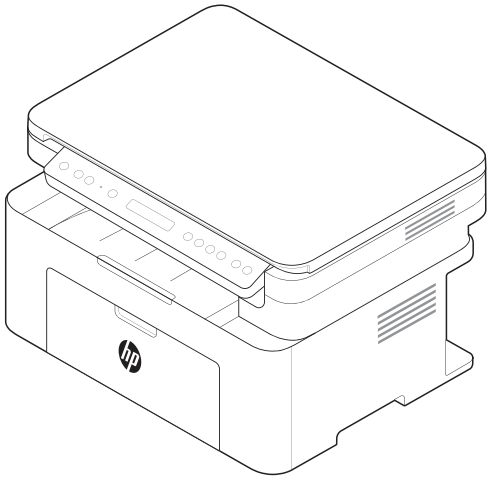
HP Laser MFP 111, 112, 115, 116, 117 series

User Guide



support.hp.com

HP Laser MFP 111, 112, 115, 116, 117 series User Guide

SUMMARY

This guide provides configuration, use, maintenance, troubleshooting, safety and environmental information.

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1 Introduction

This chapter provides information you need to know before using the machine.

Key benefits

Check key benefits before getting started to use the product.

Environmentally friendly

- To save paper, you can print multiple pages on one single sheet of paper.
- To save electricity, this machine automatically conserves electricity by substantially reducing power consumption when not in use.
- We recommend using recycled paper for saving energy.

Wide range of functionality and application support

- Supports various paper sizes.
- Print watermark: You can customize your documents with words, such as “Confidential”.
- Print posters: The text and pictures of each page of your document are magnified and printed across the multiple sheets of paper and can then be taped together to form a poster.

Convenience

- HP MFP Scan is an application to help users scan, compile, and save documents in multiple formats, including .epub format.
- If you have Internet access, you can get help, support application, machine drivers, manuals, and order information from the HP website (support.hp.com).

Supports various wireless network setting method

NOTE: Wireless networking may not be available depending on the model.

- Use the Wireless button

  You can easily connect to a wireless network using the Wireless button on the machine and the access point (a wireless router).

- Use the USB cable or a network cable

You can connect and set various wireless network settings using a USB cable or a network cable.

- Use the Wi-Fi Direct

  You can conveniently print from your mobile device using the Wi-Fi or Wi-Fi Direct feature.

Features by model

Some features and optional goods may not be available depending on model or country.

Operating system

Table 1-1 Operating system

Operating System	112a, 115a	111nw, 115w, 115nw, 116w, 117w
Windows	✓	✓
Mac	Not supported	✓
Linux	✓	✓

Software

Table 1-2 Software

Software	112a, 115a	111nw, 115w, 115nw, 116w, 117w
Printer driver	✓	✓
HP MFP Scan	✓	✓
Printer Status	✓	✓
HP LJ Network PC Fax	Not supported	✓
HP Embedded Web Server	Not supported	✓

Variety feature

Table 1-3 Variety feature

Features	112a, 115a	111nw, 115w, 115nw, 116w, 117w
Hi-Speed USB 2.0	✓	✓
Network Interface Ethernet 10/100 Base TX wired LAN[a]	Not supported	✓ (MFP 111nw, 115nw only)
Network Interface 802.11b/g/n wireless LAN	Not supported	✓
Wi-Fi Protected Setup™ (WPS)	Not supported	✓
Automatic Document Feeder (ADF)	Not supported	Not supported
Fax	Not supported	Not supported
Scan	✓	✓

Table 1-3 Variety feature (continued)

Features	112a, 115a	111nw, 115w, 115nw, 116w, 117w
Copy	✓	✓

[a] Depending on your country, wireless LAN card may not be available. For some counties, only 802.11 b/g can be applied. Contact your local HP dealer or the retailer where you bought your machine.

Useful to know

Review common issues and solutions.

The machine does not print.

- Open the print queue list and remove the document from the list (see Cancel a print job on page 50).
- Remove the driver and install it again (see Install the software on page 14).
- Select your machine as your default machine in your Windows.

Where can I purchase accessories or supplies?

- Inquire at a HP distributor or your retailer.
- Visit the HP website (https://store.hp.com). You can view product service information.

The status LED flashes or remains constantly on.

- Turn the product off and on again.
- Check the meanings of LED indications in this manual and troubleshoot accordingly (see Understand the LEDs on page 84).

A paper jam has occurred.

- Open and close the scanner (see Machine overview on page 10).
- Check the instructions on removing jammed paper in this manual and troubleshoot accordingly (see Clear paper jams on page 82).

Printouts are blurry.

- The toner level might be low or uneven. Shake the toner cartridge (see Redistribute toner on page 73).
- Try a different print resolution setting (see Open Printing Preferences on page 51).
- Replace the toner cartridge (see Replace the toner cartridge on page 74).

Where can I download the machine's driver?

- You can get help, support application, machine drivers, manuals, and order information from the HP website support.hp.com.

About this user guide

This user guide provides information for your basic understanding of the machine as well as detailed steps to explain machine usage.

- Do not discard this manual, and keep it for future reference.
- Read the safety information before using the machine.
- If you have a problem using the machine, refer to the troubleshooting chapter.
- Terms used in this user guide are explained in the glossary chapter.
- All illustrations in this user guide may differ from your machine depending on its options or model you purchased.
- The screenshots in this administrator's guide may differ from your machine depending on the machine's firmware/driver version.
- The procedures in this user guide are mainly based on Windows 7.

Conventions

Some terms in this guide are used interchangeably, as below:

- Document is synonymous with original.
- Paper is synonymous with media, or print media.
- Machine refers to printer or MFP.

General icons

⚠ WARNING! Used to alert users to the possibility of personal injury.

⚠ CAUTION: Gives users information to protect the machine from possible mechanical damage or malfunction.

NOTE: Provides additional information or detailed specification of the machine function and feature.

Safety information

These warnings and precautions are included to prevent injury to you and others, and to prevent any potential damage to your machine. Be sure to read and understand all these instructions before using the machine. After reading this section, keep it in a safe place for future reference.

Important safety symbols

Explanation of all icons and signs used in this chapter

Table 1-4 Warning and caution

Icon	Text	Description
	Warning	Hazards or unsafe practices that may result in severe personal injury or death.

Table 1-4 Warning and caution (continued)

Icon	Text	Description
	Caution	Hazards or unsafe practices that may result in minor personal injury or property damage.

Operating environment

 Warning

Table 1-5 Operating environment icons

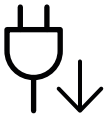
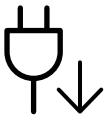
Icon	Description
	Do not use if the power cord is damaged or if the electrical outlet is not grounded. This could result in electric shock or fire.
	Do not place anything on top of the machine (water, small metal or heavy objects, candles, lit cigarettes, etc.). This could result in electric shock or fire.
	• If the machine gets overheated, it releases smoke, makes strange noises, or generates an odd odor, immediately turn off the power switch and unplug the machine. • The user should be able to access the power outlet in case of emergencies that might require the user to pull the plug out. This could result in electric shock or fire.
	Do not bend, or place heavy objects on the power cord. Stepping on or allowing the power cord to be crushed by a heavy object could result in electric shock or fire.
	Do not remove the plug by pulling on the cord; do not handle the plug with wet hands. This could result in electric shock or fire.
	During an electrical storm or for a period of non-operation, remove the power plug from the electrical outlet. This could result in electric shock or fire.
	Be careful, the paper output area is hot. Burns could occur.
	If the machine has been dropped, or if the cabinet appears damaged, unplug the machine from all interface connections and request assistance from qualified service personnel. Otherwise, this could result in electric shock or fire.

Table 1-5 Operating environment icons (continued)

Icon	Description
	If the machine does not operate properly after these instructions have been followed, unplug the machine from all interface connections and request assistance from qualified service personnel. Otherwise, this could result in electric shock or fire.
	If the plug does not easily enter the electrical outlet, do not attempt to force it in. Call an electrician to change the electrical outlet, or this could result in electric shock.
	Do not allow pets to chew on the AC power, telephone, or PC interface cords. This could result in electric shock or fire and/or injury to your pet.

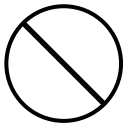
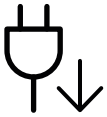
Operating method

 Caution

Table 1-6 Operating method icons

Icon	Description
	Do not forcefully pull the paper out during printing. It can cause damage to the machine.
	Be careful not to put your hand between the machine and paper tray. You may get injured.
	Be careful when replacing paper or removing jammed paper. New paper has sharp edges and can cause painful cuts.
	When printing large quantities, the bottom part of the paper output area may get hot. Do not allow children to touch. Burns can occur.
	When removing jammed paper, do not use tweezers or sharp metal objects. It can damage the machine.
	Do not allow too many papers to stack up in the paper output tray. It can damage the machine.

Table 1-6 Operating method icons (continued)

Icon	Description
	Do not block or push objects into the ventilation opening. This could result in elevated component temperatures which can cause damage or fire.
	Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
	This machine's power reception device is the power cord. To switch off the power supply, remove the power cord from the electrical outlet.

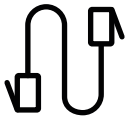
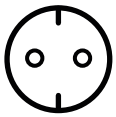
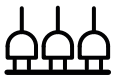
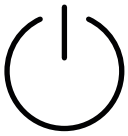
Installation / Moving

 Warning

Table 1-7 Installation / Moving icons

Icon	Description
	Do not place the machine in an area with dust, humidity, or water leaks. This could result in electric shock or fire.
	Place the machine in the environment where it meets the operating temperature and humidity specification. Do not use the machine when it is below freezing temperature or has recently been moved from a location below freezing temperature. Doing so may damage the machine. Only operate the machine when the internal temperature of the machine is within the operating temperature and humidity specifications. Otherwise, quality problems can occur and cause damage to the machine. See General specifications on page 104.
	Before moving the machine, turn the power off and disconnect all cords. The information below are only suggestions based on the unit's weight.If you have a medical condition that prevents you from lifting, do not lift the machine. Ask for help, and always use the appropriate amount of people to lift the machine safely. Then lift the machine: • If the machine weighs under 20 kg (44.09 lbs), lift with 1 person. • If the machine weighs 20 kg (44.09 lbs) - 40kg (88.18 lbs), lift with 2 people. • If the machine weighs more than 40 kg (88.18 lbs), lift with 4 or more people. The machine could fall, causing injury or machine damage.
	Choose a flat surface with enough space for ventilation to place the machine. Also consider the space required to open the cover and trays. The place should be well-ventilated and be far from direct light, heat, and humidity.

Table 1-7 Installation / Moving icons (continued)

Icon	Description
	When using the machine for a long period of time or printing a large number of pages in a non-ventilated space, it could pollute the air and be harmful to your health. Place the machine in a well-ventilated space or open a window to circulate the air periodically.
	Do not place the machine on an unstable surface. The machine could fall, causing injury or machine damage.
	Use only No.26 AWGa or larger, telephone line cord, if necessary. Otherwise, it can cause damage to the machine.
	Make sure you plug the power cord into a grounded electrical outlet. Otherwise, this could result in electric shock or fire.
	Use the power cord supplied with your machine for safe operation. If you are using a cord which is longer than 2 meters (6 feet) with a 110 V machine, then the gauge should be 16 American Wire Gauge (AWG) or larger. Otherwise, it can cause damage to the machine, and could result in electric shock or fire.
	Do not put a cover over the machine or place it in an airtight location, such as a closet. If the machine is not well-ventilated, this could result in fire.
	Do not overload wall outlets and extension cords. This can diminish performance, and could result in electric shock or fire.
	The machine should be connected to the power level which is specified on the label. If you are unsure and want to check the power level you are using, contact the electrical utility company.

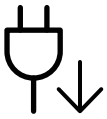
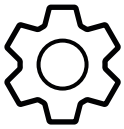
Maintenance / Checking

 **Caution**

Table 1-8

Icon	Description
	Unplug this product from the wall outlet before cleaning the inside of the machine. Do not clean the machine with benzene, paint thinner or alcohol; do not spray water directly into the machine. This could result in electric shock or fire.

Table 1-8 (continued)

Icon	Description
	When you are working inside the machine replacing supplies or cleaning the inside, do not operate the machine. You could get injured.
	Keep cleaning supplies away from children. Children could get hurt.
	Do not disassemble, repair or rebuild the machine by yourself. It can damage the machine. Call a certified technician when the machine needs repairing.
	To clean and operate the machine, strictly follow the user guide provided with the machine. Otherwise, you could damage the machine.
	Keep the power cable and the contact surface of the plug clean from dust or water. Otherwise, this could result in electric shock or fire.
	• Do not remove any covers or guards that are fastened with screws. • Fuser units should only be repaired by a certified service technician. Repair by non-certified technicians could result in fire or electric shock. • The machine should only be repaired by a HP service technician.

Supply usage

 **Caution**

Table 1-9

Icon	Description
	Do not disassemble the toner cartridge. Toner dust can be dangerous if inhaled or ingested.
	Do not burn any of the supplies such as toner cartridge or fuser unit. This could cause an explosion or uncontrollable fire.
	When storing supplies such as toner cartridges, keep them away from children. Toner dust can be dangerous if inhaled or ingested.

Table 1-9 (continued)

Icon	Description
	Using recycled supplies, such as toner, can cause damage to the machine. In case of damage due to the use of recycled supplies, a service fee will be charged.
	For supplies that contain toner dust (toner cartridge, waste toner bottle, imaging unit, etc.) follow the instructions below. • When disposing of the supplies, follow the instructions for disposal. Refer to the reseller for disposal instructions. • Do not wash the supplies. • For a waste toner bottle, do not reuse it after emptying the bottle. If you do not follow the instructions above, it may cause machine malfunction and environmental pollution. The warranty does not cover damages caused by a user's carelessness.
	When toner gets on your clothing, do not use hot water to wash it. Hot water sets toner into fabric. Use cold water.
	When changing the toner cartridge or removing jammed paper, be careful not to let toner dust touch your body or clothes. Toner dust can be dangerous if inhaled or ingested.

Machine overview

Identify the machine components.

Components

The actual component may differ from the illustration below. Some components may change depending on the configuration.

Table 1-10 Machine components

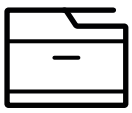
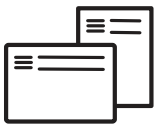
Icon	Components
	Machine[a]
	Setup guide and Reference guide
	Power cord

Table 1-10 Machine components (continued)

Icon	Components
	Misc. accessories[b]

[a] This illustration may differ from your machine depending on your model. There are various types of machines.
[b] Miscellaneous accessories included with your machine may vary by country of purchase and specific model.

Front view

NOTE:

- This illustration may differ from your machine depending on your model. There are various types of machines.
- Some features and optional goods may not be available depending on model or country (see Features by model on page 2).

Figure 1-1 Front view

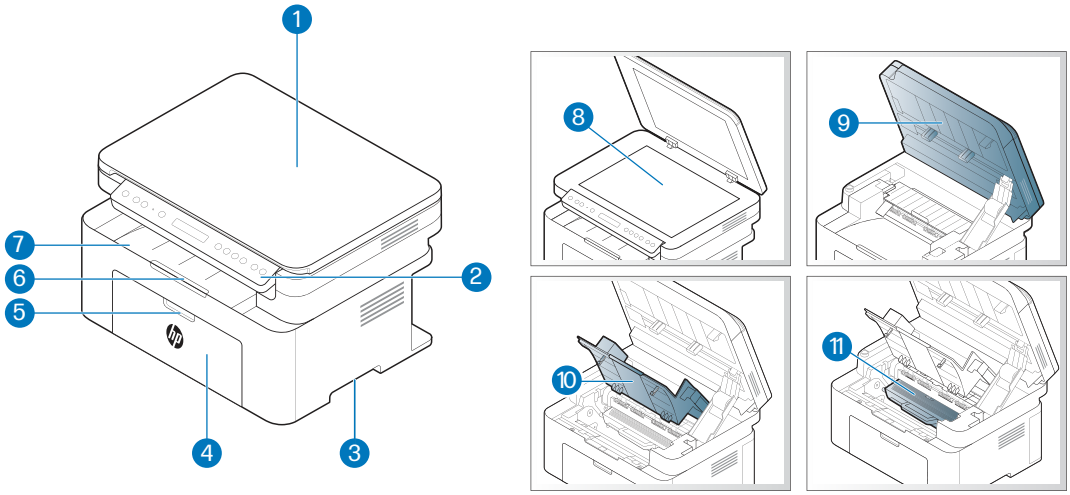


Table 1-11 Front view

No.	Item	No.	Item
1	Scanner lid	7	Output tray
2	Control panel	8	Scanner glass
3	Handle	9	Scanner[ab]
4	Tray	10	Inner cover
5	Tray handle	11	Toner cartridge

Table 1-11 Front view (continued)

No.	Item	No.	Item
6	Output support		

[a] Close the scanner lid before opening the scanner.
[b] Be careful not to pinch your fingers.

Rear view

NOTE:

- This illustration may differ from your machine depending on your model. There are various types of machines.
- Some features and optional goods may not be available depending on model or country (see Features by model on page 2).

Figure 1-2 Rear view

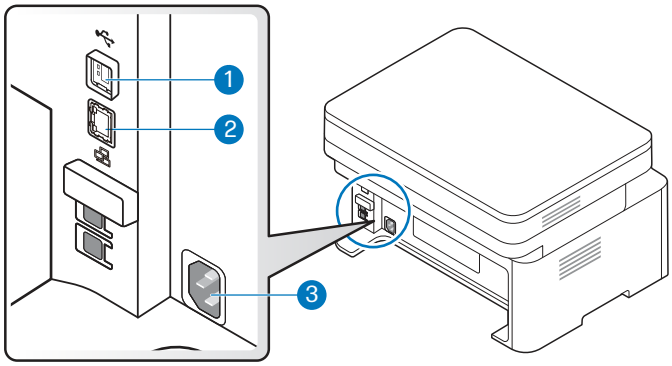


Table 1-12 Rear view

No.	Item
1	USB port
2	Wired network port (111nw, 115nw only)
3	Power receptacle

Control panel overview

Identify the buttons and features on the control panel.

NOTE:

- This control panel may differ from your machine depending on its model. There are various types of control panels.
- Some features and optional goods may not be available depending on model or country (see Features by model on page 2).

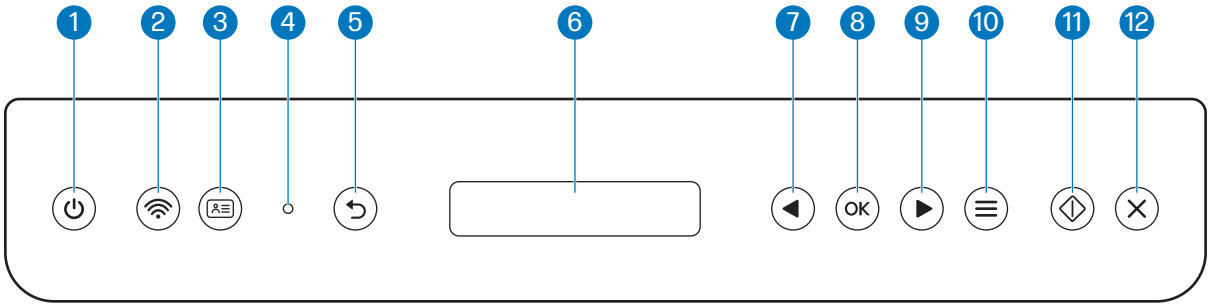


Table 1-13 Control panel

No.	Item	Description
1	Power	Turns the power on or off, or wakes up the machine from the power save mode. If you need to turn the machine off, press this button for more than three seconds.
2	Wireless (Wireless model only)	Press this button, access to the Wi-Fi menu. Or press and hold this button for about 3 seconds or more seconds, access to PBC mode.
3	ID Copy	Allows you to copy both sides of an ID card like a driver's license on a single side of paper.
4	Status LED	Indicates the status of your machine.
5	Back	Sends you back to the upper menu level. Opens Menu mode and scrolls through the available menus.
6	Display screen	Shows the current status and displays prompts during operation.
7, 9	Left/Right Arrows	Scrolls through the options available in the selected menu and increases or decreases values.
8	OK	Confirms the selection on the screen.
10	Menu	Opens Menu mode and scrolls through the available menus.
11	Start	Starts a job.

Table 1-13 Control panel (continued)

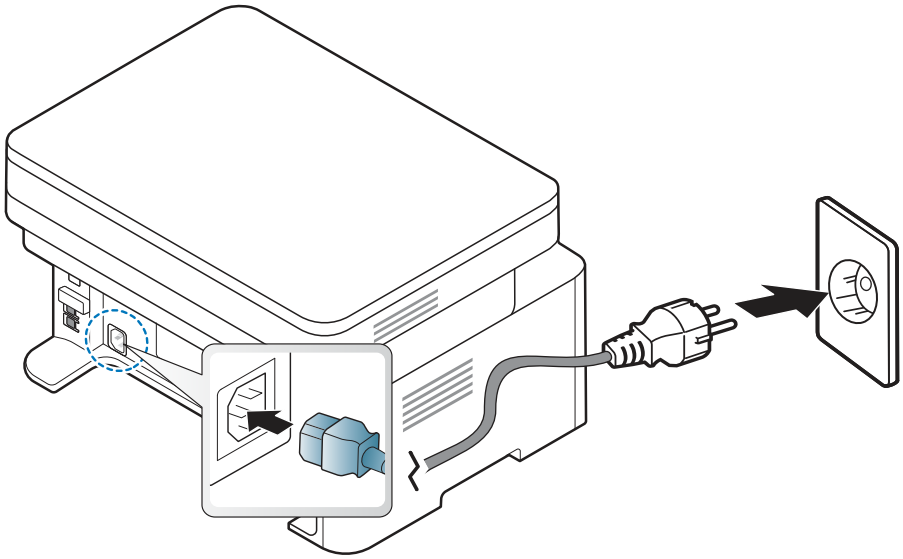
No.	Item	Description
12	Cancel	Stops an operation at any time.

Turn on the machine

This document provides the procedures to remove and replace the toner cartridge.

1. Connect the machine to the electricity supply first.

   Turn the switch on if the machine has a power switch.



NOTE: Illustrations on this user guide may differ from your machine depending on its options or models. Check your machine type (see Machine overview on page 10).

2. Power is turned on automatically.

   Or press the Power button on the control panel.

NOTE: If you want to turn the power off, press and hold the Power button for about 3 seconds.

Install the software

After you have set up your machine and connected it to your computer, you must install the printer software. You need to download software packages from the HP website to install the printer software.

Before installing, check whether your computer's OS support the software (see Features by model on page 2).

For HP's all-inclusive help for the printer, go to support.hp.com.

