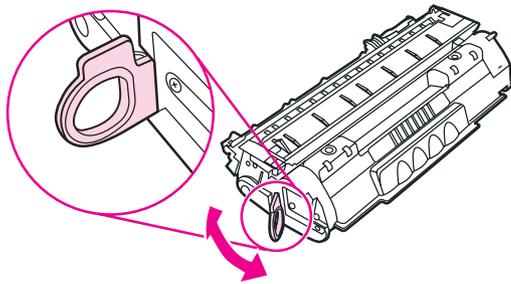
1. Open the print cartridge door, and remove the old print cartridge. See the recycling information inside the print cartridge box.



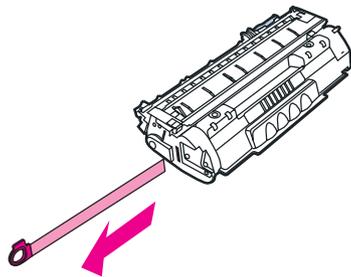
### CAUTION

To prevent damage, do not expose the print cartridge to light. Cover it with a piece of paper.

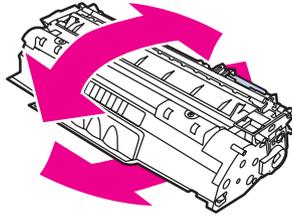
2. Remove the new print cartridge from the packaging.
3. Bend the tab on the left side of the cartridge to break it loose.



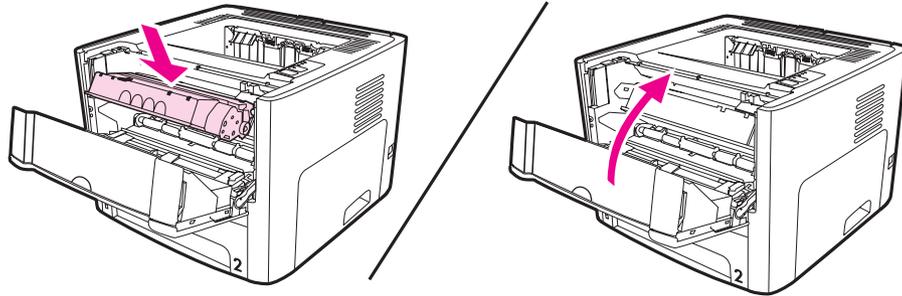
4. Pull the tab until all the tape is removed from the cartridge. Put the tab in the print cartridge box to return for recycling.



5. Gently rock the toner cartridge from front to back to distribute the toner evenly inside the cartridge.



6. Insert the print cartridge in the printer, making sure that the print cartridge is in position. Close the print cartridge door.



---

**CAUTION**

---

If toner gets on your clothing, wipe it off with a dry cloth and wash the clothing in cold water. *Hot water sets toner into the fabric.*

## DIMMs (memory or font)

The following sections provide instructions for installing, testing, and removing DIMMs.

### Installing a memory DIMM (HP LaserJet 1320 series printer only)

If you add memory (RAM only) to the HP LaserJet 1320 series printer, you can print more complex print jobs.

To install a DIMM, follow the instructions below:

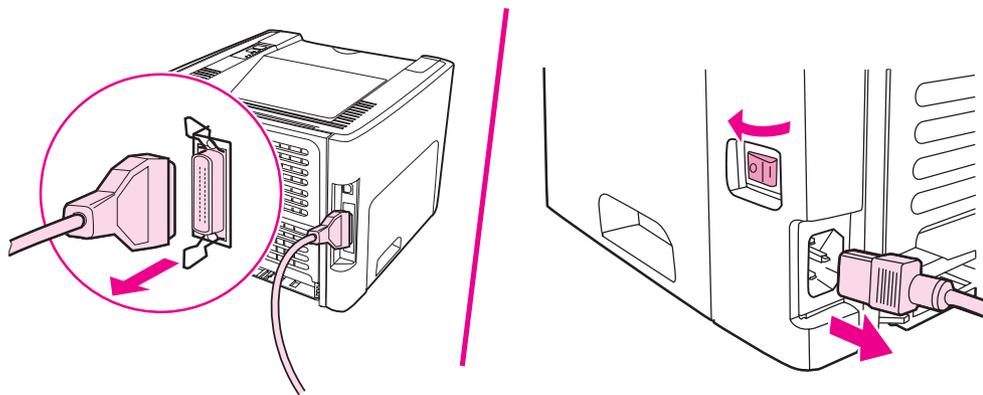
---

#### CAUTION

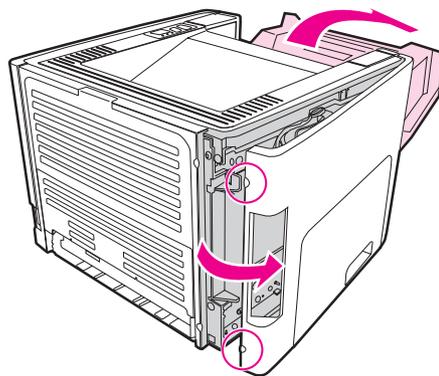
---

Handling a DIMM (memory) without wearing a grounded, antistatic device might damage the DIMM. Touch any metal part of the printer or other grounded metal before touching the DIMM.

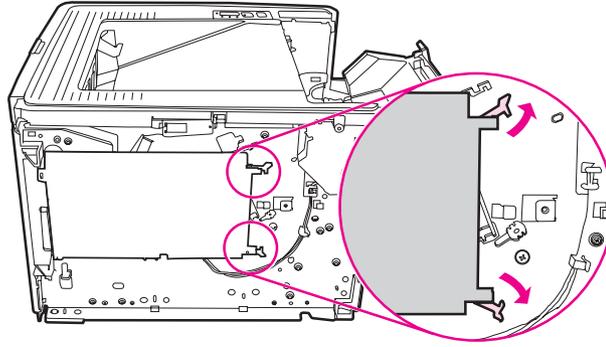
1. Turn off the power switch, and unplug all of the cables connected to the printer.



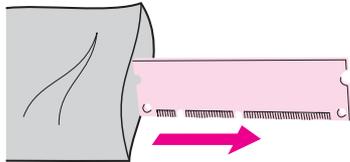
2. Open the print cartridge door. To open the left side panel, gently pull it out.



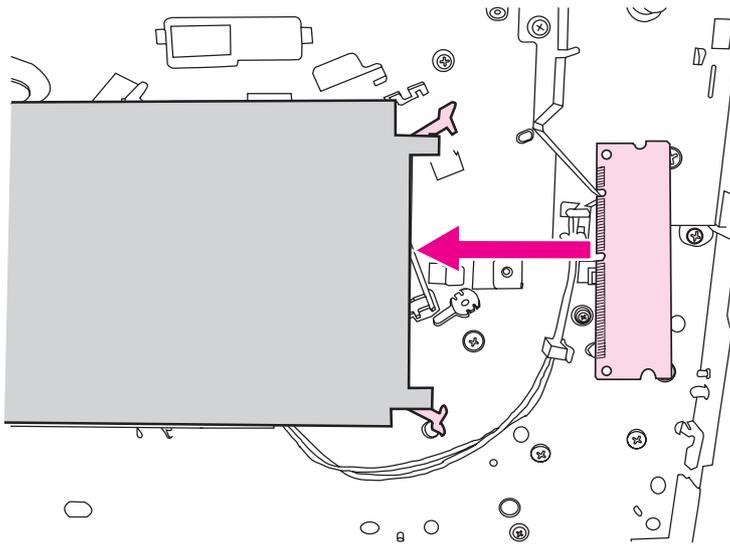
3. Locate the DIMM slot. The cam latches, located at the top and bottom, should rotate outward.