Find the following support:

- Install and configure
- Learn and use
- Solve problems
- Download software and firmware updates
- Join support forums
- Find warranty and regulatory information

NOTE: A locally connected machine is a machine directly attached to your computer using the cable. If your machine is attached to a network, skip the following steps below and go on to installing a network connected machine's driver (see Install driver over the network (Windows) on page 38).

WARNING! Only use a USB cable no longer than 3 meters (118 inches).

2 Menu overview and basic setup

This chapter provides information about the overall menu structure and the basic setup options.

Menu overview

The control panel provides access to various menus to set up the machine or use the machine's functions.

NOTE:

- Some menus may not appear on the display depending on options or models. If so, it is not applicable to your machine.
- Some menu names may differ from your machine depending on its options or the models.
- The menus are described in the Useful Setting Menus chapter (see Useful setting menus on page 65).

Access the menu

1. Select Menu (≡) until the menu you want appears on the bottom line of the display and press OK.
2. Press the arrows until the needed menu item appears and press OK.
3. If the setting item has sub menus, repeat Step 3.
4. Press OK to save the selection.
5. Press the Cancel button (✕) to return to the ready mode.

Copy Feature menu

Table 2-1 Copy Feature menu

Option	Sub option
Original Size	N/A
Reduce/Enlarge	N/A
Darkness	Normal Dark+1- Dark+5 Light+5- Light+1

Table 2-1 Copy Feature menu (continued)

Option	Sub option
Original Type	Text
	Text/Photo
	Photo
Collation	On
	Off
Layout	Normal
	2-Up
	4-Up
	ID Copy
Adjust Bkgd.	Off
	Auto
	Enhance Lev.1
	Enhance Lev.2
	Erase Lev.1- Erase Lev.4

Copy Setup menu

Table 2-2 Copy Setup menu

Option	Sub option
Change Default	Original Size
	Copies
	Reduce/Enlarge
	Darkness
	Original Type
	Collation

System Setup menu

Table 2-3 System Setup menu

Option	Sub option
Machine Setup	Language
	Default Mode [a]
	Power Save
	Auto Power Off [a]
	Wakeup Event
	System Timeout
	Job Timeout
	Altitude Adj.
	Auto Continue [b]
	Paper Substit. [b]
	Toner Save
Paper Setup	Paper Size
	Paper Type
	Margin
	Tray Confirm.
Report	Configuration
	Demo Page
	Network Conf. [c]
	Supplies Info.
	Usage Counter

Table 2-3 System Setup menu (continued)

Option	Sub option
Maintenance	CLR Empty Msg. [d]
	Supplies Life
	Image Mgr.
	TonerLow Alert
	Serial Number

[a] This option may not appear on the display depending on models. If so, it is not applicable to your machine.
[b] This option only appears if Paper Mismatch is enabled.
[c] Network model only.
[d] This option only appears when small amount of toner is left in the cartridge.

Network menu (Network model only)

Table 2-4 Network menu

Option	Sub option
TCP/IP (IPv4)	DHCP
	BOOTP
	Static
TCP/IP (IPv6)	IPv6 Protocol
	DHCPv6 Config
Ethernet	Ethernet Port
	Ethernet Speed
Wi-Fi[e]	Wi-Fi On/Off
	Wi-Fi Settings [f]
	WPS
	Wi-Fi Direct
	Wi-Fi Signal
	WLAN Default
Protocol Mgr.	HTTP
	WINS
	SNMPv1/v2t
	UPnP(SSDP)
	MDNS
	SLP
Network Conf.	N/A

Table 2-4 Network menu (continued)

Option	Sub option
Clear Settings	N/A

[e] Wireless model only.
[f] This option may not appear on the display depending on models. If so, it is not applicable to your machine.

Machine basic settings

Review default settings for the printer.

NOTE: You can change the machine's setting from HP Embedded Web Server. If your machine is connected to the network, you can set the machine's setting from **HP Embedded Web Server** > **Settings** tab > **Machine Settings** (see Use HP Embedded Web Server on page 45).

Machine's default settings

After installation is complete, you may want to set the machine's default settings.

To change the machine's default settings, follow these steps:

NOTE: It may be necessary to press OK to navigate to lower-level menus for some models.

1. Select the Menu button on the control panel.
2. Press System Setup > Machine Setup.
3. Select the option you want, then press OK.
4. Select the sub option you want, then press OK.
5. Press OK to save the selection.
6. Press the Cancel button to return to ready mode.

Altitude adjustment

Print quality is affected by atmospheric pressure, which is determined by the height of the machine above sea level. The following information will guide you on how to set your machine for the best print quality.

Before you set the altitude value, determine the altitude where you are.

- **Normal**: 0 ~ 1,000 m (3,280 ft)
- **High 1**: 1,000 m (3,280 ft) ~ 2,000 m (6,561 ft)
- **High 2**: 2,000 m (6,561 ft) ~ 3,000 m (9,842 ft)
- **High 3**: 3,000 m (9,842 ft) ~ 4,000 m (13,123 ft)

- **High 4**: 4,000 m (13,123 ft) ~ 5,000 m (16,404 ft)

NOTE:

- If your machine is connected to the network, you can set the machine's setting from **HP Embedded Web Server** > **Settings** tab > **Machine Settings** (see Use HP Embedded Web Server on page 45).
- You can also set the altitude in the System Setup option on the machine's display.

Media and tray

This chapter provides information on how to load print media into your machine.

Select print media

You can print on a variety of print media, such as plain paper, envelopes, labels, and transparencies. Always use print media that meets the guidelines for use with your machine.

Guidelines for select the print media

Print media that does not meet the guidelines outlined in this user guide may cause the following problems:

- Poor print quality
- Increased paper jams
- Premature wear on the machine

Properties, such as weight, composition, grain, and moisture content, are important factors that affect the machine's performance and the output quality. When you choose print materials, consider the following:

- The type, size, and weight of the print media for your machine are described in print media specifications (see Print media specifications on page 105).
- Desired outcome: The print media you choose should be appropriate for your project.
- Brightness: Some print media are whiter than others and produce sharper, more vibrant images.

- Surface smoothness: The smoothness of the print media affects how crisp the printing looks on the paper.

NOTE:

- Some print media may meet all of the guidelines in this user guide and still not produce satisfactory results. This may be the result of the sheets characteristics, improper handling, unacceptable temperature and humidity levels, or other variables over which cannot be controlled.
- Before purchasing large quantities of print media, ensure that it meets the requirements specified in this user guide.

CAUTION:

- Using print media that does not meet these specifications may cause problems or require repairs. Such repairs are not covered by HP's warranty or service agreements.
- The amount of paper put into the tray may differ according to media type used (see Print media specifications on page 105).
- Make sure not to use the inkjet photo paper with this machine. It could cause damage to the machine.
- Using flammable print media can cause a fire.
- Use designated print media (see Print media specifications on page 105).

WARNING! The use of flammable media or foreign materials left in the printer may lead to overheating of the unit and, in rare cases may cause a fire.

The amount of paper put into the tray may differ according to media type used (see Print media specifications on page 105).

Tray overview

To change the size, you need to adjust the paper guides.

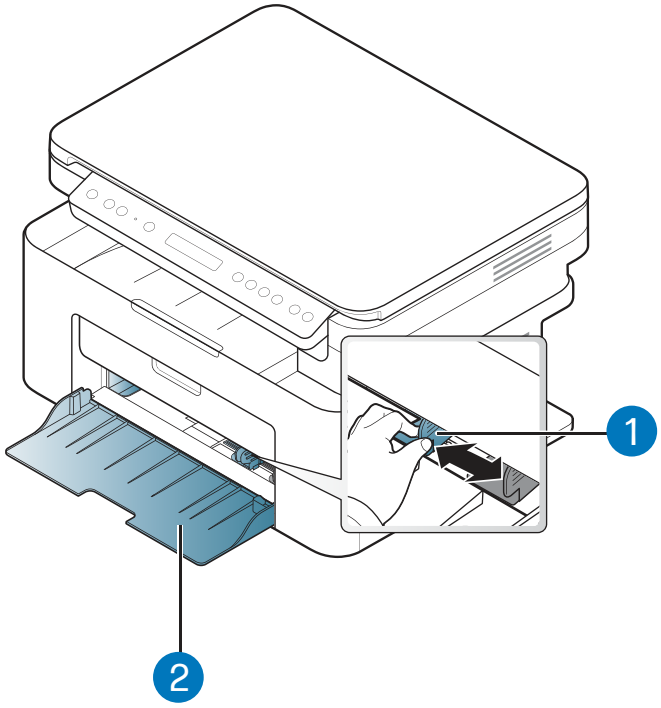


Table 2-5 Tray overview

No.	Item
1	Paper width guide
2	Tray

NOTE: Illustrations on this user guide may differ from your machine depending on its options or models. Check your machine type (see Machine overview on page 10).

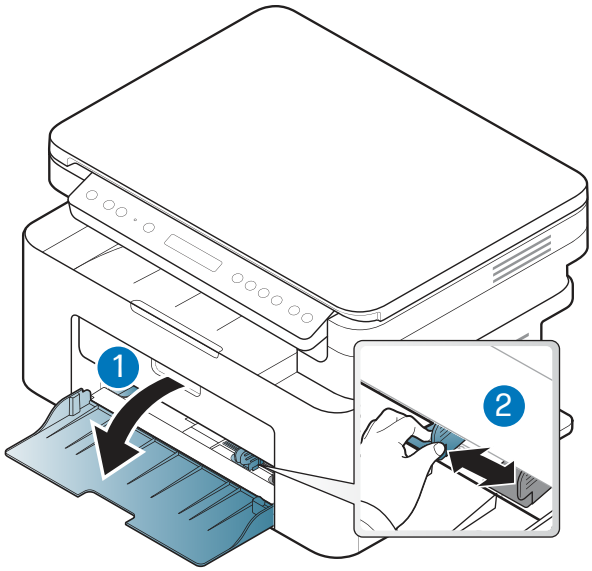
CAUTION: If you do not adjust the guide, it may cause paper registration, image skew, or jamming of the paper.

Load paper in the tray

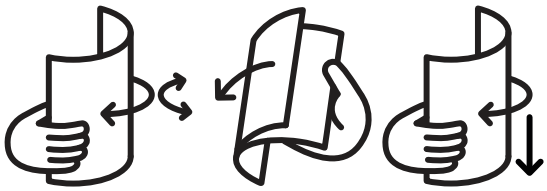
This document provides the procedures to load paper in the tray.

NOTE: Illustrations on this user's guide may differ from your machine depending on its options or models. Check your machine type (see Machine overview on page 10).

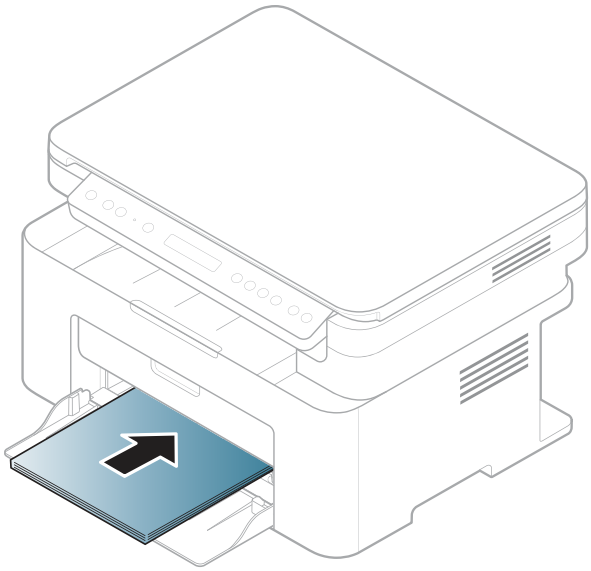
1. Open the tray. Then, adjust the tray size to the media size you are loading.



2. Flex or fan the edge of the paper stack to separate the pages before loading papers.



3. Place the paper with the side you want to print facing up.



NOTE:

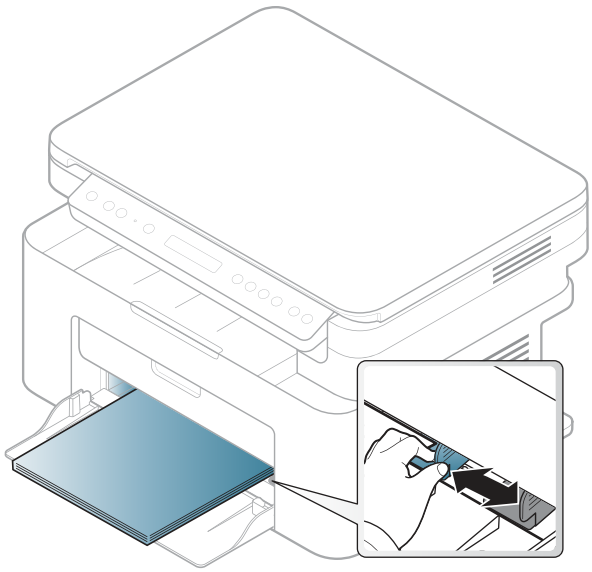
- If you do not adjust the guide, it may cause paper registration, image skew, or jamming of the paper.
- Do not push the paper width guide too far causing the media to warp.
- If you do not adjust the paper width guide, it may cause paper jams.



- Do not use a paper with a leading-edge curl, it may cause a paper jam, or the paper can be wrinkled.



4. Squeeze the paper width guide and slide it to the edge of the paper stack without causing it to bend.



5. When you print a document, set the paper type and size for the tray (see Set the paper size and type on page 30).

Print on special media

The table below shows the special media usable in tray.

To change the paper setting set in the machine, set the paper type from the **Printing Preferences** window > **Paper** tab > **Paper Type** (see Open Printing Preferences on page 51).

NOTE:

- When using special media, we recommend you feed one sheet at a time (see Print media specifications on page 105).
- Illustrations on this user's guide may differ from your machine depending on its options or models. Check your machine type (see Machine overview on page 10).

To see for paper weights for each sheet, refer to Print media specifications on page 105.

Table 2-6 Supported special media types

Type	Tray
Plain	✓
Heavy 90-120 g	✓
Light 60-69 g	✓
Bond	✓
Colored	✓
Extra-Heavy	✓

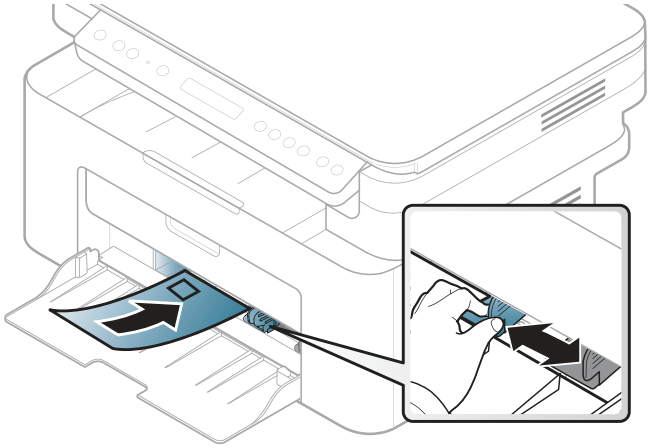
Table 2-6 Supported special media types (continued)

Type	Tray
Labels	✓
Envelope	✓
Preprinted	✓
Recycled	✓

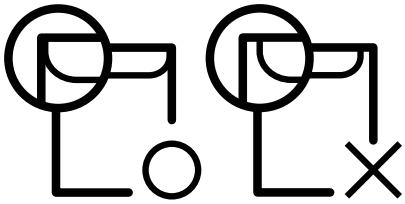
Envelope

Printing successfully on envelopes depends upon the quality of the envelopes.

To print an envelope, place it as shown in the following figure.



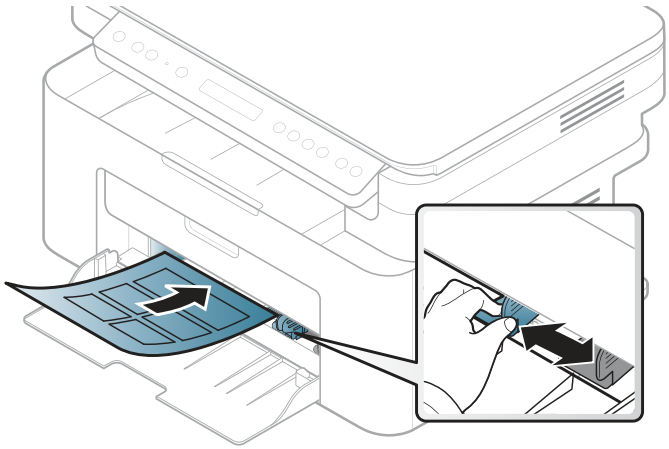
- When selecting envelopes, consider the following factors:
  - Weight: should not exceed 90 g/m2 otherwise; jams may occur.
  - Construction: should lie flat with less than 6 mm curl and should not contain air.
  - Condition: should not be wrinkled, nicked, nor damaged.
  - Temperature: should resist the heat and pressure of the machine during operation.
- Use only well-constructed envelopes with sharp and well-creased folds.
- Do not use stamped envelopes.
- Do not use envelopes with clasps, snaps, windows, coated lining, self-adhesive seals, or other synthetic materials.
- Do not use damaged or poorly made envelopes.
- Be sure the seam at both ends of the envelope extends all the way to the corner of the envelope.



- Envelopes with a peel-off adhesive strip or with more than one flap that folds over to seal must use adhesives compatible with the machine's fusing temperature for 0.1 second about 170°C (338 °F). The extra flaps and strips might cause wrinkling, creasing, or jams, and may even damage the fuser.
- For the best print quality, position margins no closer than 15 mm from the edges of the envelope.
- Avoid printing over the area where the envelope's seams meet.

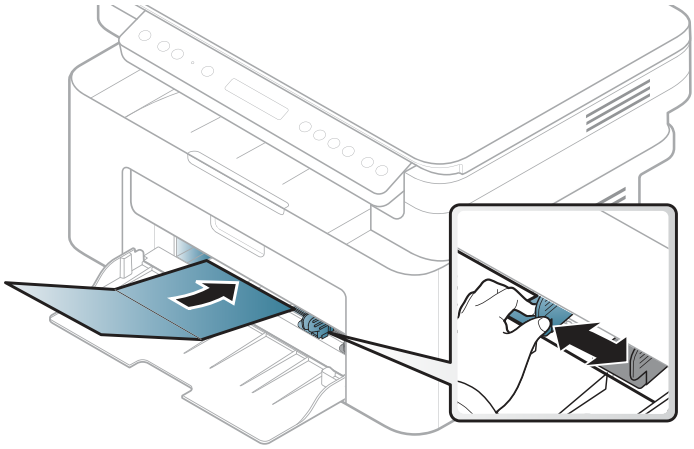
Labels

To avoid damaging the machine, use only labels designed for use in laser printers.



- When selecting labels, consider the following factors:
  - **Adhesives**: Should be stable at your machine's fusing temperature about 170°C (338°F).
  - **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**: Must lie flat with no more than 13 mm of curl in any direction.
  - **Condition**: Do not use labels with wrinkles, bubbles, or other indications of separation.
- Make sure that there is no exposed adhesive material between labels. Exposed areas can cause labels to peel off during printing, which can cause paper jams. Exposed adhesive can also cause damage to machine components.
- Do not run a sheet of labels through the machine more than once. The adhesive backing is designed for only a single pass through the machine.
- Do not use labels that are separating from the backing sheet or are wrinkled, bubbled, or otherwise damaged.

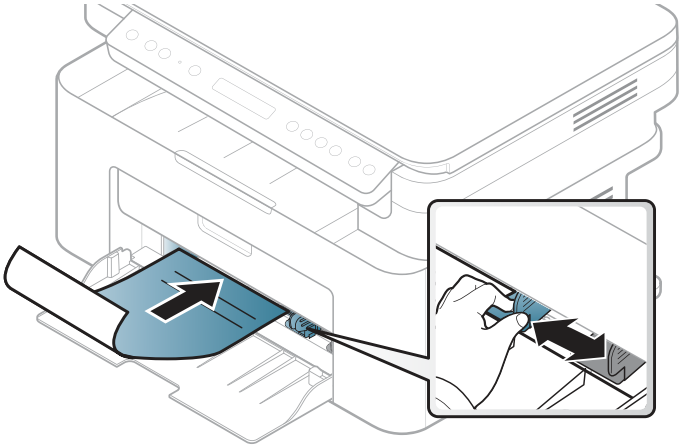
Card stock/ Custom-sized paper



- In the software application, set the margins to at least 6.4 mm (0.25 inches) away from the edges of the material.

Preprinted paper

When loading preprinted paper, the printed side should be facing up with an uncurled edge at the front. If you experience problems with paper feeding, turn the paper around. Note that print quality is not guaranteed.



- Must be printed with heat-resistant ink that will not melt, vaporize, or release hazardous emissions when subjected to the machine's fusing temperature for 0.1 second (about 170°C (338°F)).
- Preprinted paper ink must be non-flammable and should not adversely affect machine rollers.
- Before you load preprinted paper, verify that the ink on the paper is dry. During the fusing process, wet ink can come off preprinted paper, reducing print quality.

Set the paper size and type

After loading paper in the paper tray, set the paper size and type using the control panel buttons.

To change the paper setting set in the machine, set the paper type from the Printing Preferences window > Paper tab > Paper Type (see Open Printing Preferences on page 51).

NOTE: It may be necessary to press OK to navigate to lower-level menus for some models.

1. Select the Menu button ☰ on the control panel.
2. Press System Setup > Paper Setup > Paper Size or Paper Type.
3. Select the tray and the option you want.
4. Press OK to save the selection.
5. Press the Cancel button ⊗ to return to ready mode.

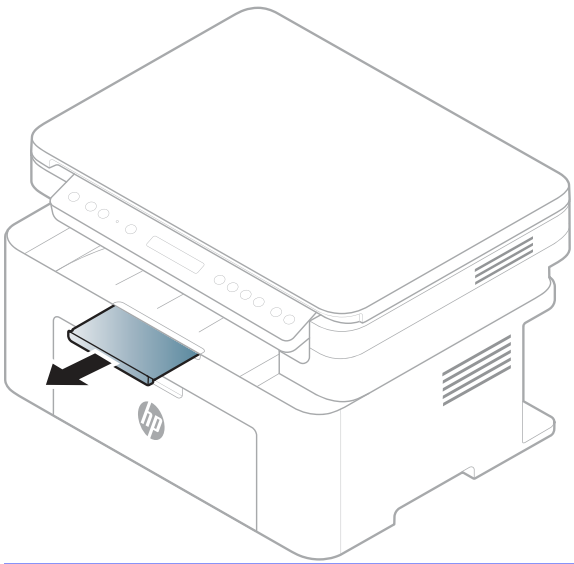
NOTE: If you want to use special-sized paper such as billing paper, select the Paper tab > Size > Edit... and set Custom Paper Size Settings in the Printing Preferences (see Open Printing Preferences on page 51 on page 67).

Use the output support

Use the output support to align the printed pages.

NOTE: The surface of the output tray may become hot if you print a large number of pages at once. Make sure that you do not touch the surface, and do not allow children near it.

The printed pages stack on the output support, and the output support will help the printed pages to align. The printer sends output to the output tray by default.



NOTE: Illustrations on this user's guide may differ from your machine depending on its options or models. Check your machine type (see Machine overview on page 10).

Prepare originals

Learn how to prepare originals.

- Do not load paper smaller than 76 x 149 mm (3x 5.85 inches) or larger than 216 x 356 mm (8.5 x 14 inches).
- Do not attempt to load the following s of paper, in order to prevent paper jam, low print quality and machine damage.
  - Carbon-paper or carbon-backed paper
  - Coated paper
  - Onion skin or thin paper
  - Wrinkled or creased paper
  - Curled or rolled paper
  - Torn paper
- Remove all staples and paper clips before loading.
- Make sure any glue, ink, or correction fluid on the paper is completely dry before loading.
- Do not load originals that include different sizes or weights of paper.
- Do not load booklets, pamphlets, transparencies, or documents with other unusual characteristics.

Load originals

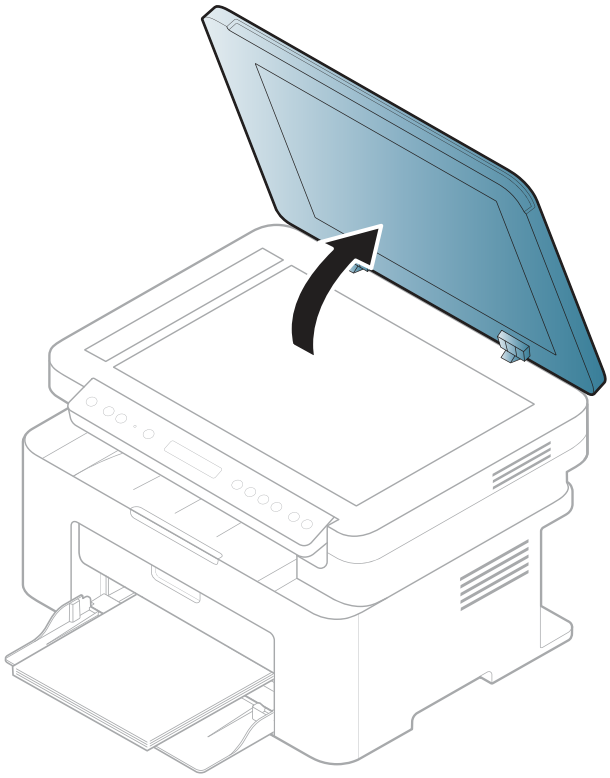
You can use the scanner glass to load an original for copying and scanning.

NOTE: Illustrations on this user's guide may differ from your machine depending on its options or models. Check your machine type (see Machine overview on page 10).

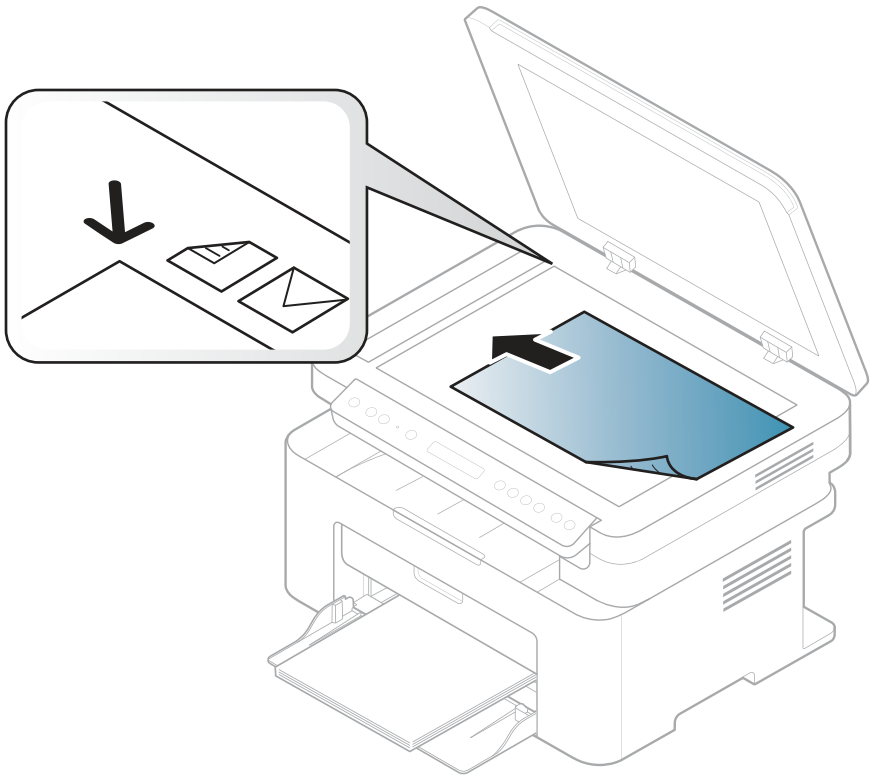
Load originals on the scanner glass

Using the scanner glass, you can copy or scan originals. You can get the best scan quality, especially for colored or gray-scaled images.

1. Lift and open the scanner lid.



2. Place the original face down on the scanner glass. Align it with the registration guide at the top left corner of the glass.



3. Close the scanner lid.

NOTE:

- Leaving the scanner lid open while copying may affect copy quality and toner consumption.
- Dust on the scanner glass may cause black spots on the printout. Always keep it clean.
- If you are copying a page from a book or magazine, lift the scanner lid until its hinges are caught by the stopper and then close the lid. If the book or magazine is thicker than 30 mm, start copying with the scanner lid open.

CAUTION:

- Be careful not to break the scanner glass. You may get hurt.
- Do not put hands while closing the scanner lid. The scanner lid may fall on your hands and get hurt.
- Do not look the light from inside of the scanner while copying or scanning. It is harmful to eyes.

3 Use a network-connected machine

This chapter gives you step-by-step instructions for setting up a network connected machine and software.

NOTE: Supported optional devices and features may differ according to your model.

Wired network setup

Learn how to configure wired network settings.

Print a network configuration report

You can print Network Configuration Report from the machine's control panel that will show the current machine's network settings. This will help you to set up a network.

- Press the Menu button ☰ on the control panel and select Network > Network Conf..

  Using this Network Configuration Report, you can find your machine's MAC address and IP address.

  For example:

```
MAC Address: 00:15:99:41:A2:78
```

```
MAC Address: IP Address: 169.254.192.192
```

Setting IP address

First, you have to set up an IP address for network printing and managements. In most cases a new IP address will be automatically assigned by a Dynamic Host Configuration Protocol (DHCP) server located on the network.

NOTE: When you install the printer driver, do not configure both IPv4 and IPv6. We recommend configuring either IPv4 or IPv6 (see Install driver over the network (Windows) on page 38).

IPv4 configuration

You can set TCP/IPv4 from the control panel for a DHCPv4 server on your network.

NOTE: You can also set the TCP/IPv4 from Embedded Web Server. When the **Embedded Web Server** window is displayed, move the mouse cursor over the **Settings** menu of the top menu bar and then click **Network Settings**.

If you have a DHCPv4 server on your network, you can set one of the following options for default dynamic host configuration.

1. Press the Menu button ☰ on the control panel.
2. Select Network > TCP/IP (IPv4) > DHCP on the control panel.
3. Press OK to select the required value you want.

IPv6 configuration

You can activate and set the TCP/IPv6 from the control panel.

NOTE: You can also set the TCP/IPv6 from HP Embedded Web Server. When the **HP Embedded Web Server** window opens, move the mouse cursor over the **Settings** menu of the top menu bar and then click **Network Settings**.

IPv6 is supported properly only in Windows Vista or higher.

The machine supports the following IPv6 addresses for network printing and managements.

- **Link-local Address**: Self-configured local IPv6 address (Address starts with FE80).
- **Stateless Address**: Automatically configured IPv6 address by a network router.
- **Stateful Address**: IPv6 address configured by a DHCPv6 server.
- **Manual Address**: Manually configured IPv6 address by a user.

In the IPv6 network environment, follow the next procedure to use the IPv6 address.

Activate IPv6

Learn how to activate IPv6 from the control panel.

1. Press the Menu button ☰ on the control panel.
2. Press Network > TCP/IP (IPv6) > IPv6 Protocol.
3. Select On and press OK.
4. Turn the machine off and turn it on again.

DHCPv6 address configuration

If you have a DHCPv6 server on your network, you can set one of the following options for default dynamic host configuration.

1. Press the Menu button ☰ on the control panel.
2. Select Network > TCP/IP (IPv6) > DHCPv6 Config.
3. Press OK to select the required value you want.

Install driver over the network

If you need to use the machine over the network from the computer, install driver on the computer.

NOTE:

- Before installing, check whether your computer's OS support the software (see Features by model on page 2).
- The machine that does not support the network interface, it will not be able to use this feature (see Machine overview on page 10).
- You need to download software packages from the HP website to install the printer software. For HP's all-inclusive help for the printer, go to support.hp.com.

Install driver over the network (Windows)

Learn how to install driver over the network on Windows from the computer.

NOTE: The firewall software might be blocking network communication. Before connecting the device to the network, disable the computer's firewall.

1. Make sure that the machine is connected to the network and powered on. Also, your machine's IP address should have been set (see Setting IP address on page 36).
2. Download printer driver software from the HP website. (support.hp.com)
3. Turn on the machine.
4. Unzip the driver package and run the driver installer.
5. Follow the instructions in the installation window.

Wireless network setup

Learn how to configure wireless network settings.

NOTE: Wireless networking may not be available depending on the model (see Features by model on page 2).

Wireless networks require higher security, so when an access point is first set up, a network name (SSID), the type of security used, and a Network Password are created for the network. Ask your network administrator about this information before proceeding with the machine installation.

Introduce wireless set up methods

You can set wireless settings either from the machine or the computer. Choose the setting method from the below table.

NOTE:

- Some wireless network installation types may not be available depending on the model or country.
- It is strongly recommended that you set the password on Access Points. If you do not set the password on Access Points, they might be exposed to illegal access from unknown machines including PCs, smart phones and printers. Refer to the Access Point user' guide for password settings.

Table 3-1 **Wireless set up methods**

Setup method	Connecting method	Description and Reference
With Access Point	From the computer	• See Setup via USB cable on page 40 on page 53 for Window. • See Access point without a USB cable on page 41 for Window. • See Setup using a network cable on page 42.
With Access Point	From the machine's control panel	• See Use the WPS settings on page 40. • See Use the Wi-Fi Networks on page 40.
With Access Point	From the HP Smart app	See Connect using the HP Smart app on page 48.
Wi-Fi Direct setup	From mobile device	See Set the Wi-Fi Direct for mobile printing on page 43.

Restore the wireless network settings

You can revert the wireless network settings to the default values.

1. Press the Menu button ☰ on the control panel.
2. Select Network > Wi-Fi > Wi-Fi Default > Restore....

The machine starts restoring default wireless network settings.

Use the WPS settings

If your machine and access point (or wireless router) support Wi-Fi Protected Setup (WPS), then you can easily configure the wireless network settings through the WPS menu without the need for a computer.

Items to prepare:

- Check if the access point (or wireless router) supports Wi-Fi Protected Setup (WPS).
- Check if your machine supports Wi-Fi Protected Setup (WPS).

1. Press the Menu button ☰ on the control panel.
2. Select Network > Wi-Fi > WPS > PBC.

   The machine starts connecting to the wireless network.
3. **Within 2 minutes**, press the **WPS (PBC)** button on the access point (or wireless router).
   a. The machine is connecting to the access point (or wireless router).
   b. When the machine is successfully connected to the wireless network, the LED light stays on.
4. Continue to install the software.

Use the Wi-Fi Networks

Before starting, you will need to know the network name (SSID) of your wireless network and the network key if it is encrypted. This information was set when the access point (or wireless router) was installed. If you do not know about your wireless environment, please ask the person who set up your network.

1. Choose one of the following to start.
   - Press the Menu button ☰ on the control panel. Select Network > Wi-Fi > Wi-Fi Settings.
   - Press the Wireless button, access to the Wi-Fi menu.
2. Press OK to select the setup method you want.
   - Wizard (recommended): In this mode, the setup is automatic. The machine will display a list of available networks from which to choose. After a network is chosen then printer will prompt for the corresponding security key.
   - Custom: In this mode, users can give or edit manually their own SSID, or choose the security option in detail.
3. Follow the instructions to set up the wireless network.

Setup using Windows

If you use a Windows computer, you can set up the connection using USB cable or access point.

Setup via USB cable

You can set up the wireless connection using USB cable.

Items to prepare

- Access point
- Network-connected computer
- You need to download software packages from the HP website to install the printer software. For HP's all-inclusive help for the printer, go to support.hp.com.
- A machine installed with a wireless network interface
- USB cable

1. Check whether the USB cable is connected to the machine.
2. Turn on your computer, access point, and machine.
3. Download printer driver software from the HP website. (support.hp.com)
4. Unzip the driver package and run the driver installer.
5. Review and accept the installation agreements in the installation window. Then, click **Next**.
6. Select **Wireless** on the **Printer Connection Type** screen. Then, click **Next**.
7. On the **Are you setting up your printer for the first time?** screen, select **Yes, I will set up my printer's wireless network**. Then, click **Next**.

   If your printer is already connected on the network, select **No, my printer is already connected to my network**.
8. Select **Using a USB cable** on the **Select the Wireless Setup Method** screen. Then, click **Next**.
9. After searching, the window shows the wireless network devices. Select the name (SSID) of the access point you want to use and click **Next**.
10. When the wireless network set up is completed, disconnect the USB cable between the computer and machine. Click **Next**.
11. Select the components to be installed.
12. Follow the instructions in the installation window.

Access point without a USB cable

If you do not a USB cable, you can set up the wireless connection using access point.

Items to prepare

- Wi-Fi-enabled PC running Windows 7 or higher and an access point (router)
- You need to download software packages from the HP website to install the printer software.

  For HP's all-inclusive help for the printer, go to support.hp.com.
- A machine installed with a wireless network interface

NOTE: While setting the wireless network, the machine uses PC's wireless LAN. You might not be able to connect to the Internet.

1. Turn on your computer, access point, and machine.
2. Download printer driver software from the HP website. (support.hp.com)
3. Unzip the driver package and run the driver installer.
4. Review and accept the installation agreements in the installation window. Then, click **Next**.
5. Select **Wireless** on the **Printer Connection Type** screen. Then, click **Next**.
6. On the **Are you setting up your printer for the first time?** screen, select **Yes, I will set up my printer's wireless network**. Then, click **Next**.

   If your printer is already connected on the network, select **No, my printer is already connected to my network**.
7. Select **Using a direct wireless connection** on the **Select the Wireless Setup Method** screen. Then, click **Next**.
8. When the wireless network set up is completed, click **Next**.
9. Follow the instructions in the installation window.

Setup using a network cable

Your machine is a network compatible machine. To enable your machine to work with your network, you will need to perform some configuration procedures.

NOTE: See your network administrator, or the person that set up your wireless network, for information about your network configuration.

Items to prepare

- Access point
- Network-connected computer
- You need to download software packages from the HP website to install the printer software. For HP's all-inclusive help for the printer, go to support.hp.com.
- A machine installed with a wireless network interface
- Network cable

Print a network configuration report

You can identify the network settings of your machine by printing a network configuration report.

See .

Configure the machine's wireless network

Before starting you will need to know the network name (SSID) of your wireless network and the network key if it is encrypted. This information was set when the access point (or wireless router) was installed. If you do not know about your wireless environment, please ask the person who set up your network.

To configure wireless parameters, you can use HP Embedded Web Server.

Setup using a network cable from HP Embedded Web Server

Before starting wireless parameter configuration, check the cable connection status.

1. Check whether or not the network cable is connected to the machine. If not, connect the machine with a standard network cable.
2. Start a web browser such as Internet Explorer, Safari, or Firefox and enter your machine's new IP address in the browser window.

   For example:

3. Click **Login** on the upper right of the HP Embedded Web Server website.
4. If it's your first time logging in to HP Embedded Web Server, you need to log in as an administrator. Type in default **ID (admin)**. Default password is none. We recommend you to set the default password for security reasons. You can change your ID and password from **Security** > **System Security** > **System Administrator**.
5. When the **HP Embedded Web Server** window opens, click **Network Settings**.
6. Click **Wi-Fi** > **Wizard**.
7. Select the one **Network Name(SSID)** in the list.
8. Click **Next**.

   If the wireless security setting window appears, enter the registered password (network password) and click **Next**.
9. The confirmation window appears, please check your wireless setup. If the setup is right, click **Apply**.

Set the Wi-Fi Direct for mobile printing

Wi-Fi Direct is a secure and easy-to-use peer-to-peer connection between a Wi-Fi Direct-enabled printer and mobile device.

With Wi-Fi Direct, you can connect your printer to a Wi-Fi Direct network while concurrently connecting to an access point. You can also use a wired network and a Wi-Fi Direct network simultaneously so multiple users can access and print documents both from Wi-Fi Direct and from a wired network.

NOTE:

- You cannot connect your mobile device to the internet through the printer's Wi-Fi Direct.
- The supported protocol list may differ from your model, Wi-Fi Direct networks do NOT support IPv6, network filtering, IPSec, WINS, and SLP services.
- The maximum number of devices that can be connected via Wi-Fi Direct is 4.

Set up Wi-Fi Direct

You can enable Wi-Fi Direct feature by one of the following methods.

From the machine

1. Press the Menu button ☰ on the control panel and select Network > Wi-Fi > Wi-Fi Direct from the display screen.
2. Tap Wi-Fi Direct and enable Wi-Fi Direct.

From the network-connected computer

If your printer is using a network cable or a wireless access point, you can enable and configure Wi-Fi Direct from HP Embedded Web Server.

1. Access HP Embedded Web Server and select **Settings** > **Network Settings** > **Wi-Fi** > **Wi-Fi Direct™**.
2. Enable **Wi-Fi Direct™** and set other options.

Set up the mobile device

After setting up Wi-Fi Direct from the printer, you need to set up your mobile device.

- After setting up Wi-Fi Direct from the printer, refer to the user manual of the mobile device you are using to set its Wi-Fi Direct.
- After setting up Wi-Fi Direct, you need to download the mobile printing application (For example: HP Smart) to print from your smartphone.

NOTE:

- When you have found the printer you want to connect to from your mobile device, select the printer and the printer's LED will blink. Press the Wireless button on the printer and it will be connected to your mobile device. If you don't have Wireless button, press the option you want when the Wi-Fi connection confirmed window appears from the display screen and it will be connected to your mobile device.
- If your mobile device does not support Wi-Fi Direct, you need to enter the "Network Key" of a printer instead of pushing the Wireless button.

Use HP Embedded Web Server

There are several programs available to set up the network settings easily in a network environment. For the network administrator especially, managing several machines on the network is possible.

NOTE:

- Internet Explorer 8.0 or higher is the minimum requirement for HP Embedded Web Server.
- Before using the programs below, set the IP address first.
- Some features and optional goods may not be available depending on model or country (see Features by model on page 2).

HP Embedded Web Server

The web server embedded on your network machine allows you to manage the machine.

- Check the supplies information and status.
- Customize machine settings.
- Configure the network parameters necessary for the machine to connect to various network environments.

Access HP Embedded Web Server

You can access HP Embedded Web Server from a web browser.

1. Access a web browser, such as Internet Explorer, from Windows.

   Enter the machine IP address of your printer (`http://xxx.xxx.xxx.xxx`) in the address field and press the Enter key or click **Go**.

2. Your machine's embedded website is displayed.

Log in to HP Embedded Web Server

Before configuring options in HP Embedded Web Server, you need to log in as an administrator. You can still use HP Embedded Web Server without logging in but you won't have access to the **Settings** and **Security** tabs.

1. Click **Login** on the upper right of the HP Embedded Web Server website.
2. If it's your first time logging into HP Embedded Web Server you need to log in as an administrator. Type in default **ID (admin)**. Default password is none. We recommend you to set the default password for security reasons. You can change your ID and password from **Security** > **System Security** > **System Administrator**.

HP Embedded Web Server overview

Learn settings available from HP Embedded Web Server.

NOTE: Some tabs may not appear depending on your model.

Information tab

This tab gives you general information about your machine. You can check things, such as remaining amount of toner. You can also print reports, such as an error report.

- **Active Alerts**: Shows the alerts that have occurred in the machine and their severity.
- **Supplies**: Shows how many pages are printed and amount of toner left in the cartridge.
- **Usage Counters**: Shows the usage count by print types: simplex and duplex.
- **Current Settings**: Shows the machine's and network's information.
- **Print information**: Prints reports such as system related reports, e-mail address, and font reports.
- **Security information**: Shows the machine's security information

Settings tab

This tab allows you to set configurations provided by your machine and network. You need to log in as an administrator to view this tab.

- **Machine Settings** tab: Sets options provided by your machine.
- **Network Settings** tab: Shows options for the network environment. Sets options such as TCP/IP and network protocols.

Security tab

This tab allows you to set system and network security information. You need to log-in as an administrator to view this tab.

- **System Security**: Sets the system administrator's information and also enables or disables machine features.
- **Network Security**: Sets settings for IPv4/IPv6 filtering.

Maintenance tab

This tab allows you to maintain your machine by upgrading firmware and setting contact information for sending emails. You can also connect to HP website or download drivers by selecting the **Link** menu.

- **Firmware Upgrade**: Upgrade your machine's firmware.
- **Contact Information**: Shows the contact information.
- **Link**: Shows links to useful sites where you can download or check information.

Set the system administrator information

This setting is necessary for using the e-mail notification option.

NOTE: Some menus may not appear depending on options or models. If so, it is not applicable to your machine.

1. Access a web browser, such as Internet Explorer, from Windows.

   Enter the machine IP address of your printer (`http://xxx.xxx.xxx.xxx`) in the address field and press the Enter key or click **Go**.

2. Your machine's embedded website is displayed.
3. Select **Security** > **System Security** > **System Administrator**.
4. Enter the name of the administrator, phone number, location, and email address.
5. Click **Apply**.

HP Smart app

HP Smart helps you to set up, scan, print, share, and manage your HP printer. You can share documents and images through email, text messages, and popular cloud and social media services (such as iCloud, Google Drive, Dropbox, and Facebook). You can also set up new HP printers, as well as monitor and order supplies.

NOTE:

- The HP Smart app might not be available in all languages. Some features might not be available with all printer models.
- If HP Smart app does not work well on your Windows devices, update the printer firmware and try again.

- **To install the HP Smart app**: To install the app on your device, go to 123.hp.com and follow the onscreen instructions to access your device's app store.
- **Connect to printer**: Make sure that the printer is turned on and is connected to the same network as your device. Then HP Smart will automatically detect the printer.