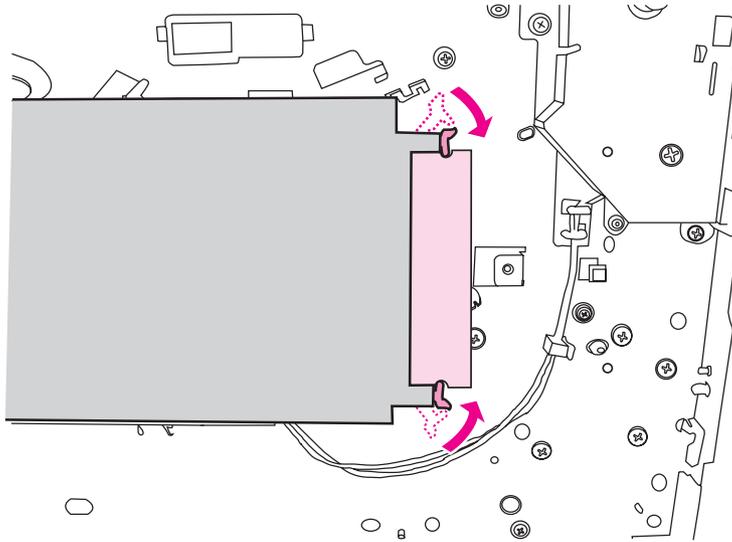
4. Remove the DIMM from the antistatic bag it came in, grasping the DIMM on the top edge.



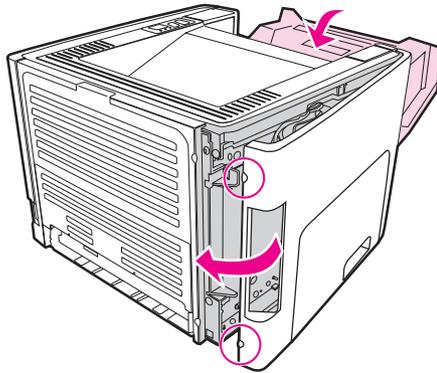
5. Position the DIMM on the right side of the circuit board. The gold contacts should be pointing left and the cutouts should be at the top left and center left.



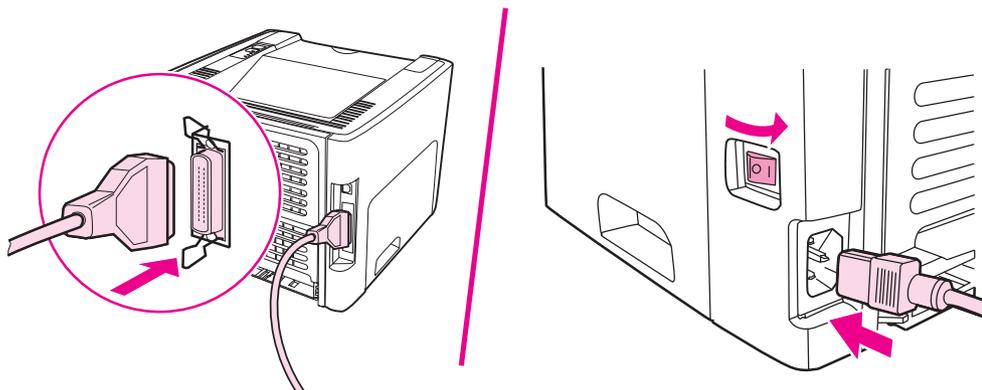
6. Carefully press the DIMM into the slot, making sure that it is straight and all the way in. The cam latches, located at the top and bottom, should rotate inward. To snap the cam latches into place, press the handles toward each other.



7. Close the left side panel and the print cartridge door.



8. Plug the printer back in, and turn on the power switch.



## Testing the DIMM installation

To test the DIMM installation, print a configuration page, and check the Total Memory specified on the page. See [Printer information pages](#) for more information.

If all lights on the control panel are blinking, the DIMM installation was unsuccessful. Remove the DIMM and reinstall it.

## Removing a DIMM

To remove a DIMM, follow the instructions below:

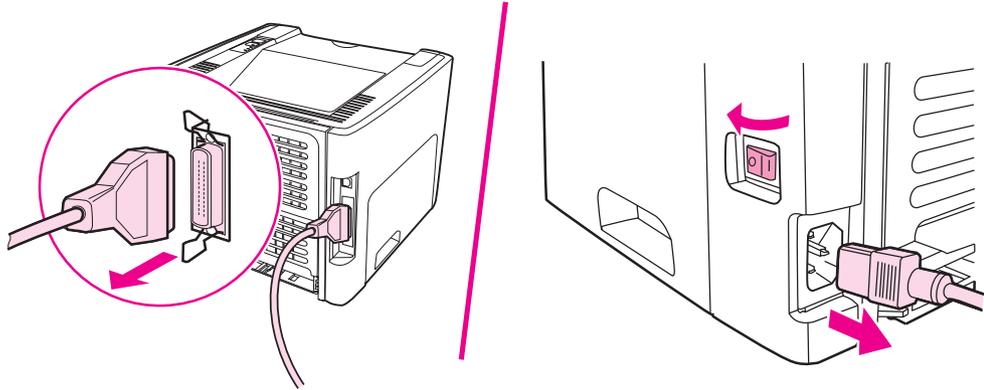
---

### CAUTION

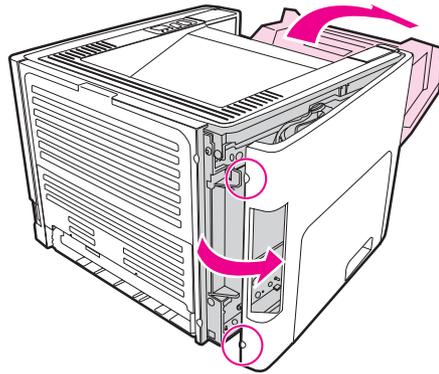
---

Handling a DIMM (memory) without wearing a grounded, antistatic device might damage the DIMM. Touch any metal part of the printer or other grounded metal before touching the DIMM.

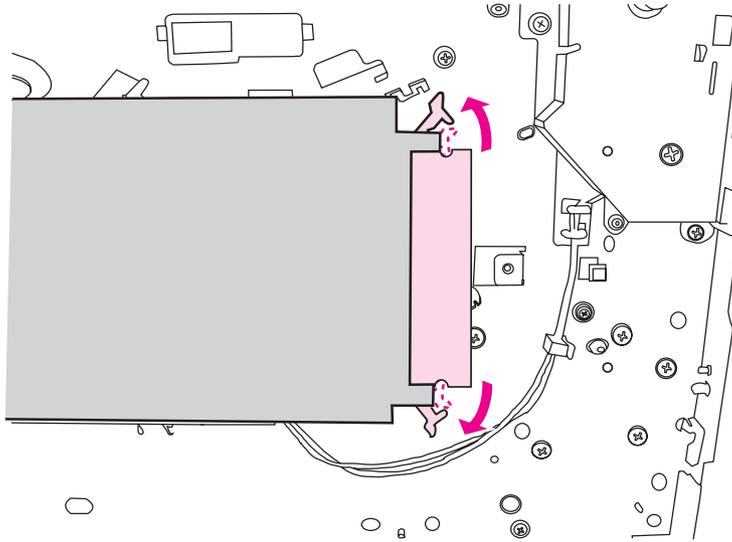
1. Turn off the power switch, and unplug the printer.



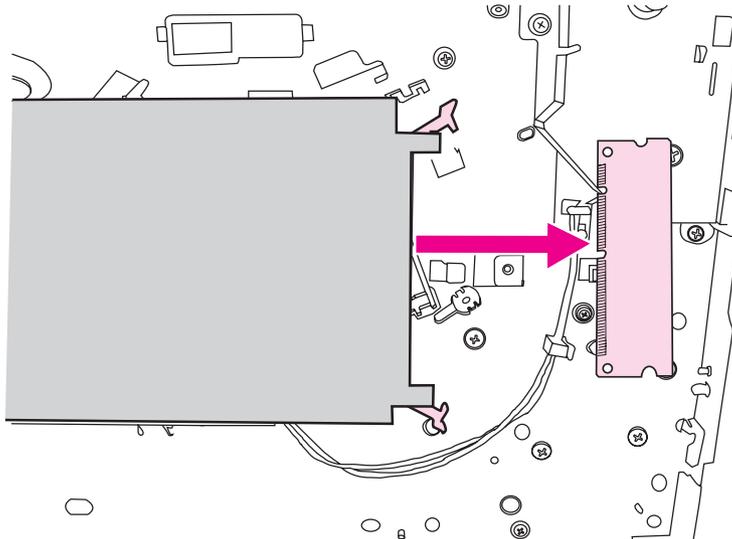
2. Open the print cartridge door. To open the left side panel, gently pull it out.



3. To unlock the cam latches, press them outward.



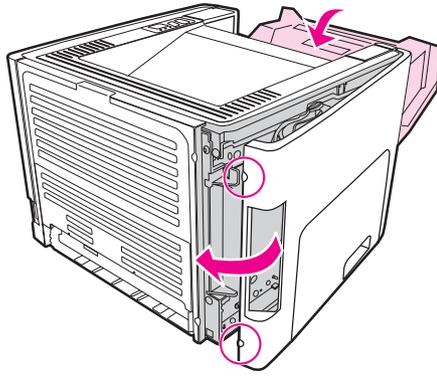
4. Grasp the DIMM on the edge, gently pull straight out, and remove the DIMM from the printer.



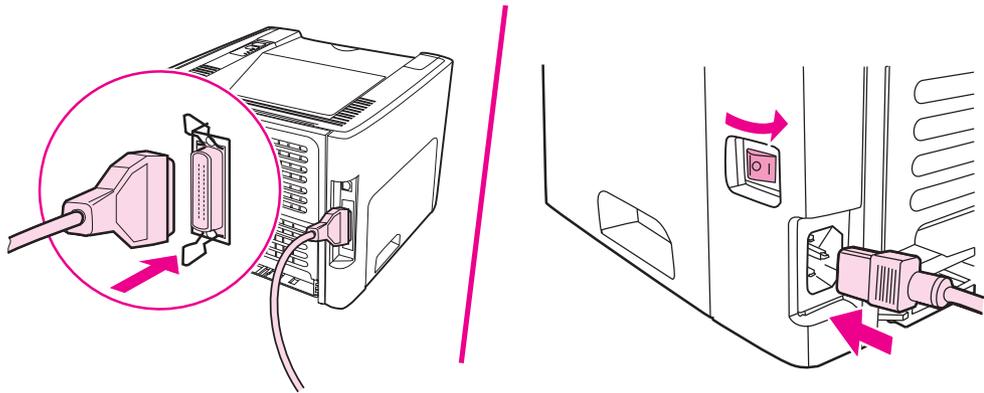
**Note**

Store the DIMM in an antistatic bag.

5. Close the left side panel and the print cartridge door.



6. Plug all of the cables connected to the printer back in, and turn on the power switch.



# E

## Service and support

This appendix provides information on the following topics:

- [Hardware service](#)
- [Extended warranty](#)
- [Guidelines for repacking the printer](#)
- [How to contact HP](#)

## Hardware service

If your hardware fails during the warranty period, Hewlett-Packard offers the following support options:

- **Hewlett-Packard repair services:** Hewlett-Packard will arrange to pick up the unit, repair it, and return it to you within 5 to 10 days, depending on your location.
- **Hewlett-Packard authorized service provider:** You can return the unit to a local authorized service dealer.

## Extended warranty

HP Care Pack provides coverage for the HP product and all HP-supplied internal components. The hardware maintenance covers a three-year period from the date of the HP product purchase. The customer may purchase an HP Care Pack up to one year from the date of purchase of the HP product. For more information, contact the HP Customer Care Service and Support group. See [Quick access to more information](#).

HP Care Pack options might be available after the standard warranty period has expired. Go to <http://www.hpexpress-services.com/10467a/> and enter the product number to identify the HP Care Pack options that are available for your product.

## Guidelines for repacking the printer

Use the following guidelines when repacking the printer:

- If possible, include print samples and 5 to 10 sheets of paper or other media that did not print correctly.
- Remove and keep any DIMMs (memory) installed in the printer. See [Installing a memory DIMM \(HP LaserJet 1320 series printer only\)](#) for more information.

---

### CAUTION

---

Static electricity can damage DIMMs. When handling DIMMs, wear a grounded, antistatic wrist strap.

- Remove and keep any cables, trays, and optional accessories installed in the printer.
- Remove and keep the print cartridge.