For more information about using HP Smart for printing, scanning, accessing printer features, and troubleshooting issues, go to:

- **iOS/Android**: www.hp.com/go/hpsmart-help

Connect using the HP Smart app

You can use the HP Smart app to set up the printer on your wireless network.

1. Make sure your mobile device is connected to your wireless network and you know the password of your wireless network.
2. Check if the printer is in the Auto Wireless Connect (AWC) setup mode.

   If this is the first time you set up the printer, the printer is ready for setup after the printer is powered on. It keeps searching for the HP Smart app to connect within 2 hours, and then stops searching.

   To put the control panel to the Auto Wireless Connect (AWC) setup mode, press and hold the Wireless button for at least 20 seconds until the Status and the Power LED start blinking together.
3. **iOS/Android**: Open the HP Smart app. On the home screen, tap the Plus icon and then select the printer. If the printer is not in the list, tap **Add a new printer**. Follow the onscreen instructions to add the printer to your network.

Change the default printer setting from the HP Smart app

You can set the printer setting from the HP Smart app.

1. Open the HP Smart app.
2. Tap the Plus icon if you need to change to a different printer, or add a new printer.
3. Tap **Printer Settings**.

4. Select the option you want, and then change the setting.

Print using the HP Smart app

Using the HP Smart app, you can print from an Android or iOS device.

1. Open the HP Smart app.
2. Tap the Plus icon if you need to change to a different printer, or add a new printer.
3. Tap a printing option.
4. Select the photo or document you want to print.
5. Tap **Print**.

Scan using the HP Smart app

You can use the HP Smart app to scan documents or photos using your device camera. HP Smart includes editing tools that allow you to adjust the scanned image before saving or sharing. You can print, save your scans locally or in cloud storage, and share them via email, SMS, Facebook, Instagram, etc.

1. Open the HP Smart app.
2. Tap the Plus icon if you need to change to a different printer, or add a new printer.
3. Select a scan option, and then tap **Camera**. The built-in camera will open. Scan your photo or document using the camera.
4. When you have finished adjusting the scanned document or photo, save, share, or print it.

Get help from the HP Smart app

The HP Smart app provides alerts for printer issues (jams and other problems), links to help content, and options to contact support for additional assistance.

4 Print

This chapter provides information about the overall print options.

NOTE: You need to download software packages from the HP website to install the printer software. For HP's all-inclusive help for the printer, go to support.hp.com.

Basic print

Learn how to print from your computer.

NOTE: Before printing, check whether your computer's OS support the software (see Features by model on page 2).

The following **Printing Preferences** window is for Notepad in Windows. Your **Printing Preferences** window may differ, depending on your operating system or the application you are using.

1. Open the document you want to print.
2. Select **Print** from the **File** menu.
3. Select your machine from the **Select Printer** list.
4. The basic print settings including the number of copies and print range are selected within the **Print** window.

   NOTE: To take advantage of the advanced printing features, click **Properties** or **Preferences** from the **Print** window (see Open Printing Preferences on page 51).

5. To start the print job, click **OK** or **Print** in the **Print** window.

Cancel a print job

Learn how to cancel a print job from your computer or the control panel.

- If the print job is waiting in the print queue or print spooler, cancel the job as follows:
  - You can access this window by simply double-clicking the machine icon  in the Windows task bar.
  - You can also cancel the current job by pressing the Cancel button ⊗ on the control panel.

Open Printing Preferences

If you want to know more about printer features, open the **Printing Preferences** window.

NOTE:

- The **Printing Preferences** window that appears in this user guide may differ depending on the machine in use.
- When you select an option in **Printing Preferences**, you may see an error mark or a warning mark . A warning mark means you can select that certain option, but it is not recommended, and an error mark means you cannot select that option due to the machine's setting or environment.

1. Open the document you want to print.
2. Select **Print** from the file menu. The **Print** window appears.
3. Select your machine from the **Select Printer** list.
4. Click **Properties** or **Preferences**. Click or tap the tabs in the print driver to configure the available options.

Use a favorite setting

The **Favorites** option, which is visible on each preferences tab except for the HP tab, allows you to save the current preferences for future use.

To save a **Favorites** item, follow these steps:

1. Change the settings as needed on each tab.
2. Enter a name for the item in the **Favorites** input box.
3. Click **Save**.
4. Enter name and description, and then select the desired icon.
5. Click **OK**. When you save **Favorites**, all current driver settings are saved.

NOTE: To use a saved setting, select it in the **Favorites** tab. The machine is now set to print according to the settings you have selected. To delete saved settings, select it in the **Favorites** tab and click **Delete**.

Use help

Click the option you want to know on the **Printing Preferences** window and press F1 on your keyboard.

Printing features

You can use advanced printing features when using your machine.

NOTE:

- This feature may not be available depending on model or optional goods (see Features by model on page 2).
- You need to download software packages from the HP website to install the printer software. For HP's all-inclusive help for the printer, go to support.hp.com.

Understand special printer features

To take advantage of the printer features provided by your printer driver, click **Properties** or **Preferences** in the application's **Print** window to change the print settings. The machine name that appears in the printer properties window may differ depending on the machine in use.

NOTE:

- Some menus may not appear on the display depending on options or models. If so, it is not applicable to your machine.
- Select the **Help** menu or click the Help button ? from the window or press F1 on your keyboard and click on any option you want to know about (see Use help on page 51).

Table 4-1 Printer features

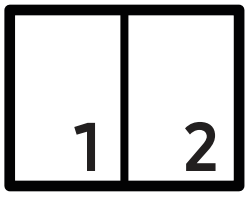
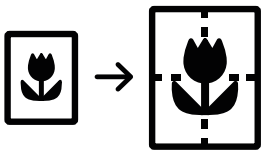
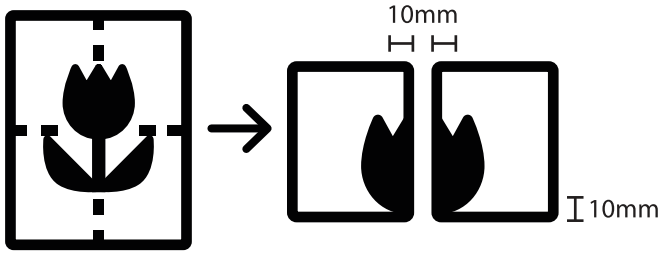
Item	Description
Multiple Pages per Side 	Selects the number of pages to print on a single sheet of paper. To print more than one page per sheet, the pages will be reduced in size and arranged in the order you specify. You can print up to 16 pages on one sheet.
Poster Printing 	Prints a single-page document onto 4 (Poster 2x2), 9 (Poster 3x3), or 16 (Poster 4x4) sheets of paper, for the purpose of pasting the sheets together to form one poster-size document. Select the **Poster Overlap** value. Specify **Poster Overlap** in millimeters or inches by selecting the radio button on the upper right of Basic tab to make it easier to paste the sheets together. 

Table 4-1 **Printer features (continued)**

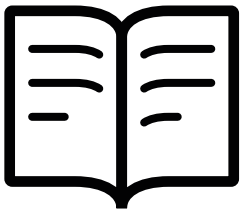
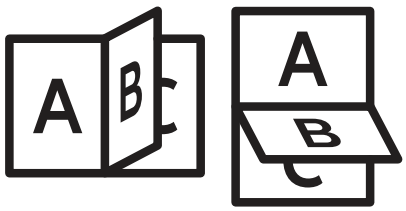
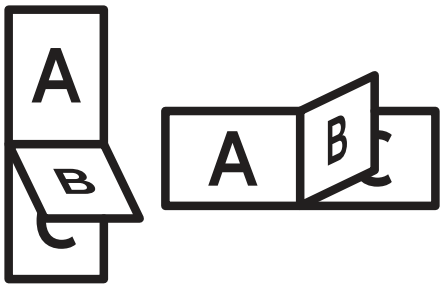
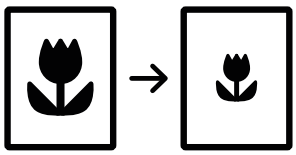
Item	Description
Booklet Printing 	Prints your document on both sides of a sheet of paper and arranges the pages so that the paper can be folded in half after printing to produce a booklet. NOTE: • The **Booklet Printing** option is not available for all paper sizes. Select the available paper **Size** option under the **Paper** tab to see what paper sizes are available. • If you select an unavailable paper size, this option can be automatically canceled. Select only available paper (paper without an error mark or a warning mark).
Double-sided Printing (Manual)	Print on both sides of a sheet of paper (duplex). Before printing, decide how you want your document oriented. NOTE: **Skip Blank Pages** feature does not work when you select the duplex option. • **None**: Disables this feature. • **Long Edge**: This option is the conventional layout used in bookbinding.  • **Short Edge**: This option is the conventional layout used in calendars. 
Paper Options 	Changes the size of a document to appear larger or smaller on the printed page by entering in a percentage by which to enlarge or decrease the document.
Watermark 	The watermark option allows you to print text over an existing document. For example, you use it when you want to have large gray letters reading "**DRAFT**" or "**CONFIDENTIAL**" printed diagonally across the first page or all pages of a document.

Table 4-1 Printer features (continued)

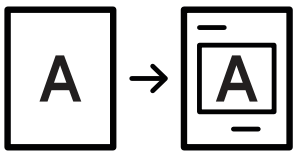
Item	Description
Watermark (Creating a watermark)	1. To change the print settings from your software application, access **Printing Preferences** (see Open Printing Preferences on page 51). 2. From the **Advanced** tab, select **Edit...** from the **Watermark** drop-down list. 3. Enter a text message in the **Watermark Message** box. You can enter up to 256 characters. When the **First Page Only** box is checked, the watermark prints on the first page only. 4. Select watermark options. You can select the font name, style, size, and shade from the **Font Attributes** section, as well as set the angle of the watermark from the **Watermark Alignment and Angle** section. 5. Click **Add** to add a new watermark to the **Current Watermarks** list. 6. When you finish editing, click **OK** or **Print** until you exit the **Print** window.
Watermark (Editing a watermark)	1. To change the print settings from your software application, access **Printing Preferences** (see Open Printing Preferences on page 51). 2. Click the **Advanced** tab, select **Edit...** from the **Watermark** drop-down list. 3. Select the watermark you want to edit from the **Current Watermarks** list and change the watermark message and options. 4. Click **Update** to save the changes. 5. Click **OK** or **Print** until you exit the **Print** window.
Watermark (Deleting a watermark)	1. To change the print settings from your software application, access **Printing Preferences**. 2. Click the **Advanced** tab, select **Edit...** from the **Watermark** drop-down list. 3. Select the watermark you want to delete from the **Current Watermarks** list and click **Delete**. 4. Click **OK** or **Print** until you exit the **Print** window.
Overlay 	An overlay is text and/or images stored in the computer hard disk drive (HDD) as a special file format that can be printed on any document. Overlays are often used to take the place of letterhead paper. Rather than using preprinted letterhead, you can create an overlay containing exactly the same information that is currently on your letterhead. To print a letter with your company's letterhead, you do not need to load preprinted letterhead paper in the machine: just print the letterhead overlay on your document. To use a page overlay, you must create a new page overlay containing your logo or image. NOTE: • The overlay document size must be the same as the document you print with the overlay. Do not create an overlay with a watermark. • The resolution of the overlay document must be the same as that of the document you will print with the overlay.

Table 4-1 **Printer features (continued)**

Item	Description
Overlay (Creating an overlay)	1. Create or open a document containing text or an image for use in a new page overlay. Position the items exactly as you wish them to appear when printed as an overlay. 2. To save the document as an overlay, access **Printing Preferences**. 3. Click the **Advanced** tab, and select **Create** from the **Overlay** drop-down list. 4. In the **Save As** window, type a name up to eight characters in the **File name** box. Select the destination path, if necessary (The default is `C:\Formover`). 5. Click **Save**. 6. Click **OK** or **Print** until you exit the **Print** window. When a confirming message window appears, click **Yes**. 7. The file is not printed. Instead, it is stored on your computer hard disk drive.
Overlay (Using a page overlay)	1. Create or open the document you want to print. 2. To change the print settings from your software application, access **Printing Preferences**. 3. Click the **Advanced** tab. 4. Select the **Print Overlay** from the **Overlay** drop-down list. 5. If you have stored the overlay file you want to use in an external source, you can also load the file when you access the **Load** window. After you select the file, click **Open**. The file appears in the **Overlay List** box and is available for printing. Select the overlay from the **Overlay List** box. 6. If necessary, select the **Confirm Page Overlay When Printing** check box. If this box is checked, a message window appears each time you submit a document for printing, asking you to confirm your wish to print an overlay on your document. If this box is not checked and an overlay has been selected, the overlay automatically prints with your document. 7. Click **OK** or **Print** until you exit the **Print** window. The selected overlay prints on your document.
Overlay (Deleting a page overlay)	1. In the **Printing Preferences** window, click the **Advanced** tab. 2. Select **Edit** in the **Text** drop-down list. 3. Select the overlay you want to delete from the **Overlay List** box. 4. Click **Delete**. 5. When a confirming message window appears, click **Yes**. 6. Click **OK** or **Print** until you exit the **Print** window. You can delete page overlays that you no longer use.

Use Printer Status program

The Printer Status is a program that monitors and informs you of the machine status.

NOTE:

- The Printer Status window and its contents shown in this user's guide may differ depending on the machine or operating system in use.
- Check the operating system(s) that are compatible with your machine (see General specifications on page 104 on page 172).
- Available for Windows users only.

Printer Status overview

If an error occurs while operating, you can check the error from the Printer Status. Printer Status is installed automatically when you install the machine software.

You can also launch Printer Status manually. Go to **Printing Preferences**, click the tab except for the **HP** tab > **Printer Status** button. The **Favorites** option, which is visible on each preferences tab except for the **HP** tab.

These icons appear on the Windows task bar:

Table 4-2 **Icons appear on the Windows task bar**

Icon	Mean	Description
	Normal	The machine is in ready mode and experiencing no errors or warnings.
	Warning	The machine is in a state where an error might occur in the future. For example, it might be in toner low status, which may lead to toner empty status.
	Error	The machine has at least one error.

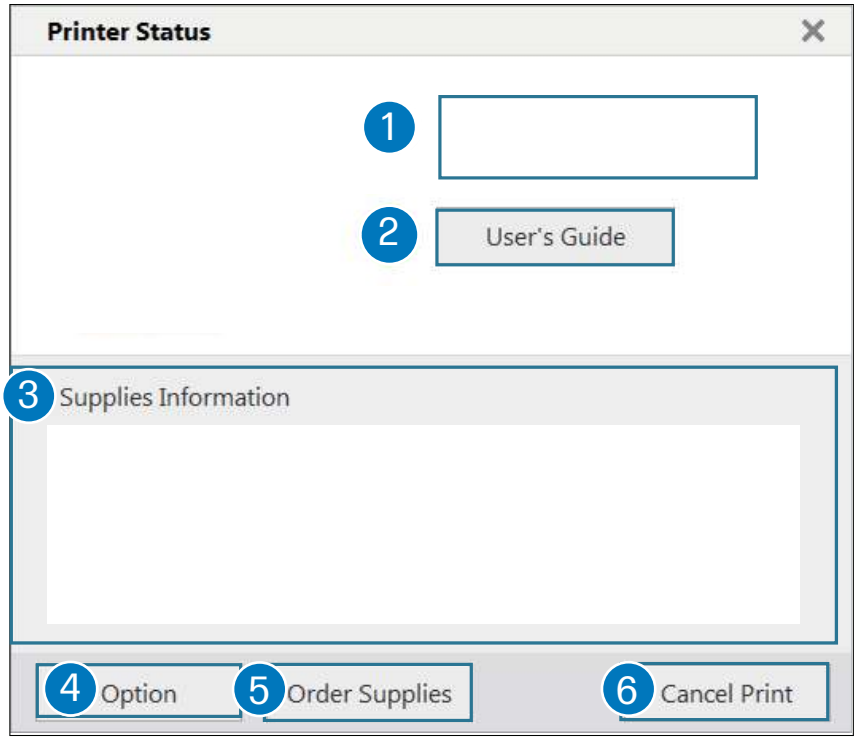


Table 4-3 Printer Status window introduction

Callout	Item	Description
1	**Device Information**	You can see the device status , current printer model name, connected port name in this area.
2	**User's Guide**	User's Guide is disabled. You can download User's Guide in support.hp.com.
3	**Supplies Information**	You can view the percentage of toner remaining in each toner cartridge. The machine and the number of toner cartridge(s) shown in the above window may differ depending on the machine in use. Some machines do not have this feature.
4	**Option**	You can set printing job alert related settings.
5	**Order Supplies**	You can order replacement toner cartridge(s) from online.
6	**Cancel Print** or **Close**	• **Cancel Print**: If print job is waiting in the print queue or printer, cancel all user's print jobs in the print queue or the printer. • **Close**: Depending on the status of the machine or the supported functions, the Close button may appear to close the status window.

5 Copy

Make copies with the printer, learn how to copy an ID card, and change the settings for each copy.

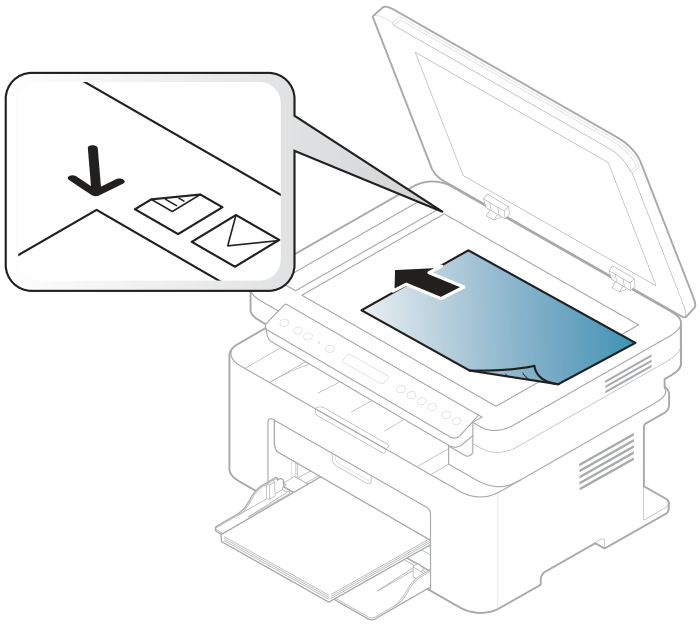
Basic copy

Learn how to make a copy.

NOTE:

- Accessing menus may differ from model to model (see Menu overview on page 16 or Control panel overview on page 12).
- Depending on models or options, some menus may not be supported (see Features by model on page 2).

1. Select Menu > Copy Feature on the control panel.
2. Place a single document (see Load originals on page 32).



3. If you want to customize the copy settings including Reduce/Enlarge, Darkness, Original, and more by using the control panel buttons.

4. Enter the number of copies using the arrow or number keypad, if necessary.
5. Press Start.

NOTE: If you need to cancel the copying job during the operation, press Cancel and the copying will stop.

Change the settings for each copy

Your machine provides default settings for copying so that you can quickly and easily make a copy. However, if you want to change the options for each copy, use the copy function buttons on the control panel.

NOTE:

- If you press Cancel while setting the copy options, all of the options you have set for the current copy job will be canceled and returned to their default status. Or, they will automatically return to their default status after the machine completes the copy in progress.
- Accessing menus may differ from model to model (see Menu overview on page 16).
- It may be necessary to press OK to navigate to lower-level menus for some models.

Darkness

If you have an original containing faint marking and dark images, you can adjust the brightness to make a copy that is easier to read.

1. Select the Darkness button on the control panel.
2. Select the option you want and press OK.

   For example, the Light+5 being the lightest, and the Dark+5 being the darkest.
3. Press Cancel to return to ready mode.

Original Type

The original setting is used to improve the copy quality by selecting the document for the current copy job.

1. Select Menu > Copy Feature > Original Type on the control panel.
2. Select the option you want and press OK.
   - Text: Use for originals containing mostly text.
   - Text/Photo: Use for originals with mixed text and photographs.

     NOTE: If texts in the printout is blurry, select Text to get the clear texts.
   - Photo: Use when the originals are photographs.
3. Press Cancel to return to ready mode.

Reduced or enlarged copy

You can reduce or enlarge the size of a copied image from 25% to 400% when you copy original documents from the scanner glass.

NOTE:

- This feature may not be available depending on model or optional goods (see Features by model on page 2).
- If the machine set to Eco mode, reduce and enlarge features are not available.

To select from the predefined copy sizes

1. Select Menu > Copy Feature > Reduce/Enlarge on the control panel.
2. Select the option you want and press OK.
3. Press Cancel to return to ready mode.

To scale the copy by directly entering the scale rate

1. Select Menu > Copy Feature > Original Type on the control panel.
2. Enter the copy size you want using the numeric keypad.
3. Press OK to save the selection.
4. Press Cancel to return to ready mode.

NOTE: When you make a reduced copy, black lines may appear at the bottom of your copy.

Copy ID card

Your machine can print 2-sided originals on one sheet.

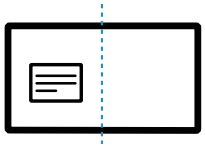
The machine prints one side of the original on the upper half of the paper and the other side on the lower half without reducing the size of the original. This feature is helpful for copying a small-sized item such as business card.

NOTE:

- The original must be placed on the scanner glass to use this feature.
- If the machine set to Eco mode, this feature is not available.
- For better image quality, Select Menu > Copy Feature > Original Type > Photo.

1. Press ID Copy on the control panel.

2. Place the front side of an original facing down on the center of first half of the scanner glass as shown. Then, close the scanner lid.

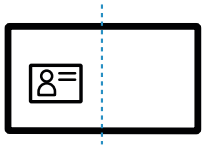


3. Place Front Side and Press [Start] appears on the display.

4. Press Start.

   Your machine begins scanning the front side and shows Place Back Side and Press [Start].

5. Turn the original over and place it on the center of first half of scanner glass as shown. Then, close the scanner lid.



6. Press Start.

NOTE:

- If you do not press the Start button, only the front side will be copied.
- If the original is larger than the printable area, some portions may not be printed.

6 Scan

This chapter provides information about the overall scan options.

NOTE:

- The maximum resolution that can be achieved depends upon various factors, including computer speed, available disk space, memory, the size of the image being scanned, and bit depth settings. Thus, depending on your system and what you are scanning, you may not be able to scan at certain resolutions, especially using enhanced dpi.
- You need to download software packages from the HP website to install the printer software. For HP's all-inclusive help for the printer, go to support.hp.com

Basic scanning method

You can scan the originals with your machine via a USB cable or the network.

NOTE: This feature may not be available depending on model or optional goods (see Features by model on page 2).