---

### CAUTION

---

To prevent damage to the print cartridge, store the print cartridge in its original packing material, or store it so that it is not exposed to light.

- If possible, use the original shipping container and packing material. *Shipping damage as a result of inadequate packing is your responsibility.* If you have already disposed of the printer's packing material, contact a local mailing service for information on repacking the printer.
- Hewlett-Packard recommends that you insure the equipment for shipment.

## How to contact HP

If you need to contact HP for service or support, use one of the following links:

- In the United States, see <http://www.hp.com/support/lj1160/> for the HP LaserJet 1160 printer, or see <http://www.hp.com/support/lj1320/> for the HP LaserJet 1320 series printer.
- World Wide, see <http://welcome.hp.com/country/us/en/wwcontact.html/> or <http://www.hp.com/>.



# Index

## Symbols/Numerics

10/100 networking and wireless print servers 150

## A

access, print cartridge 10  
accessories, ordering 148  
acoustics 125  
Alerts tab (HP toolbox) 31  
Attention light 5  
automatic two-sided path door, rear 5  
automatic two-sided printing 57  
automatic two-sided printing media-size selector 5  
automatic two-sided printing path  
    removing jams 116

## B

blank pages 100  
Bluetooth wireless technology 36  
booklets, printing 66  
button, Cancel 5  
button, Go 5

## C

cable  
    parallel 21  
    USB 20  
Cancel button 5  
canceling a print job 39  
card stock  
    guidelines for using 46  
    printing 55  
changing  
    pickup roller 73  
    separation pad 80  
choosing  
    media 48  
    paper 48  
cleaning  
    media path 72  
    pickup roller 79  
    print cartridge area 70  
    printer 70  
clearing jams 108

## configuration

HP LaserJet 1160 printer 3  
HP LaserJet 1320 printer 3  
HP LaserJet 1320n printer 4  
HP LaserJet 1320nw printer 4  
HP LaserJet 1320tn printer 4  
Configuration page 28  
connecting to the network 22  
conserving toner 151  
contacting HP 165  
control panel 6  
custom-size media, printing 55

## D

Demo page 28  
DIMM  
    adding 155  
    removing 158  
    testing 158  
Documentation tab (HP toolbox) 31  
door  
    print cartridge 5  
    straight-through output 5  
duplex (two-sided) printing  
    automatic 57  
    manual 59

## E

EconoMode 41  
embedded Web server  
    Configuration page 34  
    device status 34  
    event log 34  
    Information tab 34  
    Networking tab 34  
    order supplies 35  
    overview 15  
    print info pages 34  
    Product registration 35  
    product support 35  
    Settings tab 34  
    supplies status 34  
    using 33  
Energy Star 138  
envelopes  
    guidelines for using 44  
    printing 51

- Environmental Product Stewardship Program 138
- environmental specifications 124
- errors
  - PostScript 97
  - software 102
- EWS 15, 33
- extended warranty 163

**F**

- FCC compliance 133
- forms, printing 54

**G**

- garbled text 100
- Go button 5
- Go light 5
- graphics
  - missing 100
  - poor quality 101
- guides, media
  - main input tray (Tray 2) 7
  - single-sheet priority input slot (Tray 1) 7

**H**

- heavy media, guidelines for using 46
- HP toolbox
  - Alerts tab 31
  - Documentation tab 31
  - Network window 32
  - Printer Settings 31
  - Status tab 30
  - Troubleshooting tab 30
  - viewing 29

**I**

- IEEE 802.11b/g standard 36
- improving print quality 103
- Information tab (embedded Web server) 34
- information, links to selected topics 2
- input tray
  - loading media 50
  - loading single-sheet priority input slot (Tray 1) 50
  - main 5
  - main (Tray 2) 7
  - single-sheet priority 5, 7

- input trays
  - removing jams 110
- Internal HP Jetdirect network port
  - location 5

**J**

- jams
  - clearing 108

**L**

- labels
  - guidelines for using 44
  - printing 53
- letterhead
  - guidelines for using 46
- letterhead, printing 54
- license, software 145
- life expectancy, print cartridge 151
- light
  - Ready 5
- lights
  - Attention 5
  - Go 5
  - status light patterns 87
  - Toner 5
  - Wireless 5
- loading media
  - 250-sheet input tray (Tray 2 or Tray 3) 50
  - single-sheet priority input slot (Tray 1) 50