The following methodologies can be used for scanning your documents:

- **HP MFP Scan**: You can use this program to scan images or documents.
- **Scan to WSD**: Scans the originals and saves the scanned data on a connected computer if the computer supports the Web Service for Device (WSD) feature.
- **TWAIN**: TWAIN is the one of the preset imaging applications. Scanning an image launches the selected application, enabling you to control the scanning process. This feature can be used via the local connection or the network connection.
- **WIA**: WIA stands for Windows Images Acquisition. To use this feature, your computer must be connected directly with the machine via a USB cable.
- **HP Smart** app: You can use this app to scan images or documents.

Scan from HP MFP Scan program

HP MFP Scan is an application to help users scan, compile, and save documents in multiple formats, including .epub format. Whether you're a student needing to organize research from the library or a stay-at-home mom sharing scanned pictures from last year's birthday party, HP MFP Scan will provide you with the necessary tools.

NOTE: Click the **Help** button from the window, and then click on any option you want to know about.

1. Place a single document face down on the document glass (see Load originals on page 32).
2. Make sure that the machine is connected to the network and powered on. Also, your machine's IP address should have been set (see Setting IP address on page 36).
3. Download HP MFP Scan software from the HP website support.hp.com.
4. Turn on the machine.
5. Unzip the **HP MFP Scan** package and run **setup.exe** and run **HP MFP Scan**.
6. Click **Advanced Scan** from the Home screen.
7. Select the type of scanning or a favorite and then make adjustments to the image.
8. Click **Scan** to scan a final image or **Prescan** to get another preview image.
9. Press **Save** to save the scanned image.

Scan from image editing program

You can scan and import documents in the image editing software such as Adobe Photoshop, if the software is TWAIN-compliant.

Follow the steps below to scan with TWAIN-compliant software:

1. Make sure that the machine is connected to your computer and powered on.
2. Place a single document face down on the document glass (see Load originals on page 32).
3. Open an application, such as Adobe Photoshop.
4. Click **File** > **Import**, and select the scanner device.
5. Set the scan options.
6. Scan and save your scanned image.

Scan using the WIA driver

Your machine supports the Windows Image Acquisition (WIA) driver for scanning images. WIA is one of the standard components provided by Microsoft Windows 7 and works with digital cameras and scanners. Unlike the TWAIN driver, the WIA driver allows you to scan and easily adjust images without using additional software:

NOTE: The WIA driver works only on Windows OS (not supported Windows 2000) with a USB port.

1. Make sure that the machine is connected to your computer and powered on.

2. Place a single document face down on the document glass (see Load originals on page 32).
3. Click **Start** > **Control Panel** > **Hardware and Sound** > **Devices and Printers**.
4. Right-click on device driver icon in **Printers and Faxes** > **Start Scan**.
5. New Scan application appears.
6. Choose your scanning preferences and click **Preview** to see how your preferences affect the picture.
7. Scan and save your scanned image.

7 Useful setting menus

This chapter explains how to browse the current status of your machine, and the method of setting for advanced machine setup.

Copy settings

Learn copy feature and copy setup options.

Copy feature

NOTE: Some menus may not appear in the display depending on options or models. If so, it is not applicable to your machine (see Menu overview on page 16).

To change the menu options:

In copy mode, press Menu > Copy Feature on the control panel.

Table 7-1 Copy feature options

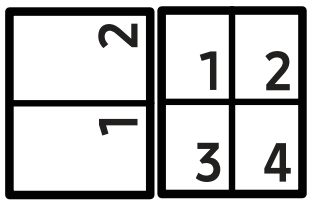
Item	Description
Original Size	Sets the image size.
Reduce/Enlarge	Reduces or enlarges the size of a copied image. NOTE: If the machine is set to Eco mode, reduce and enlarge features are not available.
Darkness	Adjusts the brightness level to make a copy that is easier to read, when the original contains faint markings and dark images.
Original Type	Improves the copy quality by selecting the document type for the current copy job.
Collation	Set the machine to sort the copy job. For example, if you make 2 copies of a 3 page original, one complete 3 page document will print followed by a second complete document.
Layout	Adjusts the layout format such as Normal, ID copy, 2/4-Up.
Layout > 2-Up or Layout > 4-Up	Reduces the size of the original images and prints 2 or 4 pages onto one sheet of paper. 

Table 7-1 Copy feature options (continued)

Item	Description
Layout > ID Copy	prints one side of the original on the upper half of the paper and the other side on the lower half without reducing the size of the original. This feature is helpful for copying a small-sized item such as business card.
Adjust Bkgd.	Prints an image without its background. This copy feature removes the background color and can be helpful when copying an original containing color in the background, such as a newspaper or a catalog. • Off: Does not use this feature. • Auto: Optimizes the background. • Enhance Lev.1~2: The higher the number is, the more vivid the background is. • Erase Lev.1~4: The higher the number is, the lighter the background is.

Copy setup

NOTE: Some menus may not appear in the display depending on options or models. If so, it is not applicable to your machine (see Machine overview on page 10).

To change the menu options:

In copy mode, press Menu (≡) > Copy Setup on the control panel.

Table 7-2 Copy setup options

Item	Description
Change Default	Resets the value or setting to the printer's out-of-box state.
Change Default > Original Size	Improves the copy quality by selecting the document size for the current copy job.
Change Default > Copies	You can enter the number of copies using the number keypad.
Change Default > Collation	Set the machine to sort the copy job. For example, if you make 2 copies of a 3 page original, one complete 3 page document will print followed by a second complete document. • On: Prints output in sets to match the sequence of originals.  • Off: Prints output sorted into stacks of individual pages. 
Change Default > Reduce/ Enlarge	Reduces or enlarges the size of a copied image. NOTE: If the machine is set Eco mode, reduce and enlarge features are not available.

Table 7-2 Copy setup options (continued)

Item	Description
Change Default > Darkness	Adjusts the brightness level to make a copy that is easier to read, when the original contains faint markings and dark images.
Change Default > Original Type	Improves the copy quality by selecting the document type for the current copy job.

System setup settings

Learn machine setup, paper setup, sound volume, report, or maintenance options.

Machine setup

NOTE: Some menus may not appear in the display depending on options or models. If so, it is not applicable to your machine (see Menu overview on page 16).

To change the menu options:

Press Menu ☰ > System Setup > Machine Setup on the control panel.

Table 7-3 Machine setup options

Item	Description
Language	Sets the language of the text that appears on the control panel display.
Default Mode	Sets the default status.
Power Save	Sets how long the machine waits before going to power save mode. When the machine does not receive data for an extended period of time, power consumption is automatically lowered.
Wakeup Event	You can set the condition to wake up from power-save mode. • On: The machine wakes up from the power save mode on the following cases: – Pressing any button – Opening or closing the paper tray • Off: The machine wakes up from power save mode only when a button on the control panel is pressed.
System Timeout	Sets the time that the machine remembers previously used copy settings. After the timeout, the machine restores the default copy settings.
Job Timeout	Sets the length of time the printer waits before printing the last page of a print job that does not end with a command to print the page.
Altitude Adj.	Optimize print quality according to the machine's altitude.
Humidity	Optimizes print quality according to the humidity in the environment.

Table 7-3 Machine setup options (continued)

Item	Description
Auto Continue	Determine whether or not the machine continues printing when it detects the paper does not match the paper settings. • Off: If a paper mismatch occurs, the machine waits until you insert the correct paper. • After 0 Sec: Even though a paper mismatch occurs, the machine continues printing. • After 30 Sec: If a paper mismatch occurs, an error message will display. The machine waits for about 30 second, then automatically clear the message and continue printing.
Paper Substit.	Automatically substitutes the printer driver's paper size to prevent the paper mismatch between Letter and A4. For example, if you have A4 paper in the tray but you set the paper size to Letter in the printer driver, the machine prints on A4 paper and vice versa.
Toner Save	Activating this mode extends the life of your toner cartridge and reduces your cost per page beyond what one would experience in the normal mode, but it reduces print quality.

Paper setup

NOTE: Some menus may not appear in the display depending on options or models. If so, it is not applicable to your machine (see Menu overview on page 16).

To change the menu options:

Press Menu > System Setup > Paper Setup on the control panel.

Table 7-4 Paper setup options

Item	Description
Paper Size	Sets the paper size as A4, Letter, or other paper sizes, according to your requirements.
Paper Type	Chooses the type of the paper for each tray.
Margin	Sets the margins for the document.
Tray Confirm.	Activates the tray confirmation message. If you open and close a tray, a window opens asking you confirm the paper size and type. This message can be turned off if found to be annoying.

Report

NOTE: Some menus may not appear in the display depending on options or models. If so, it is not applicable to your machine (see Menu overview on page 16).

To change the menu options:

Press Menu > System Setup > Report on the control panel.

Table 7-5 Report options

Item	Description
Configuration	Prints a report on the machine's overall configuration.
Supplies Info.	Prints supplies' information page.

Table 7-5 Report options (continued)

Item	Description
Network Conf.	Prints information on your machine's network connection and configuration.
Usage Counter	Prints a usage page. The usage page contains the total number of pages printed.

Maintenance

NOTE: Some menus may not appear in the display depending on options or models. If so, it is not applicable to your machine (see Menu overview on page 16).

To change the menu options:

Press Menu > System Setup > Maintenance on the control panel.

Table 7-6 Maintenance options

Item	Description
CLR Empty Msg	When toner cartridge is empty, this option appears. You can clear the empty message.
Supplies Life	Shows the supply life indicators.
Image Mgr.	Allows you to adjust the color setting such as contrast level, color registration, color density, etc. Custom Color: adjusts contrast, color by color. • Default: optimizes colors automatically. • Print Density: allows you to manually adjust the color contrast for each cartridge. It is recommended to use the Default setting for best color quality.
Serial Number	Shows the machine's serial number. When you call for service or register as a user on the HP website, you can find this.
TonerLow Alert	Customizes the level to alert toner low or toner empty.

Network setup

Learn network setup options.

NOTE: Some menus may not appear in the display depending on options or models. If so, it is not applicable to your machine (see Menu overview on page 16).

To change the menu options:

Press Menu > Network on the control panel.

Table 7-7 Network setup options

Item	Description
TCP/IP (IPv4)	Selects the appropriate protocol and configure parameters to use the network environment. NOTE: There are many of parameters to be set. If you are not sure, leave as is, or consult the network administrator.

Table 7-7 Network setup options (continued)

Item	Description
TCP/IP (IPv6)	Selects this option to use the network environment through IPv6.
Ethernet	Configure the network transmission speed and active port.
Wi-Fi	Selects this option to use the Wi-Fi network.
Clear Settings	Reverts the network settings to the default values. (Reboot required.)
Network Conf.	This list shows information on your machine's network connection and configuration.
Protocol Mgr.	You can activate or deactivate the protocols.

8 Maintenance

This chapter provides information about purchasing supplies, accessories and maintenance parts available for your machine.

Order supplies and accessories

To order HP-authorized supplies, accessories, and maintenance parts, contact your local HP dealer or the retailer where you purchased your machine.

You can also visit https://store.hp.com, and then select your country/region to obtain the contact information for service.

NOTE: Available accessories may differ from country to country. Contact your sales representatives to obtain the list of available supplies, and maintenance parts.

Available supplies

When supplies reach the end of their life spans, you can order the following types of supplies for your machine:

Table 8-1 Toner cartridge information

Product name	Cartridge number	Product number	Region[a]	Printer compatibility
HP 168A Black Original Laser Toner Cartridge	168A	W1680A	China (Online / Offline)	MFP 115,116,117
HP W1680AC Black Contract Laser Toner Cartridge	-	W1680AC	China (Bidding)	MFP 112

Table 8-1 Toner cartridge information (continued)

Product name	Cartridge number	Product number	Region[a]	Printer compatibility
HP W1690AC Black Contract Laser Toner Cartridge	-	W1690AC	China (sMPS)	MFP 111

[a] When purchasing new toner cartridges or other supplies, these must be purchased in the same country as the machine you are using. Otherwise, new toner cartridges or other supplies will be incompatible with your machine due to different configurations of toner cartridges and other supplies according to the specific country conditions.

NOTE: Depending on the options, percentage of image area and job mode used, the toner cartridge's lifespan may differ.

CAUTION: HP does not recommend using non-genuine HP toner cartridge such as refilled or remanufactured toner. HP cannot guarantee non-genuine HP toner cartridge's quality. Service or repair required as a result of using non-genuine HP toner cartridges will not be covered under the machine's warranty.

Available maintenance parts

You need to replace the maintenance parts at specific intervals to keep the machine in the best condition and avoid print quality and paper feeding problems resulting from the worn-out parts.

Maintenance parts are mostly rollers, belts and pads. However, the replacement period and parts may differ depending on the model. Replacing maintenance parts can be performed only by an authorized service provider, dealer, or the retailer where you bought the machine. To purchase maintenance parts, contact the retailer where you bought the machine. The replacement period for the maintenance parts is informed by the "HP Printer Status" program. Or on the User Interface (UI) if your machine supports a display screen. The replacement period varies based on the operating system used, computing performance, application software, connecting method, paper type, paper size, and job complexity.

Store the toner cartridge

Toner cartridges contain components that are sensitive to light, temperature and humidity. HP suggests users follow these recommendations to ensure optimal performance, highest quality, and longest life from your new HP toner cartridge.

Store this cartridge in the same environment in which the printer will be used. This should be in controlled temperature and humidity conditions. The toner cartridge should remain in its original and unopened package until installation – if original packaging is not available, cover the top opening of the cartridge with paper and store in a dark cabinet.

Opening the cartridge package prior to use dramatically shortens its useful shelf and operating life. Do not store on the floor. If the toner cartridge is removed from the printer, follow the instructions below to store the toner cartridge properly.

- Store the cartridge inside the protective bag from the original package.
- Store lying flat (not standing on end) with the same side facing up as if it were installed in the machine.
- Do not store consumables in any of the following conditions:
  - Temperature greater than 40°C (104°F).

- Humidity range less than 20% or greater than 80%.
- An environment with extreme changes in humidity or temperature.
- Direct sunlight or room light.
- Dusty places.
- A car for a long period of time.
- An environment where corrosive gases are present.
- An environment with salty air.

Handling instructions

- Do not touch the surface of the photo conductive drum in the cartridge.
- Do not expose the cartridge to unnecessary vibrations or shock.
- Never manually rotate the drum, especially in the reverse direction; this can cause internal damage and toner spillage.

Toner cartridge usage

HP does not recommend or approve the use of non-HP brand toner cartridges in your printer including generic, store brand, refilled, or remanufactured toner cartridges.

NOTE: HP's printer warranty does not cover damage to the machine caused by the use of a refilled, remanufactured, or non-HP brand toner cartridges.

Estimated cartridge life

Estimated cartridge life (the life of the toner cartridge yield) depends on the amount of toner that print jobs require. The actual print yield may vary depending on the print density of the pages you print on, operating environment, percentage of image area, printing interval, media type and/or media size. For example, if you print a lot of graphics, the consumption of the toner is higher and you may need to change the cartridge more often.

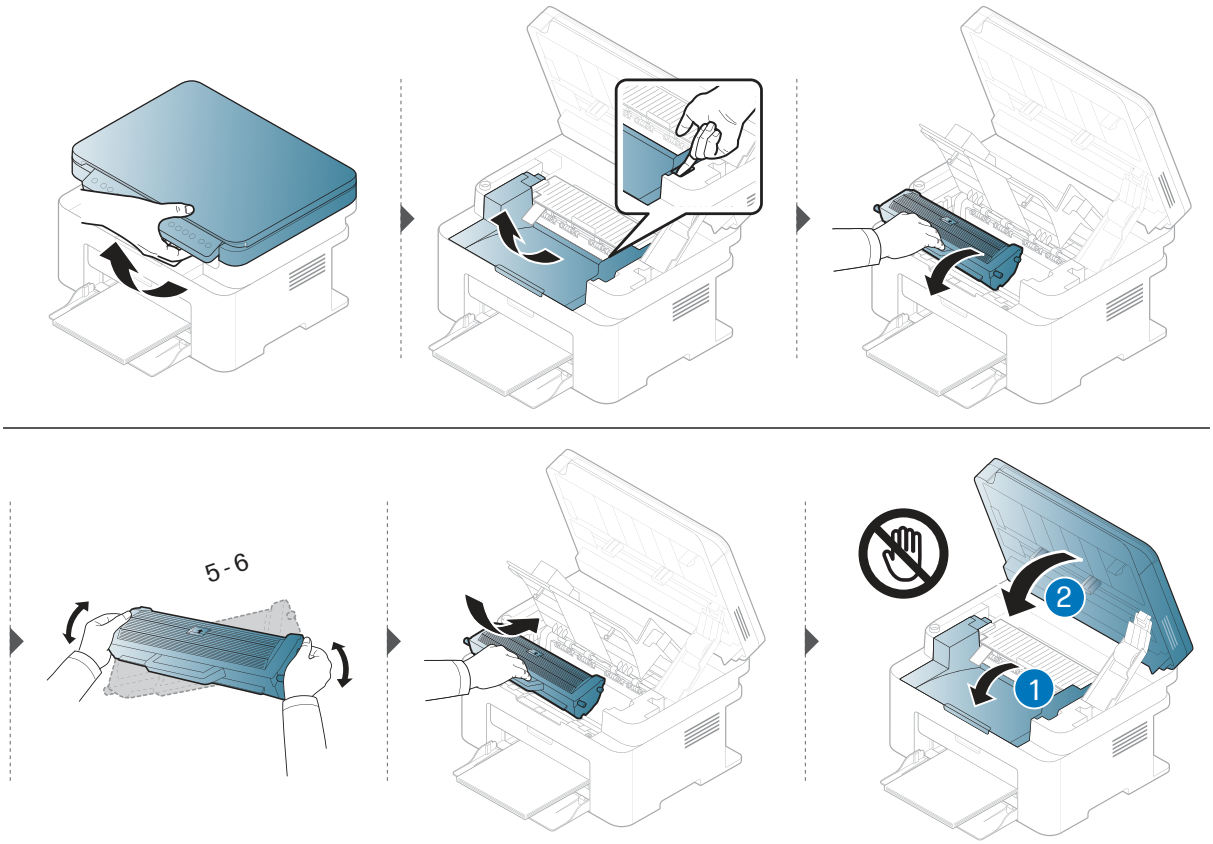
Redistribute toner

You can temporarily improve print quality by redistributing the remaining toner in the cartridge. In some cases, white streaks or light printing will still occur even after you have redistributed the toner.

NOTE: Illustrations in this user's guide may differ from your machine depending on the model and options installed. Check your machine type (see Machine overview on page 10).

CAUTION:

- To prevent damage to the toner cartridge, do not expose it to light for more than a few minutes. Cover it with a piece of paper, if necessary.
- Do not touch the green area of the toner cartridge. Use the handle on the cartridge to avoid touching this area.
- If toner gets on your clothing, wipe it off with a dry cloth and wash clothing in cold water. Hot water sets toner into fabric.



Replace the toner cartridge

When a toner cartridge approaches the end of useful life, you can continue printing with the current cartridge until redistributing the toner no longer yields acceptable print quality.

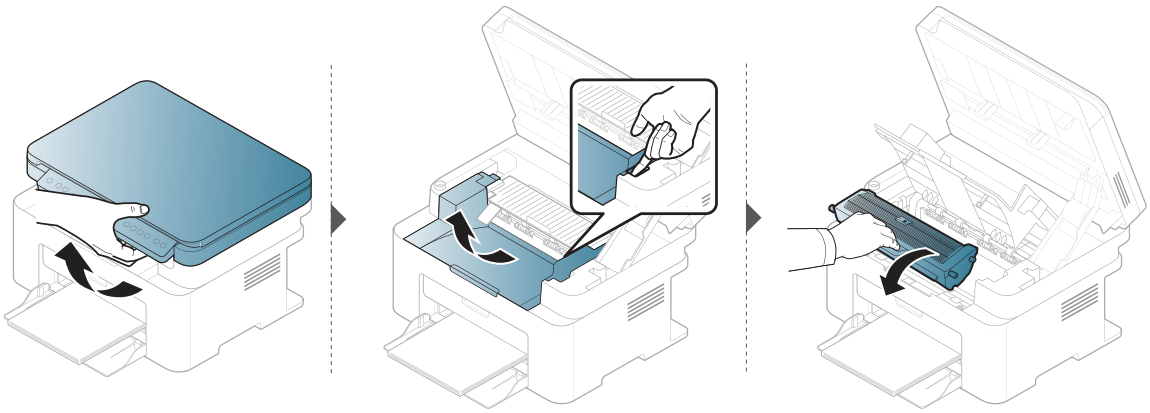
When the toner cartridge needs to be replaced, check the type of the toner cartridge for your machine (see Available supplies on page 71).

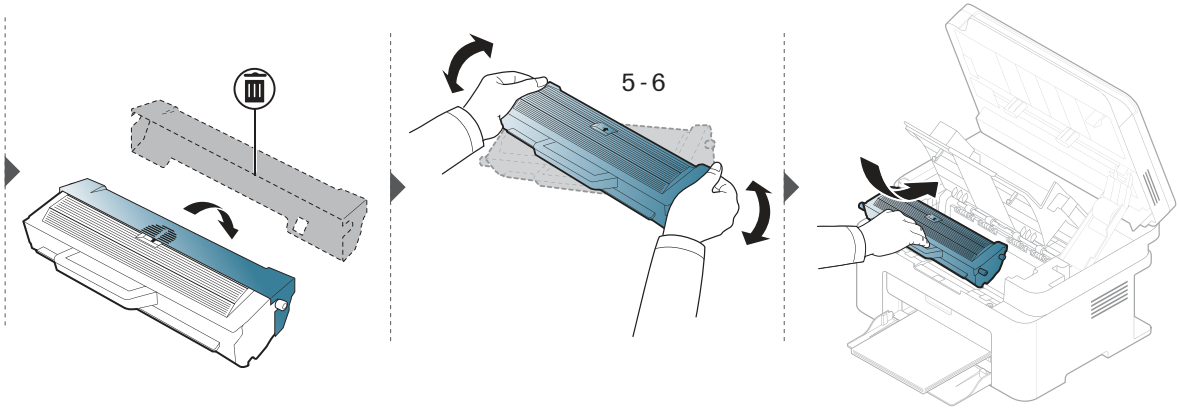
NOTE:

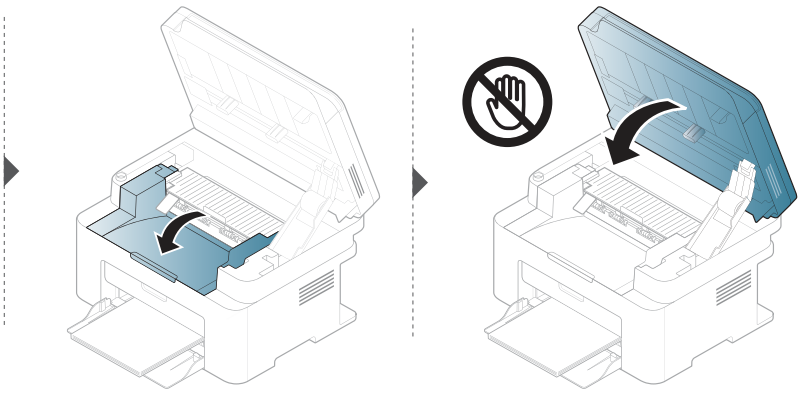
- Shake the toner cartridge thoroughly, it will increase the initial print quality.
- Illustrations in this user's guide may differ from your machine depending on the model and options installed. Check your machine type (see Machine overview on page 10).