**M**

- Macintosh
  - common problems 93
  - PPDs 17
  - printing errors 94
  - software 16
  - troubleshooting 93
- main input tray
  - location 5
- main input tray (Tray 2)
  - loading 50
  - media path 7
- manual feed printing 38
- manual two-sided printing 59
- Material Safety Data Sheet (MSDS) 141
- media
  - clearing jams 108
  - guidelines for use 43
  - loading 50
  - optimizing print quality for media types 42
  - printing custom-size media 55
  - printing manually 38
  - recommended 48
  - selecting 48
  - supported sizes 18
  - types that may damage the printer 48
  - types to avoid 48

- media guides
  - main input tray (Tray 2) 7
  - single-sheet priority input slot (Tray 1) 7
- media path
  - cleaning 72
- media paths
  - main input tray (Tray 2) 7
  - output bin 9
  - overview 7
  - single-sheet priority input slot (Tray 1) 7
  - straight-through output path 8
- media support 5
- memory
  - adding 155
- missing graphics 100
- missing text 100
- multiple pages, printing on a single sheet of paper 65

## N

- N-up printing 65
- network
  - connections 22
- Network Configuration page 28
- network port, Internal HP Jetdirect
  - location 5
- Network window (HP toolbox) 32
- Networking tab (embedded Web server) 34

## O

- on/off switch 5
- online help, printer Properties 13
- operating systems, supported 11
- optimizing print quality for media types 42
- ordering supplies and accessories 148
- output bin
  - removing jams 113
- output bin, top
  - manual two-sided printing 59
- output path, straight-through 8
- overview, printer 5

## P

- paper
  - problems and solutions 43
  - selecting 48
  - supported sizes 18
  - using 43
- paper handling problems 98
- parallel cable, connecting 21
- parallel port
  - location 5
- pickup roller
  - changing 73
  - cleaning 79

- port, parallel
  - location 5
- port, USB
  - location 5
- PostScript, errors 97
- power receptacle 5
- power switch 5
- PPDs 17
- preprinted forms
  - guidelines for using 46
- print cartridge
  - access 10
  - changing 153
  - door 5
  - life expectancy 151
  - redistributing toner 152
  - storing 151
  - using HP cartridges 151
  - warranty 146
  - where to return for recycling 139
- print cartridge area
  - cleaning 70
  - removing jams 108
- print quality
  - creases 107
  - curl 106
  - dropouts 104
  - EconoMode 41
  - gray background 104
  - light or faded print 103
  - loose toner 105
  - misformed characters 106
  - optimizing for media types 42
  - page skew 106
  - settings 40
  - toner scatter outline 107
  - toner smear 105
  - toner specks 103
  - vertical lines 104
  - vertical repetitive defects 105
  - wave 106
  - wrinkles 107
- print quality settings 40
- print settings, changing 13
- printer
  - cleaning 70
  - configurations 3
  - connections 19
  - control panel 6
  - overview 5
  - repacking 164
  - software 11
  - software problems 102
  - specifications 123
  - Toolbox 14

- printer driver
  - installing 11
  - Macintosh 16
  - Windows 14
- printer drivers
  - sites for download 2
- printer information pages
  - Configuration page 28
  - Demo page 28
  - Network Configuration page 28
  - Supplies Status page 28
- printer media guides
  - main input tray (Tray 2) 7
  - single-sheet priority input slot (Tray 1) 7
- printer Properties
  - accessing 12
  - online help 13
- Printer Settings
  - HP toolbox 31
- printer, specifications 129
- printing
  - booklets 66
  - canceling 39
  - card stock 55
  - Configuration page 28
  - custom-size media 55
  - Demo page 28
  - envelopes 51
  - forms, preprinted 54
  - labels 53
  - letterhead 54
  - manual feed 38
  - multiple pages on a single sheet of paper 65
  - N-up 65
  - Network Configuration page 28
  - on both sides of the paper (automatic) 57
  - on both sides of the paper (manual) 59
  - Supplies Status page 28
  - transparencies 53
  - watermarks 67