CAUTION:

- To prevent damage to the toner cartridge, do not expose it to light for more than a few minutes. Cover it with a piece of paper, if necessary.
- Do not touch the green area of the toner cartridge. Use the handle on the cartridge to avoid touching this area.
- Do not use sharp objects such as a knife or scissors to open the toner cartridge package. They might scratch the drum of the cartridge.
- If toner gets on your clothing, wipe it off with a dry cloth and wash clothing in cold water. Hot water sets toner into fabric.







Monitor the supplies life

If you experience frequent paper jams or printing problems, check the number of pages the machine has printed or scanned. Replace the corresponding parts, if necessary.

1. Select Menu (≡) > System Setup > Report on the control panel.
2. Select the option you want and press OK.
   - Total: Displays the total number of pages printed.

- Platen Scan: Displays the number of pages scanned by using scanner glass.
- Supplies Info: Prints the supply information page.

3. Press Cancel (X) to return to ready mode.

Set the toner low alert

If the amount of toner in the cartridge is low, a message or LED informing the user to change the toner cartridge appears. You can set the option for whether or not this message or LED appears.

NOTE:

- Accessing menus may differ from model to model (see Menu overview on page 16).
- It may be necessary to press OK to navigate to lower-level menus for some models.

1. Select Menu (≡) > System Setup > Maintenance > Toner Low Alert on the control panel.
2. Select the option you want.
3. Press OK to save the selection.

Clean the machine

If printing quality problems occur or if you use your machine in a dusty environment, you need to clean your machine regularly to keep it in the best printing condition and use your machine longer.

CAUTION:

- Cleaning the cabinet of the machine with cleaning materials containing large amounts of alcohol, solvents, or other strong substances can discolor or distort the cabinet.
- If your machine or the surrounding area is contaminated with toner, we recommend you use a cloth or tissue dampened with water to clean it. If you use a vacuum cleaner, toner blows in the air and might be harmful to you.

Clean the outside or the display screen

Clean the machine cabinet or the display screen with a soft, lint-free cloth. Dampen the cloth slightly with water, but be careful not to let any water drip onto or into the machine.

Clean the inside

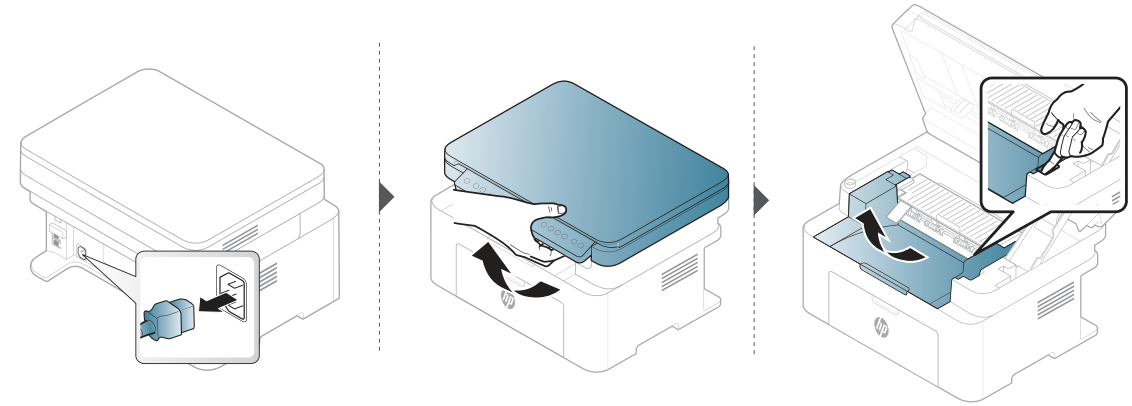
During the printing process, paper, toner, and dust particles can accumulate inside the machine. This buildup can cause print quality problems, such as toner specks or smearing. Cleaning the inside of the machine clears and reduces these problems.

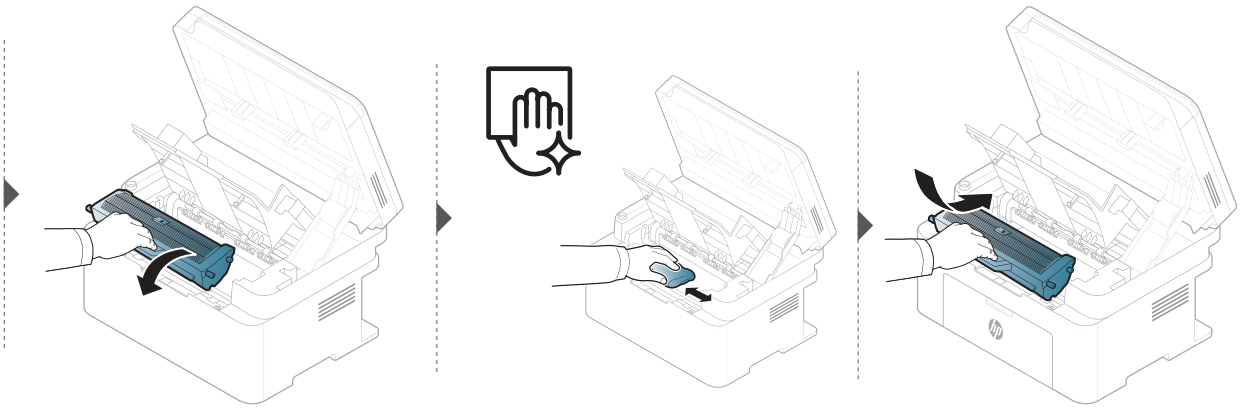
CAUTION:

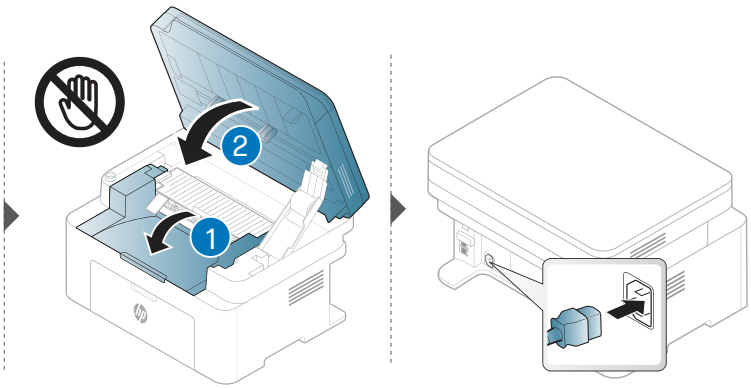
- To prevent damage to the toner cartridge, do not expose it to light for more than a few minutes. Cover it with a piece of paper, if necessary.
- Do not touch the green area of the toner cartridge. Use the handle on the cartridge to avoid touching this area.
- Use a dry lint free cloth when cleaning the inside of the machine, be careful not to damage the transfer roller or any other inside parts. Do not use solvents such as benzene or thinner. Printing quality problems can occur and cause damage to the machine.

NOTE:

- Use a dry lint-free cloth to clean the machine.
- Turn the machine off and unplug the power cord. Wait for the machine to cool down. If your machine has a power switch, turn the power switch off before cleaning the machine.
- Illustrations in this user's guide may differ from your machine depending on the model and options installed. Check your machine type (see Machine overview on page 10).



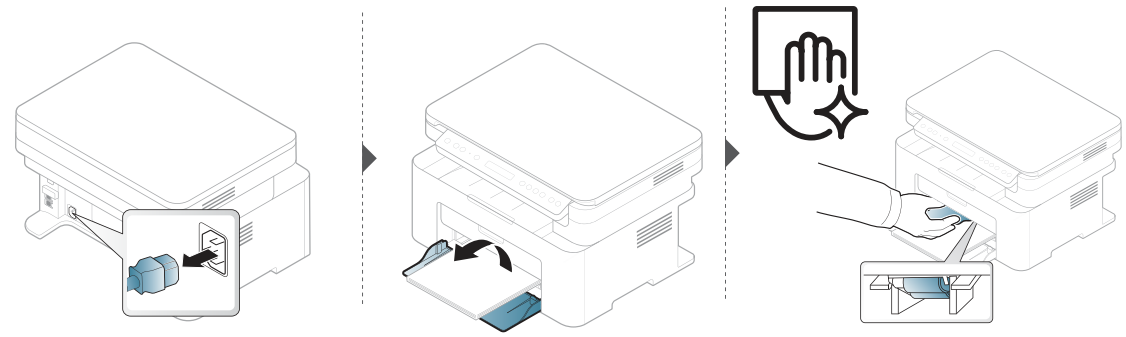


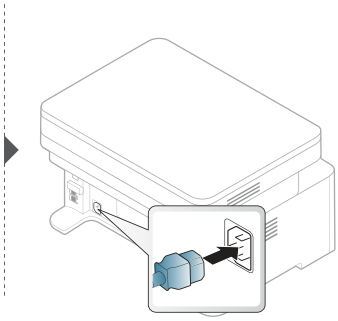


Clean the pickup roller

NOTE:

- Turn the machine off and unplug the power cord. Wait for the machine to cool down. If your machine has a power switch, turn the power switch off before cleaning the machine.
- Illustrations on this user's guide may differ from your machine depending on its options or models. Check your machine type (see Machine overview on page 10).





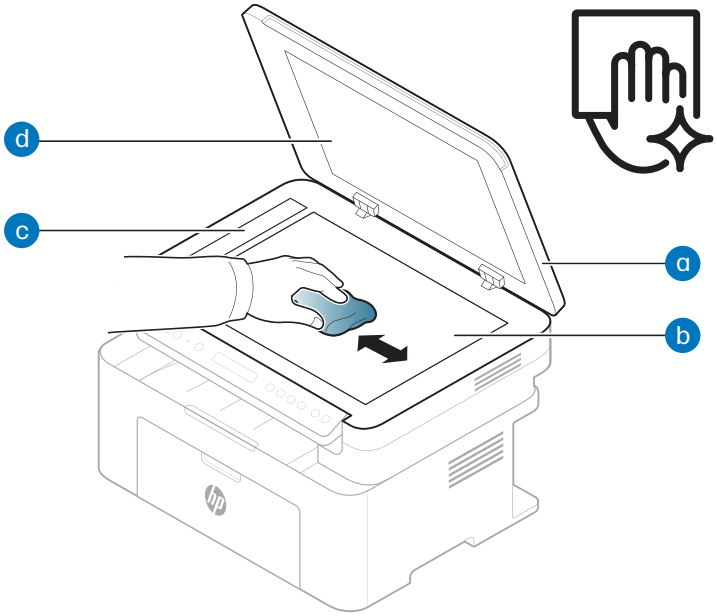
Clean the scanner

Keeping the scanner clean helps ensure the best possible copies. We suggest that you clean the scanner at the start of each day and during the day as needed.

NOTE:

- Turn the machine off and unplug the power cord. Wait for the machine to cool down. If your machine has a power switch, turn the power switch off before cleaning the machine.
- Illustrations on this user's guide may differ from your machine depending on its options or models. Check your machine type (see Machine overview on page 10).

1. Slightly dampen a soft, lint-free cloth or paper towel with water.
2. Lift and open the scanner lid.
3. Wipe the surface of the scanner until it is clean and dry.



a. Scanner lid

b. Scanner glass

c. Document feeder glass

d. White Sheet

4. Close the scanner lid.

9 Troubleshoot

This chapter gives helpful information for what to do if you encounter an error.

NOTE: If your machine has a display screen, check the message on the display screen first to solve the error.

Tips for avoiding paper jams

By selecting the correct media types, most paper jams can be avoided.

To avoid paper jams, refer to the following guidelines:

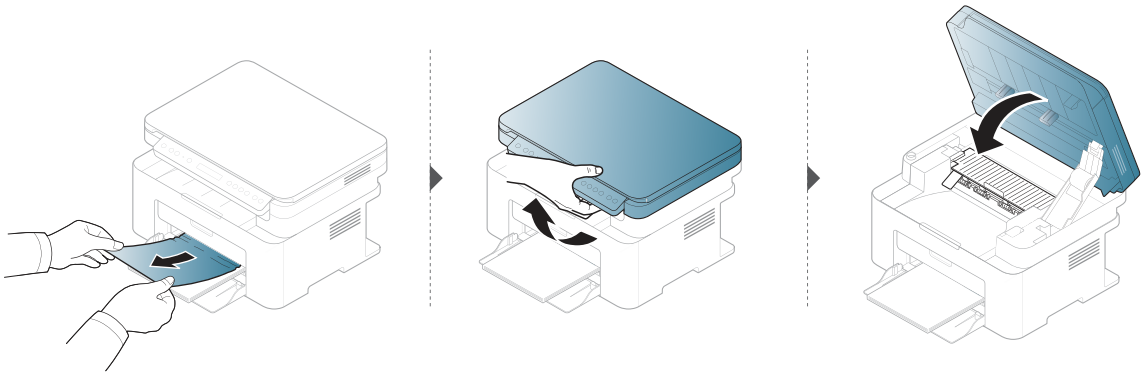
- Ensure that the adjustable guides are positioned correctly.
- Do not overload the tray. Ensure that the paper level is below the paper capacity mark on the inside of the tray.
- Do not remove paper from the tray while your machine is printing.
- Flex, fan, and straighten paper before loading.
- Do not use creased, damp, or highly curled paper.
- Do not mix paper types in a tray.
- Use only recommended print media (see Print media specifications on page 105).

Clear paper jams

Learn how to clear paper jams from the printer.

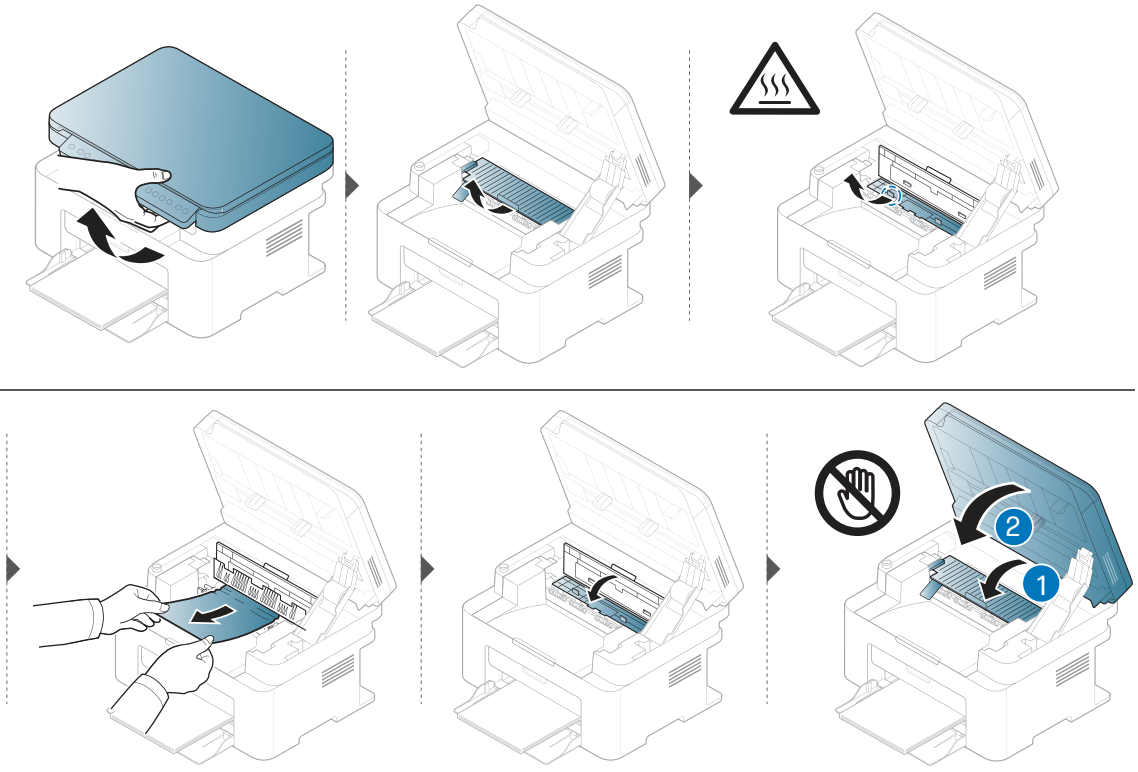
NOTE: To avoid tearing the paper, pull the jammed paper out slowly and gently.

In tray

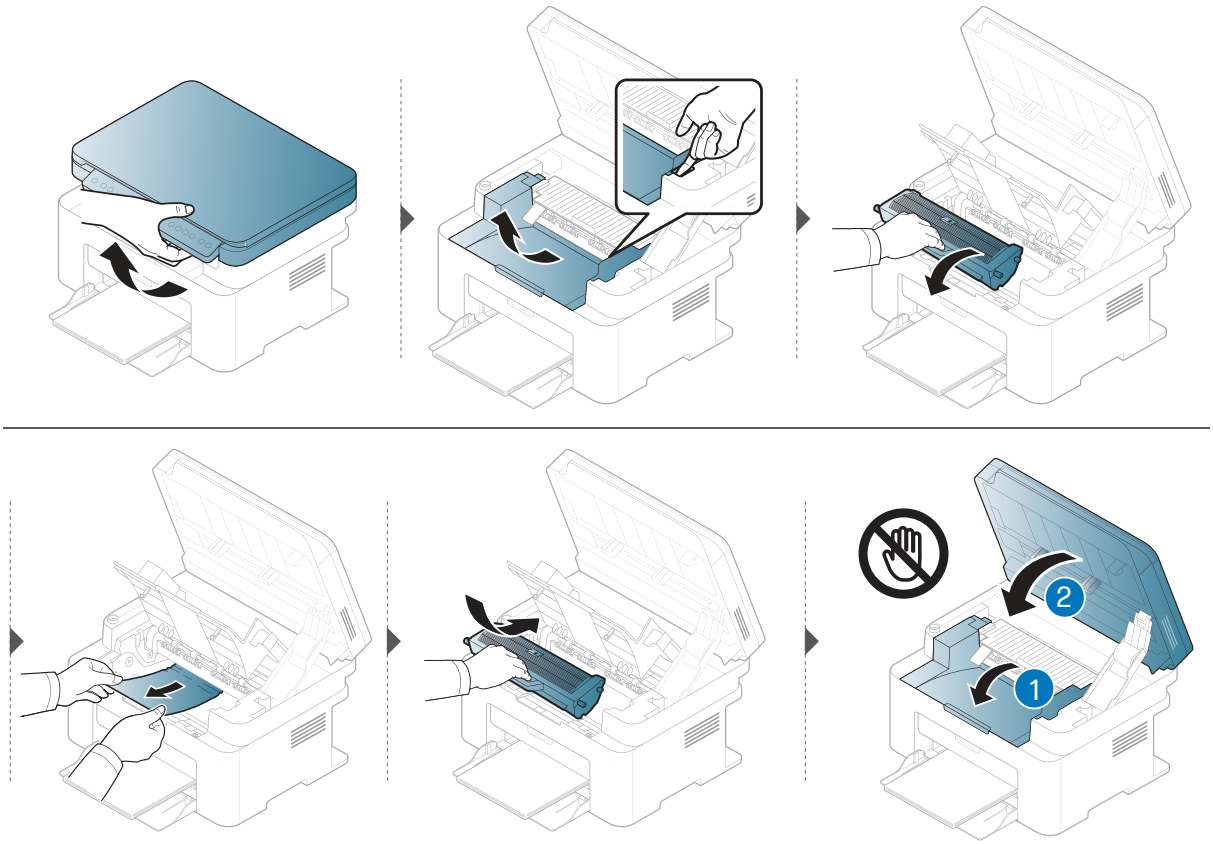


Inside the machine

NOTE: The fuser area is hot. Take care when removing paper from the machine.



If you do not see the paper in this area, stop and go to next step:



Understand the LEDs

The color of the LED indicates the machine's current behavior.

NOTE:

- Some LEDs may not be available depending on model or country.
- To resolve the error, look at the error message and its instructions from the troubleshooting part.
- If the problem persists, call a service representative.

Status LED

Table 9-1 Status LED color and behavior

Light color	Light behavior	Description
Dark	Off	The machine is off or normal status.
Green	On	• The machine is on-line and can be used. • Small amount of toner is left in the cartridge. The estimated cartridge life[a] of toner is close. Prepare a new cartridge for replacement. You may temporarily increase the printing quality by redistributing the toner[b].

Table 9-1 Status LED color and behavior (continued)

Light color	Light behavior	Description
Green	Blinking	When the machine is receiving or printing data, the backlight blinks.
Orange	On	The machine has stopped due to a major error.
Orange	Blinking	• A minor error has occurred and the machine is waiting for the error to be cleared. Check the display message. When the problem is cleared, the machine resumes. • The cover is opened. Close the cover. • There is no paper in the tray when receiving or printing data. Load paper in the tray. • A paper jam has occurred.

[a] Estimated cartridge life means the expected or estimated toner cartridge life, which indicates the average capacity of print-outs and is designed pursuant to ISO/IEC 19752. The number of pages may be affected by operating environment, percentage of image area, printing interval, graphics, media and media size. Some amount of toner may remain in the cartridge even when red LED is on and the printer stops printing.

[b] Some LEDs may not be available depending on model or country

Wireless LED

Table 9-2 Wireless LED color and behavior

Light color	Light behavior	Description
Blue	Blinking	The machine is connecting to a wireless network.
Blue	On	The machine is connected to a wireless network.
Dark	Off	The machine is disconnected from a wireless network.
White	Blinking	The machine is slow blinking in power save mode.
White	On	The machine is in ready mode.

Power LED

Table 9-3 Power LED color and behavior

Light color	Light behavior	Description
White	Blinking	The machine is slow blinking in power save mode.
White	On	The machine is in ready mode.

A “Low Toner” or “Very Low Toner” message appears in supplies information report

Understand “Low Toner” or “Very Low Toner” message displayed in the supplies information report

Low Toner: The printer indicates when a toner cartridge level is low. Actual cartridge life remaining may vary. Consider having a replacement available to install when print quality is no longer acceptable. The cartridge does not need to be replaced now.

Continue printing with the current cartridge until redistributing the toner no longer yields acceptable print quality. To redistribute the toner, remove the toner cartridge from the printer and gently rock the cartridge back and forth about its horizontal axis. For graphical representation, see cartridge replacement instructions. Reinsert the toner cartridge into the printer and close the cover.

Very Low Toner: The printer indicates when the Toner cartridge level is very low. Actual cartridge life remaining may vary. Consider having a replacement available to install when print quality is no longer acceptable. The cartridge does not need to be replaced now unless the print quality is no longer acceptable.

Once an HP toner cartridge has reached **Very Low Toner**, HP's Premium Protection Warranty on that toner cartridge has ended.

To print the supplies information report:

1. Select Menu ☰ > System Setup > Report > Supplies Info. on the control panel.
2. Press OK.

   The machine begins printing.

Understand display messages

Messages appear on the control panel display to indicate the machine's status or errors. Refer to the tables below to understand the messages' and their meaning, and correct the problem, if necessary.

NOTE:

- If a message is not in the table, reboot the power and try the printing job again. If the problem persists, call a service representative.
- When you call for service, provide the service representative with the contents of display message.
- Some messages may not appear depending on the model and options installed.
- [error number] indicates the error number.

Paper Jam related messages

Table 9-4 **Paper Jam related messages**

Message	Meaning	Suggested solutions
Paper Jam in tray	There is no paper in tray.	Clear the jam (see Clear paper jams on page 82).
Paper Jam inside machine	Paper has jammed in the inside machine.	Clear the jam (see Clear paper jams on page 82).

Toner related messages

Table 9-5 Toner related messages

Message	Meaning	Suggested solutions
Install toner cartridge	A toner cartridge is not installed.	Install a toner cartridge.
Error: #C2-1711 Cartridge Prob.	A toner cartridge is not installed.	Install a toner cartridge.
Error: #C2-1712 Cartridge Prob.	A toner cartridge cannot be controlled.	Reboot the power. If the problem persists, please call for service.
Incompatible Toner cartridge	The toner cartridge you have installed is not for your machine.	Install a HP-genuine toner cartridge, designed for your machine.
Cartridge Problem	The toner cartridge is not suitable for your machine.	Install the corresponding toner cartridge with a HP-genuine cartridge.
Low Toner	Small amount of toner is left in the indicated cartridge. The estimated cartridge life[a] of toner is close.	Prepare a new cartridge for a replacement. You may temporarily increase the printing quality by redistributing the toner (see Redistribute toner on page 73).
Very Low Toner	The indicated toner cartridge has almost reached its estimated cartridge life[a].	• You can choose **Stop** or **Continue** as shown on the control panel. If you select Stop, the printer stops printing and you cannot print any more without changing the cartridge. If you select **Continue**, the printer keeps printing but the printing quality cannot be guaranteed. • Replace the toner cartridge for the best print quality when this message appears. Using a cartridge beyond this stage can result in printing quality issues (see Replace the toner cartridge on page 74). **WARNING!** HP does not recommend using a non-genuine HP toner cartridge such as refilled or remanufactured. HP cannot guarantee a non-genuine HP toner cartridge's quality. Service or repair required as a result of using non-genuine HP toner cartridges will not be covered under the machine warranty.
Very Low Toner	The indicated toner cartridge has reached its estimated cartridge life[a]. The machine might stop printing.	Replace the toner cartridge (see Replace the toner cartridge on page 74).

[a] Estimated cartridge life means the expected or estimated toner cartridge life, which indicates the average capacity of print-outs and is designed pursuant to ISO/IEC 19752. The number of pages may be affected by operating environment, percentage of image area, printing interval, media, percentage of image area, and media size. Some amount of toner may remain in the cartridge even when replace new cartridge appears and the machine stops printing.

Tray related messages

Table 9-6 Tray related messages

Message	Meaning	Suggested solutions
Paper Empty in tray	There is no paper in tray.	Load paper in tray (see Load paper in the tray on page 24).

Table 9-6 Tray related messages (continued)

Message	Meaning	Suggested solutions
Tray 1 Paper Mismatch	The paper size specified in the printer properties does not match the paper you are loading.	Load the correct paper in the tray.

Network related messages

Table 9-7 Network related messages

Message	Meaning	Suggested solutions
Network Problem: IP Conflict	The network IP address you have set is being used by someone else.	Check the IP address and reset it if necessary (see Print a network configuration report on page 36).
#S6-3210	Wireless module is not installed.	Turn off then on.

Misc. messages

Table 9-8 Misc. messages

Message	Meaning	Suggested solutions
Door Open Close It	The cover is not securely latched.	Close the cover until it locks into place.
Error [error number] Turn off then on Error [error number] Call for service	The machine unit cannot be controlled.	Reboot the power and try the printing job again. If the problem persists, please call for service.
Scanner Locked	The scanner is locked.	Reboot the power. If the problem persists, please call for service.

Paper feeding problems

Learn how to solve paper feeding problems.

Table 9-9 Paper feeding problems

Condition	Suggested solutions
Paper jams during printing.	Clear the paper jam.
Paper sticks together.	• Check the maximum paper capacity of the tray. • Make sure that you are using the correct type of paper. • Remove paper from the tray and flex or fan the paper. • Humid conditions may cause some paper to stick together.
Multiple sheets of paper do not feed.	Different types of paper may be stacked in the tray. Load paper of only one type, size, and weight.

Table 9-9 Paper feeding problems (continued)

Condition	Suggested solutions
Paper does not feed into the machine.	• Remove any obstructions from inside the machine. • Paper has not been loaded correctly. Remove paper from the tray and reload it correctly. • There is too much paper in the tray. Remove excess paper from the tray. • The paper is too thick. Use only paper that meets the specifications required by the machine.
The paper keeps jamming.	• There is too much paper in the tray. Remove excess paper from the tray. • An incorrect type of paper is being used. Use only paper that meets the specifications required by the machine. • There may be debris inside the machine. Open the front cover and remove any debris.

Power and cable connecting problems

Reboot the power. If the problem persists, please call for service.

Table 9-10 Power and cable connecting problems

Condition	Suggested solutions
The machine is not receiving power, or the connection cable between the computer and the machine is not connected properly.	1. Connect the machine to the electricity supply first. 2. Check the USB cable or network cable in the machine's rear. 3. Disconnect the USB cable or network cable in the machine's rear and then, reconnect it.

Solve other problems

Learn how to solve printing, copying, scanning, faxing, or operating system problems.

Printing problems

Learn how to solve printing problems.

Condition: the machine does not print.

Table 9-11 **Possible cause and suggested solution**

Possible cause	Suggested solution
The machine is not receiving power.	Connect the machine to the electricity supply first. If the machine has a Power button on the control, press it.
The machine is not selected as the default machine.	Select your machine as your default machine in Windows.
The cover is not closed.	Close the cover.
Paper is jammed.	Clear the paper jam (see Clear paper jams on page 82).
No paper is loaded.	Load paper (see Load paper in the tray on page 24).
The toner cartridge is not installed.	Install the toner cartridge (see Replace the toner cartridge on page 74). Make sure the protect cover and sheets are removed from the toner cartridge (see Replace the toner cartridge on page 74).
A system error occurs	Contact your service representative.
The connection cable between the computer and the machine is not connected properly.	Disconnect the machine cable and reconnect it (see Machine overview on page 10).
The connection cable between the computer and the machine is defective.	If possible, attach the cable to another computer that is working properly and print a job. You can also try using a different machine cable.
The port setting is incorrect.	Check the Windows printer settings to make sure that the print job is sent to the correct port. If the computer has more than one port, make sure that the machine is attached to the correct one.
The machine may be configured incorrectly.	Check the **Printing Preferences** to ensure that all of the print settings are correct.
The printer driver may be incorrectly installed.	Uninstall and reinstall the machine's driver.
The machine is malfunctioning.	Check the display message on the control panel to see if the machine is indicating a system error. Contact a service representative.
The document size is so big that the hard disk space of the computer is insufficient to access the print job.	Get more hard disk space and print the document again.
The output tray is full.	Once the paper is removed from the output tray, the machine resumes printing.

Condition: The machine selects print materials from the wrong paper source.

Table 9-12 Possible cause and suggested solution

Possible cause	Suggested solution
The paper option that was selected in the **Printing Preferences** may be incorrect.	For many software applications, the paper source selection is found under the **Paper** tab within the Printing Preferences (see Open Printing Preferences on page 51). Select the correct paper source. See the printer driver help screen (see Use help on page 51).

Condition: A print job is extremely slow.

Table 9-13 Possible cause and suggested solution

Possible cause	Suggested solution
The job may be very complex.	Reduce the complexity of the page or try adjusting the print quality settings.

Condition: Half the page is blank.

Table 9-14 Possible cause and suggested solution

Possible cause	Suggested solution
The page orientation setting may be incorrect.	Change the page orientation in your application (see Open Printing Preferences on page 51). See the printer driver help screen (see Use help on page 51).
The paper size and the paper size settings do not match.	Ensure that the paper size in the printer driver settings matches the paper in the tray. Or, ensure that the paper size in the printer driver settings matches the paper selection in the software application settings you use (see Open Printing Preferences on page 51).

Condition: The machine prints, but the text is wrong, garbled, or incomplete.

Table 9-15 Possible cause and suggested solution

Possible cause	Suggested solution
The machine cable is loose or defective.	Disconnect the machine cable and reconnect. Try a print job that you have already printed successfully. If possible, attach the cable and the machine to another computer that you know works and try a print job. Finally, try a new machine cable.
The wrong printer driver was selected.	Check the application's printer selection menu to ensure that your machine is selected.
The software application is malfunctioning.	Try printing a job from another application.
The operating system is malfunctioning.	Exit Windows and reboot the computer. Turn the machine off and back on again.

Condition: Pages print, but they are blank.

Table 9-16 Possible cause and suggested solution

Possible cause	Suggested solution
The toner cartridge is defective or out of toner.	Redistribute the toner, if necessary. If necessary, replace the toner cartridge. • See Redistribute toner on page 73. • See Replace the toner cartridge on page 74.
The file may have blank pages.	Check the file to ensure that it does not contain blank pages.
Some parts, such as the controller or the board, may be defective.	Contact a service representative.

Condition: The machine does not print PDF files correctly. Some parts of graphics, text, or illustrations are missing.

Table 9-17 Possible cause and suggested solution

Possible cause	Suggested solution
Incompatibility between the PDF file and the Acrobat products.	Printing the PDF file as an image may enable the file to print. Turn on **Print As Image** from the Acrobat printing options. NOTE: It will take longer to print when you print a PDF file as an image.

Condition: The print quality of photos is not good. Images are not clear.

Table 9-18 Possible cause and suggested solution

Possible cause	Suggested solution
The resolution of the photo is very low.	Reduce the photo size. If you increase the photo size in the software application, the resolution will be reduced.

Condition: Before printing, the machine emits vapor near the output tray.

Table 9-19 Possible cause and suggested solution

Possible cause	Suggested solution
Using damp paper can cause vapor during printing.	This is not a problem. Just keep printing.

Condition: The machine does not print special-sized paper, such as billing paper.

Table 9-20 Possible cause and suggested solution

Possible cause	Suggested solution
Paper size and paper size setting do not match.	Set the correct paper size in the **Custom** in **Paper** tab in **Printing Preferences** (see Open Printing Preferences on page 51).

Condition: The printed billing paper is curled.

Table 9-21 **Possible cause and suggested solution**

Possible cause	Suggested solution
The paper type setting does not match.	Change the printer option and try again. Go to **Printing Preferences**, click the **Paper** tab, and set type to **Heavy 90-120 g** (see Open Printing Preferences on page 51).

Printing quality problems

If the inside of the machine is dirty or paper has been loaded improperly, there might be a reduction in print quality. See the table below to clear the problem.

Table 9-22 **Possible cause and suggested solutions**

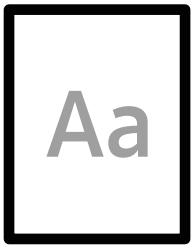
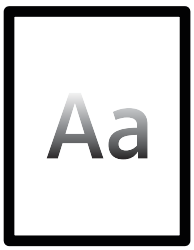
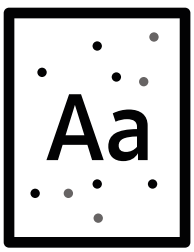
Condition	Suggested solutions
Light or faded print 	• If a vertical white streak or faded area appears on the page, the toner supply is low. Install a new toner cartridge (see Replace the toner cartridge on page 74). • If a vertical white streak or faded area still appears on the page even though the machine has enough toner supply, open and close the front door 3 ~ 4 times (see Machine overview on page 10). • The paper may not meet paper specifications; for example, the paper may be too moist or rough. • If the entire page is light, the print resolution setting is too low or the toner save mode is on. Adjust the print resolution and turn the toner save mode off. See the help screen of the printer driver. • A combination of faded or smeared defects may indicate that the toner cartridge needs cleaning. Clean the inside of your machine (see Clean the machine on page 77). • The surface of the LSU part inside the machine may be dirty. Clean the inside of your machine (see Clean the machine on page 77). If these steps do not correct the problem, contact a service representative.
The top half of the paper is printed lighter than the rest of the paper. 	The toner might not adhere properly to this type of paper. • Change the printer option and try again. Go to **Printing Preferences**, click the **Paper** tab, and set the paper type to **Recycled** (see Open Printing Preferences on page 51).
Toner specks 	• The paper may not meet specifications; for example, the paper may be too moist or rough. • The transfer roller may be dirty. Clean the inside of your machine (see Clean the machine on page 77). • The paper path may need cleaning. Contact a service representative (see Clean the machine on page 77).

Table 9-22 Possible cause and suggested solutions (continued)

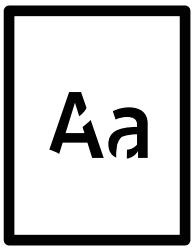
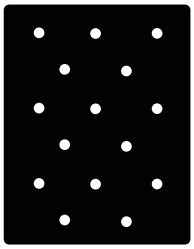
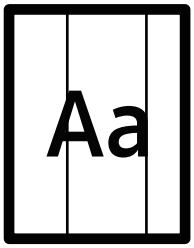
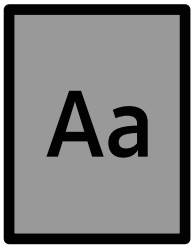
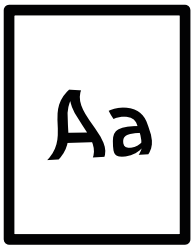
Condition	Suggested solutions
Dropouts 	If faded areas, generally rounded, occur randomly on the page: • A single sheet of paper may be defective. Try reprinting the job. • The moisture content of the paper is uneven or the paper has moist spots on its surface. Try a different brand of paper. • The paper lot is bad. The manufacturing processes can cause some areas to reject toner. Try a different kind or brand of paper. • Change the printer option and try again. Go to **Printing Preferences**, click the **Paper** tab, and set type to **Heavy 90-120 g** (see Open Printing Preferences on page 51). If these steps do not correct the problem, contact a service representative.
White Spots 	If white spots appear on the page: • The paper is too rough and a lot of dirt from paper falls to the inner components within the machine, so the transfer roller may be dirty. Clean the inside of your machine (see Clean the machine on page 77). • The paper path may need cleaning. Clean the inside of your machine (see Clean the machine on page 77). If these steps do not correct the problem, contact a service representative.
Vertical lines 	If black vertical streaks appear on the page: • The surface (drum part) of the toner cartridge inside the machine has probably been scratched. Remove the toner cartridge and install a new one (see Replace the toner cartridge on page 74). If white vertical streaks appear on the page: • The surface of the LSU part inside the machine may be dirty. Clean the inside of your machine (see Clean the machine on page 77). If these steps do not correct the problem, contact a service representative.
Black or color background 	If the amount of background shading becomes unacceptable: • Change to a lighter weight paper. • Check the environmental conditions: very dry conditions or a high level of humidity (higher than 80% RH) can increase the amount of background shading. • Remove the old toner cartridge and install a new one (see Replace the toner cartridge on page 74). • Thoroughly redistribute the toner (see Redistribute toner on page 73).
Toner smear 	• Clean the inside of the machine (see Clean the machine on page 77). • Check the paper type and quality. • Remove the toner cartridge and install a new one (see Replace the toner cartridge on page 74).

Table 9-22 Possible cause and suggested solutions (continued)

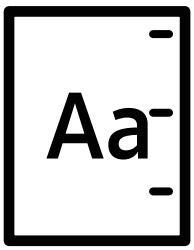
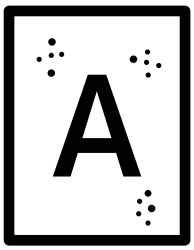
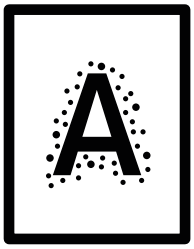
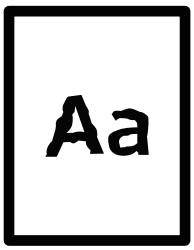
Condition	Suggested solutions
Vertical repetitive defects 	If marks repeatedly appear on the printed side of the page at even intervals: • The toner cartridge may be damaged. If you still have the same problem, remove the toner cartridge and, install a new one (see Replace the toner cartridge on page 74). • Parts of the machine may have toner on them. If the defects occur on the back of the page, the problem will likely correct itself after a few more pages. • The fusing assembly may be damaged. Contact a service representative.
Background scatter 	Background scatter results from bits of toner randomly distributed on the printed page. • The paper may be too damp. Try printing with a different batch of paper. Do not open packages of paper until necessary so that the paper does not absorb too much moisture. • If background scatter occurs on an envelope, change the printing layout to avoid printing over areas that have overlapping seams on the reverse side. Printing on seams can cause problems. Or select envelope size from the Printing Preferences window (see Open Printing Preferences on page 51). • If background scatter covers the entire surface area of a printed page, adjust the print resolution through your software application or in **Printing Preferences** (see Open Printing Preferences on page 51). Ensure the correct paper type is selected. For example: If **Heavy 90-120 g** is selected, but **Plain** is actually used, an overcharging can occur causing this copy quality problem. • If you are using a new toner cartridge, redistribute the toner first (see Redistribute toner on page 73).
Toner particles are around bold characters or pictures 	The toner might not adhere properly to this type of paper. • Change the printer option and try again. Go to **Printing Preferences**, click the **Paper** tab, and set the paper type to **Recycled** (see Open Printing Preferences on page 51). • Ensure the correct paper type is selected. For example: If **Thicker Paper** is selected, but Plain Paper actually used, an overcharging can occur causing this copy quality problem.
Misformed characters 	• If characters are improperly formed and producing hollow images, the paper stock may be too slick. Try different paper.

Table 9-22 Possible cause and suggested solutions (continued)

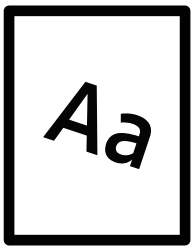
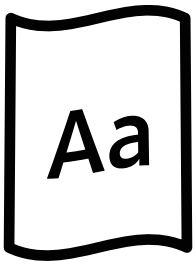
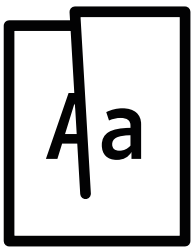
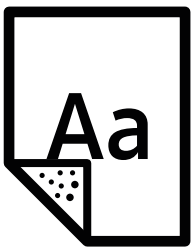
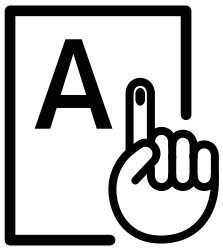
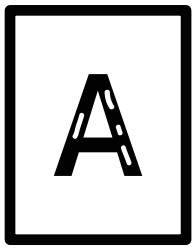
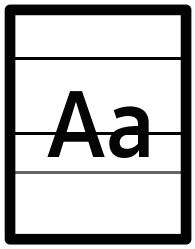
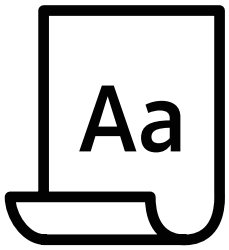
Condition	Suggested solutions
Page skew 	• Ensure that the paper is loaded properly. • Check the paper type and quality. • Ensure that the guides are not too tight or too loose against the paper stack.
Curl or wave 	• Ensure that the paper is loaded properly. • Check the paper type and quality. Both high temperature and humidity can cause paper curl. • Turn the stack of paper over in the tray. Also try rotating the paper 180° in the tray.
Wrinkles or creases 	• Ensure that the paper is loaded properly. • Check the paper type and quality. • Turn the stack of paper over in the tray. Also try rotating the paper 180° in the tray.
Back of printouts are dirty 	• Check for leaking toner. Clean the inside of the machine (see Clean the machine on page 77).
Solid color or black pages 	• The toner cartridge may not be installed properly. Remove the toner cartridge and reinsert it. • The toner cartridge may be defective. Remove the toner cartridge and install a new one (see Replace the toner cartridge on page 74). • The machine may require repairing. Contact a service representative.

Table 9-22 Possible cause and suggested solutions (continued)

Condition	Suggested solutions
Loose toner 	• Clean the inside of the machine (see Clean the machine on page 77). • Check the paper type and quality. • Remove the toner cartridge and then install a new one (see Replace the toner cartridge on page 74). If the problem persists, the machine may require repair. Contact a service representative.
Character voids 	Character voids are white areas within parts of characters that should be solid black: • You may be printing on the wrong surface of the paper. Remove the paper and turn it around. • The paper may not meet paper specifications.
Horizontal stripes 	If horizontally aligned black streaks or smears appear: • The toner cartridge may be installed improperly. Remove the toner cartridge and reinsert it. • The toner cartridge may be defective. Remove the toner cartridge and install a new one (see Replace the toner cartridge on page 74). If the problem persists, the machine may require repairing. Contact a service representative.
Curl 	If the printed paper is curled or paper does not feed into the machine: • Turn the stack of paper over in the tray. Also try rotating the paper 180° in the tray. • Change the printer's paper option and try again. Go to **Printing Preferences**, click the **Paper** tab, and set type to **Light 60-69 g** (see Open Printing Preferences on page 51).
• An unknown image repetitively appears on a few sheets • Loose toner • Light print or contamination occurs	Your machine is probably being used at an altitude of 1,000 m (3,281 ft) or above. The high altitude may affect the print quality, such as loose toner or light imaging. Change the altitude setting for your machine.

Copying problems

Learn how to solve copying problems.