## R

- Ready light 5
- recycling
  - HP printing supplies returns and environmental program 139
  - where to return cartridges 139
- redistributing toner 152
- registration
  - embedded Web server 35
- regulatory statements
  - Canadian DOC regulations 136
  - declaration of conformity statements 134
  - Korean EMI statement 136
  - laser statement for Finland 137
- removing a jammed page 108
- repacking the printer 164

- repair
  - contacting HP 165
  - hardware service 162
- replacement parts 149

## S

- saving toner 151
- selecting
  - media 48
  - paper 48
- separation pad, changing 80
- service
  - contacting HP 165
  - hardware 162
- settings
  - changing default settings for Windows 98, 2000, Me 13
  - changing default settings for Windows XP 13
  - changing for current software only 12
  - Settings tab (embedded Web server) 34
  - settings, print quality 40
  - single-sheet priority input slot (Tray 1)
    - loading 50
    - location 5
    - overview 7
  - size, media 18
  - slot
    - single-sheet priority input 5
  - software
    - installing 11
    - Macintosh 16
    - printer drivers, Macintosh 16
    - printer drivers, Windows 14
    - problems 102
    - sites for download 2
    - software license agreement 145
    - supported operating systems 11
    - Windows 14
  - specifications
    - acoustics 125
    - capacities and ratings 129
    - electrical 126
    - environmental 124
    - media 18
    - memory 130
    - physical 128
    - port availability 131
  - status light patterns 87
  - Status tab (HP toolbox) 30
  - straight-through output door 5
  - straight-through output path
    - manual two-sided printing 61
    - removing jams 114
  - Supplies Status page 28
  - supplies, ordering 148
  - support, web sites 2
  - switch, power 5

**T**

- text
  - garbled 100
  - missing 100
- toner
  - changing the print cartridge 153
  - cleaning print cartridge area 70
  - conserving 151
  - loose toner 105
  - low 103
  - print cartridge door 5
  - redistributing 152
  - scatter outline 107
  - smear 105
  - specks 103
  - storing print cartridges 151
- Toner light 5
- Toolbox 14
- top output bin
  - manual two-sided printing 59
- transparencies
  - guidelines for using 44
  - printing 53
- tray
  - main input 5
  - single-sheet priority input 5
- Tray 1 (single-sheet priority input slot) 5
- Tray 2 (main input tray) 7
- trays, input
  - removing jams 110
- troubleshooting
  - blank pages 100
  - common Macintosh problems 93
  - contacting HP support 86
  - creases 107
  - curl 106
  - demo page 84
  - dropouts 104
  - garbled text 100
  - gray background 104
  - HP toolbox 29
  - incomplete text 100
  - light or faded print 103
  - loose toner 105
  - Macintosh printing problems 93
  - misformed characters 106
  - missing graphics or text 100
  - page skew 106
  - paper handling problems 98
  - poor graphics quality 101
  - PostScript errors 97
  - print quality 85
  - printed page and expectations 85
  - printed page differs from onscreen page 100
  - printer setup 84
  - printer software problems 102
  - printer-computer communication 85
  - Ready light 84
  - solutions 84
  - toner scatter outline 107
  - toner smear 105
  - toner specks 103
  - vertical lines 104
  - vertical repetitive defects 105
  - wave 106
  - wrinkles 107
- Troubleshooting tab (HP toolbox) 30
- two-sided printing
  - automatic 57
  - manual 59
- two-sided printing path, automatic
  - removing jams 116

**U**

- USB
  - connecting the USB cable 20
- USB port
  - location 5
- user guide links 2
- using HP print cartridges 151

**W**

- warranty
  - extended 163
  - print cartridge 146
  - product 143
- watermarks, printing 67
- Web server, embedded 33
- web-based support 2
- Wireless light 5
- wireless print servers 150
- wireless printing
  - Bluetooth 36
  - IEEE 802.11b/g standard 36







i n v e n t

© 2004 Hewlett-Packard Development Company, L.P.

[www.hp.com](http://www.hp.com)



Q5927-90913