Table 9-23 Possible cause and suggested solutions

Condition	Suggested solutions
Copies are too light or too dark.	Adjust the darkness in copy feature to lighten or darken the backgrounds of copies.
Smears, lines, marks, or spots appear on copies.	• If the defects are on the original, adjust darkness in copy feature to lighten the background of your copies. • Adjust background in copy setup removes the background color. • If there are no defects on the original, clean the scanner (see Clean the machine on page 77).
Copy image is skewed.	• Ensure that the original is aligned with the registration guide. • The transfer roller may be dirty. Clean the inside of your machine (see Clean the machine on page 77).
Blank copies print out.	Ensure that the original is face down on the scanner glass. If these steps do not correct the problem, contact a service representative.
Image rubs off the copy easily.	• Replace the paper in the tray with paper from a new package. • In high humidity areas, do not leave paper in the machine for extended periods of time.
Frequent copy paper jams occur.	• Fan the paper, then turn it over in the tray. Replace the paper in the tray with a fresh supply. Check/adjust the paper guides, if necessary. • Ensure that the paper is the proper type and weight (see Print media specifications on page 105). • Check for copy paper or pieces of copy paper remaining in the machine after a paper jam has been cleared.
Toner cartridge produces fewer copies than expected before running out of toner.	• Your originals may contain pictures, solids, or heavy lines. For example, your originals may be forms, newsletters, books, or other documents that use more toner. • The scanner lid may be left open while copies are being made. • Turn the machine off and back on.

Scanning problems

Learn how to solve scanning problems.

Table 9-24 Possible cause and suggested solutions

Condition	Suggested solutions
The scanner does not work.	• Make sure that you place the original to be scanned face down on the scanner glass (see Load originals on page 32). • There may not be enough available memory to hold the document you want to scan. Try the Prescan function to see if that works. Try lowering the scan resolution rate. • Check that the machine printer cable is connected properly. • Make sure that the machine printer cable is not defective. Switch the printer cable with a known good cable. If necessary, replace the printer cable. • Check that the scanner is configured correctly. Check scan setting in the application you want to use to make certain that the scanner job is being sent to the correct port (for example, USB001).
The unit scans very slowly.	• Check if the machine is printing received data. If so, scan the document after the received data has been printed. • Graphics are scanned more slowly than text.
Message appears on your computer screen: • Device can't be set to the H/W mode you want. • Port is being used by another program. • Port is disabled. • Scanner is busy receiving or printing data. When the current job is completed, try again. • Invalid handle. • Scanning has failed.	• There may be a copying or printing job in progress. Try your job again when that job is finished. • The selected port is currently being used. Restart your computer and try again. • The machine printer cable may be improperly connected or the power may be off. • The scanner driver is not installed or the operating environment is not set up properly. • Ensure that the machine is properly connected and the power is on, then restart your computer. • The USB cable may be improperly connected or the power may be off.

Operating system problems

Learn how to solve operating system problems.

Common Windows problems

Table 9-25 Possible cause and suggested solutions

Condition	Suggested solutions
"File in Use" message appears during installation.	Exit all software applications. Remove all software from the startup group, then restart Windows. Reinstall the printer driver.
"General Protection Fault", "Exception OE", "Spool 32", or "Illegal Operation" messages appear.	Close all other applications, reboot Windows and try printing again.

Table 9-25 Possible cause and suggested solutions (continued)

Condition	Suggested solutions
"Fail To Print", "A printer timeout error occurred" message appear.	These messages may appear during printing. Just keep waiting until the machine finishes printing. If the message appears in ready mode or after printing has completed, check the connection and/or whether an error has occurred.
Machine information is not displayed when you click the device in **Devices and Printers**.	Check **Printer properties**. Click the **Ports** tab. (**Control Panel** > **Devices and Printers** > Right-click on your printer icon and select **Printer properties**) If the port is set to **File** or **LPT**, uncheck them and select **TCP/IP**, **USB**, or **WSD**.

NOTE: Refer to the Microsoft Windows User's Guide that came with your computer for further information on Windows error messages.

Solve wireless network problems

Use the troubleshooting information to help resolve issues.

NOTE: To determine if Wi-Fi Direct printing is enabled on your printer, print network configuration page from the printer control panel

Wireless connectivity checklist

The following checklist can help you to locate wireless network problems.

- Verify that the printer and the wireless router are turned on and have power. Also make sure that the wireless radio in the printer is turned on.
- Verify that the service set identifier (SSID) is correct. Print a network configuration page to determine the SSID (see Print a network configuration report on page 36).
- With secured networks, verify that the security information is correct. If the security information is incorrect, run the wireless setup again.
- If the wireless network is working correctly, try accessing other computers on the wireless network. If the network has Internet access, try connecting to the Internet over a wireless connection.
- Verify that the encryption method (AES or TKIP) is the same for the printer as it is for the wireless access point (on networks using WPA security).
- Verify that the printer is within the range of the wireless network. For most networks, the printer must be within 30 m (100 ft) of the wireless access point (wireless router).
- Verify that obstacles do not block the wireless signal. Remove any large metal objects between the access point and the printer. Make sure poles, walls, or support columns containing metal or concrete do not separate the printer and wireless access point
- Verify that the printer is located away from electronic devices that might interfere with the wireless signal. Many devices can interfere with the wireless signal including motors, cordless phones, security system cameras, other wireless networks, and some Bluetooth devices.
- Verify that the print driver is installed on the computer.
- Verify that you have selected the correct printer port.
- Verify that the computer and printer connect to the same wireless network.
- For OS X, verify that the wireless router supports Bonjour.

The printer does not print after the wireless configuration completes

1. Make sure that the printer is turned on and in the ready state.
2. Turn off any third-party firewalls on your computer.
3. Make sure that the wireless network is working correctly.
4. Make sure that your computer is working correctly. If necessary, restart the computer.
5. Verify that you can open the printer HP Embedded Web Server from a computer on the network.

The printer does not print, and the computer has a third-party firewall installed

1. Update the firewall with the most recent update available from the manufacturer.
2. If programs request firewall access when you install the printer or try to print, make sure you allow the programs to run.
3. Temporarily turn off the firewall, and then install the wireless printer on the computer. Enable the firewall when you have completed the wireless installation.

The wireless connection does not work after moving the wireless router or printer

1. Make sure that the router or printer connects to the same network that your computer connects to.
2. Print network configuration page.
3. Compare the service set identifier (SSID) on the configuration page to the SSID in the printer configuration for the computer.
4. If the numbers are not the same, the devices are not connecting to the same network. Reconfigure the wireless setup for the printer.

Cannot connect more computers to the wireless printer

1. Make sure that the other computers are within the wireless range and that no obstacles block the signal. For most networks, the wireless range is within 30 m (100 ft) of the wireless access point.
2. Make sure that the printer is turned on and in the ready state.
3. Make sure there are not more than 5 concurrent Wi-Fi Direct users.
4. Turn off any third-party firewalls on your computer.
5. Make sure that the wireless network is working correctly.
6. Make sure that your computer is working correctly. If necessary, restart the computer.

The wireless printer loses communication when connected to a VPN

- Typically, you cannot connect to a VPN and other networks at the same time.

The network does not appear in the wireless networks list

- Make sure the wireless router is turned on and has power.
- The network might be hidden. However, you can still connect to a hidden network.

The wireless network is not functioning

1. To verify if the network has lost communication, try connecting other devices to the network.
2. Test network communication by pinging the network.
   a. Open a command-line prompt on your computer.
      - For Windows, click **Start**, click **Run**, type `cmd`, and then press **Enter**.

- For OS X, go to **Applications**, then **Utilities**, and open **Terminal**.

b. Type `ping` followed by the router IP address.

c. If the window displays round-trip times, the network is working.

3. Make sure that the router or printer connects to the same network that the computer connects to.

   a. Print a configuration page (see Print a network configuration report on page 36).

   b. Compare the service set identifier (SSID) on the configuration report to the SSID in the printer configuration for the computer.

   c. If the SSID are not the same, the devices are not connecting to the same network. Reconfigure the wireless setup for the printer.

Perform a wireless network diagnostic test

From the printer control panel, you can run a diagnostic test that provides information about the wireless network settings (see Print a network configuration report on page 36).

A General specifications

Review general specifications for the printer.

NOTE: The specification values listed below are subject to change without notice. See support.hp.com for possible changes in information.

Table A-1 Dimension specification

Model	Dimension[a] (Width x Length x Height)
MFP 111nw, 112a, 115a, 115w, 115nw, 116w, 117w	406 x 359.6x 253 mm (15.98 x 14.16 x 9.96 inches)

[a] Dimensions are measured without a handset and other accessories.

Table A-2 Weight specification

Model	Weight[a] (Machine with consumables)
MFP 111nw, 112a, 115a, 115w, 115nw, 116w, 117w	7.3 Kg (16.09 lbs)

[a] Weight is measured without a handset and other accessories.

Table A-3 Temperature and humidity specifications

Item	Temperature	Humidity
Operation	10 to 32°C (50 to 89.6°F)	20 to 80% RH
Storage (packed)	-20 to 40°C (-4 to 104°F)	10 to 90% RH

Table A-4 Power rating specification

Model[a]	Description
110 volt models	AC 110 - 127 V
220 volt models	AC 220 - 240 V

[a] See the rating label on the machine for the correct voltage (V), frequency (hertz) and of current (A) for your machine.

B Print media specifications

Use print media that meets these specifications.

Table B-1 Print media weight and tray capacity

Type	Print media weight / tray capacity[a]
Plain	70 to 89 g/m2 (19 to 24 lbs bond) 150 sheets of 80 g/m2 (21 lbs bond)
Envelope	75 to 90 g/m2 (20 to 24 lbs bond) 10 sheets
Heavy 90-120 g	90 to 120 g/m2 (24 to 32 lbs bond) 50 sheets of 120 g/m2 (32 lbs bond)
Light 60-69 g	60 to 69 g/m2 (16 to 18 lbs bond) 160 sheets of 60 g/m2 (16 lbs bond)
Colored	75 to 90 g/m2 (20 to 24 lbs bond) 150 sheets of 80 g/m2 (21 lbs bond)
Preprinted	75 to 90 g/m2 (20 to 24 lbs bond) 150 sheets of 80 g/m2 (21 lbs bond)
Recycled	60 to 90 g/m2 (16 to 24 lbs bond) 150 sheets of 80 g/m2 (21 lbs bond)
Labels[b]	120 to 150 g/m2 (32 to 40 lbs bond) 10 sheets
Extra-Heavy	121 to 163 g/m2 (32 to 43 lbs bond) 10 sheets
Bond	105 to 120 g/m2 (28 to 32 lbs bond) 10 sheets

Table B-1 Print media weight and tray capacity (continued)

Type	Print media weight / tray capacity[a]
Custom	60 to 163 g/m2 (16 to 43 lbs bond)

[a] Maximum capacity may differ depending on media weight, thickness, and environmental conditions.
[b] The smoothness of the labels used in this machine is 100 to 250 (Sheffield). This means the numeric level of smoothness.

Table B-2 Print media size

Size	Dimensions
Letter	216 x 279 mm (8.5 x 11 inches)
Legal	216 x 356 mm (8.5 x 14 inches)
Oficio 216 x 340 mm	216 x 343 mm (8.5 x 13.5 inches)
Oficio 8.5 x 13	216 x 330 mm (8.5 x 13 inches)
A4	210 x 297 mm (8.27 x 11.69 inches)
B5(JIS)	182 x 257 mm (7.17 x 10.12 inches)
Executive	184 x 267 mm (7.25 x 10.5 inches)
A5	148 x 210 mm (5.85 x 8.27 inches)
A5 LEF	210 x 148 mm (8.27 x 5.85 inches)
Envelope Monarch	98 x 191 mm (3.87 x 7.5 inches)
Envelope #10	105 x 241 mm (4.12 x 9.5 inches)
Envelope DL	110 x 220 mm (4.33 x 8.66 inches)
Envelope C5	162 x 229 mm (6.38 x 9.02 inches)
Minimum size (custom)	76 x 127 mm (3 x 5 inches)
Maximum size (custom)	216 x 356 mm (8.5 x 14 bond)

C System requirements

Before installing printer software, make sure your computer meets these system requirements.

NOTE: Printer software is occasionally updated due to release of new operating system and etc. If needed, download the latest version from the HP website support.hp.com.

Microsoft® Windows®

Table C-1 System requirements for Windows

Operating system	Printer software
Windows 10, 32-bit and 64-bit Windows 11, 32-bit and 64-bit	The HP V4 printer-specific print driver is installed for this operating system as part of the software installation.
Windows Server 2016, 64-bit Windows Server 2019, 64-bit	The HP printer-specific print driver is installed for this operating system as part of the software installation.

Mac OS

Direct printing using Apple's AirPrint is supported for iOS and from Mac computers running OS X 10.7 Lion and newer. Use AirPrint to print directly to the printer from an iPad, iPhone (3GS or later), or iPod touch (third generation or later) in the mobile applications (Mail, Photos, Safari, iBooks, Select third-party applications).

NOTE:

- Check the box your machine came in for the "XXXX" mark. If so, you can print directly from Mac OS.
- AirPrint allows you to print directly from Mac OS. The USB-only models without wired or Wi-Fi network functionality do not support Mac OS.
- To use AirPrint, the printer must be connected to the same network (sub-net) as the Apple device.
- Before using AirPrint with a USB connection, verify the version number. AirPrint versions 1.3 and earlier do not support USB connections.

Glossary

802.11

802.11 is a set of standards for wireless local area network (WLAN) communication, developed by the IEEE LAN/MAN Standards Committee (IEEE 802).

802.11b/g/n

802.11b/g/n can share same hardware and use the 2.4 GHz band. 802.11b supports bandwidth up to 11 Mbps, 802.11n supports bandwidth up to 150 Mbps. 802.11b/g/n devices may occasionally suffer interference from microwave ovens, cordless telephones, and Bluetooth devices.

Access point

Access Point or Wireless Access Point (AP or WAP) is a device that connects wireless communication devices together on wireless local area networks (WLAN), and acts as a central transmitter and receiver of WLAN radio signals.

ADF

An Automatic Document Feeder (ADF) is a scanning unit that will automatically feed an original sheet of paper so that the machine can scan some amount of the paper at once.

AppleTalk

AppleTalk is a proprietary suite of protocols developed by Apple, Inc for computer networking. It was included in the original Mac (1984) and is now deprecated by Apple in favor of TCP/IP networking.

BIT Depth

A computer graphics term describing the number of bits used to represent the color of a single pixel in a bitmapped image. Higher color depth gives a broader range of distinct colors. As the number of bits increases, the number of possible colors becomes impractically large for a color map. 1-bit color is commonly called as monochrome or black and white.

BMP

A bitmapped graphics format used internally by the Microsoft Windows graphics subsystem (GDI), and used commonly as a simple graphics file format on that platform.

BOOTP

Bootstrap Protocol. A network protocol used by a network client to obtain its IP address automatically. This is usually done in the bootstrap process of computers or operating systems running on them. The BOOTP servers assign the IP address from a pool of addresses to each client. BOOTP enables 'diskless workstation' computers to obtain an IP address prior to loading any advanced operating system.

CCD

Charge Coupled Device (CCD) is a hardware which enables the scan job. CCD Locking mechanism is also used to hold the CCD module to prevent any damage when you move the machine.

Collation

Collation is a process of printing a multiple-copy job in sets. When collation is selected, the device prints an entire set before printing additional copies.

Control Panel

A control panel is a flat, typically vertical, area where control or monitoring instruments are displayed. They are typically found in front of the machine.

Coverage

It is the printing term used for a toner usage measurement on printing. For example, 5% coverage means that an A4 sided paper has about 5% image or text on it. So, if the paper or original has complicated images or lots of text on it, the coverage will be higher and at the same time, a toner usage will be as much as the coverage.

CSV

Comma Separated Values (CSV). A type of file format, CSV is used to exchange data between disparate applications. The file format, as it is used in Microsoft Excel, has become a de facto standard throughout the industry, even among non-Microsoft platforms.

DADF

A Duplex Automatic Document Feeder (DADF) is a scanning unit that will automatically feed and turn over an original sheet of paper so that the machine can scan on both sides of the paper.

Default

The value or setting that is in effect when taking a printer out of its box state, reset, or initialized.

DHCP

A Dynamic Host Configuration Protocol (DHCP) is a client-server networking protocol. A DHCP server provides configuration parameters specific to the DHCP client host requesting, generally, information required by the client host to participate on an IP network. DHCP also provides a mechanism for allocation of IP addresses to client hosts.

DIMM

Dual Inline Memory Module (DIMM), a small circuit board that holds memory. DIMM stores all the data within the machine like printing data, received fax data.

DLNA

The Digital Living Network Alliance (DLNA) is a standard that allows devices on a home network to share information with each other across the network.

DNS

The Domain Name Server (DNS) is a system that stores information associated with domain names in a distributed database on networks, such as the Internet.

Dot Matrix Printer

A dot matrix printer refers to a type of computer printer with a print head that runs back and forth on the page and prints by impact, striking an ink-soaked cloth ribbon against the paper, much like a typewriter.

DPI

Dots Per Inch (DPI) is a measurement of resolution that is used for scanning and printing. Generally, higher DPI results in a higher resolution, more visible detail in the image, and a larger file size.

DRPD

Distinctive Ring Pattern Detection. Distinctive Ring is a telephone company service which enables a user to use a single telephone line to answer several different telephone numbers.

Duplex

A mechanism that will turn over a sheet of paper so that the machine can print (or scan) on both sides of the paper. A printer equipped with a Duplex Unit can print on both sides of paper during one print cycle.

Duty Cycle

Duty cycle is the page quantity which does not affect printer performance for a month. Generally the printer has the lifespan limitation such as pages per year. The lifespan means the average capacity of print-outs, usually within the warranty period. For example, if the duty cycle is 48,000 pages per month assuming 20 working days, a printer limits 2,400 pages a day.

ECM

Error Correction Mode (ECM) is an optional transmission mode built into Class 1 fax machines or fax modems. It automatically detects and corrects errors in the fax transmission process that are sometimes caused by telephone line noise.

Emulation

Emulation is a technique of one machine obtaining the same results as another.

An emulator duplicates the functions of one system with a different system, so that the second system behaves like the first system. Emulation focuses on exact reproduction of external behavior, which is in contrast to simulation, which concerns an abstract model of the system being simulated, often considering its internal state.

Ethernet

Ethernet is a frame-based computer networking technology for local area networks (LANs). It defines wiring and signaling for the physical layer, and frame formats and protocols for the media access control (MAC)/data link layer of the OSI model. Ethernet is mostly standardized as IEEE 802.3. It has become the most widespread LAN technology in use during the 1990s to the present.

EtherTalk

A suite of protocols developed by Apple Computer for computer networking. It was included in the original Mac (1984) and is now deprecated by Apple in favor of TCP/IP networking.

FDI

Foreign Device Interface (FDI) is a card installed inside the machine to allow a third party device such as a coin operated device or a card reader. Those devices allow the pay-for-print service on your machine.

FTP

A File Transfer Protocol (FTP) is a commonly used protocol for exchanging files over any network that supports the TCP/IP protocol (such as the Internet or an intranet).

Fuser Unit

The part of a laser printer that fuses the toner onto the print media. It consists of a heat roller and a pressure roller. After toner is transferred onto the paper, the fuser unit applies heat and pressure to ensure that the toner stays on the paper permanently, which is why paper is warm when it comes out of a laser printer.

Gateway

A connection between computer networks, or between a computer network and a telephone line. It is very popular, as it is a computer or a network that allows access to another computer or network.

Grayscale

A shade of gray that represent light and dark portions of an image when color images are converted to grayscale; colors are represented by various shades of gray.

Halftone

An image type that simulates grayscale by varying the number of dots. Highly colored areas consist of a large number of dots, while lighter areas consist of a smaller number of dots.

HDD

Hard Disk Drive (HDD), commonly referred to as a hard drive or hard disk, is a non-volatile storage device which stores digitally-encoded data on rapidly rotating platters with magnetic surfaces.

IEEE

The Institute of Electrical and Electronics Engineers (IEEE) is an international non-profit, professional organization for the advancement of technology related to electricity.

IEEE 1284

The 1284 parallel port standard was developed by the Institute of Electrical and Electronics Engineers (IEEE). The term "1284-B" refers to a specific connector type on the end of the parallel cable that attaches to the peripheral (for example, a printer).

Intranet

A private network that uses Internet Protocols, network connectivity, and possibly the public telecommunication system to securely share part of an organization's information or operations with its employees. Sometimes the term refers only to the most visible service, the internal website.

IP address

An Internet Protocol (IP) address is a unique number that devices use in order to identify and communicate with each other on a network utilizing the Internet Protocol standard.

IPM

The Images Per Minute (IPM) is a way of measuring the speed of a printer. An IPM rate indicates the number of single-sided sheets a printer can complete within one minute.

IPP

The Internet Printing Protocol (IPP) defines a standard protocol for printing as well as managing print jobs, media size, resolution, and so forth. IPP can be used locally or over the Internet to hundreds of printers, and also supports access control, authentication, and encryption, making it a much more capable and secure printing solution than older ones.

IPX/SPX

IPX/SPX stands for Internet Packet Exchange/Sequenced Packet Exchange. It is a networking protocol used by the Novell NetWare operating systems. IPX and SPX both provide connection services similar to TCP/IP, with the IPX protocol having similarities to IP, and SPX having similarities to TCP. IPX/SPX was primarily designed for local area networks (LANs), and is a very efficient protocol for this purpose (typically its performance exceeds that of TCP/IP on a LAN).

ISO

The International Organization for Standardization (ISO) is an international standard-setting body composed of representatives from national standards bodies. It produces world-wide industrial and commercial standards.

ITU-T

The International Telecommunication Union is an international organization established to standardize and regulate international radio and telecommunications. Its main tasks include standardization, allocation of the radio spectrum, and organizing interconnection arrangements between different countries to allow international phone calls. A -T out of ITU-T indicates telecommunication.

ITU-T No. 1 chart

Standardized test chart published by ITU-T for document facsimile transmissions.

JBIG

Joint Bi-level Image Experts Group (JBIG) is an image compression standard with no loss of accuracy or quality, which was designed for compression of binary images, particularly for faxes, but can also be used on other images.

JPEG

Joint Photographic Experts Group (JPEG) is a most commonly used standard method of lossy compression for photographic images. It is the format used for storing and transmitting photographs on the World Wide Web.

LDAP

The Lightweight Directory Access Protocol (LDAP) is a networking protocol for querying and modifying directory services running over TCP/IP.

LED

A Light-Emitting Diode (LED) is a semiconductor device that indicates the status of a machine.

MAC address

Media Access Control (MAC) address is a unique identifier associated with a network adapter. MAC address is a unique 48-bit identifier usually written as 12 hexadecimal characters grouped in pairs (e. g., 00-00-0c-34-11-4e). This address is usually hard-coded into a Network Interface Card (NIC) by its manufacturer, and used as an aid for routers trying to locate machines on large networks.

MFP

Multi Function Peripheral (MFP) is an office machine that includes the following functionality in one physical body, so as to have a printer, a copier, a fax, a scanner and etc.

MH

Modified Huffman (MH) is a compression method for decreasing the amount of data that needs to be transmitted between the fax machines to transfer the image recommended by ITU-T T.4. MH is a codebook-based run-length encoding scheme optimized to efficiently compress white space. As most faxes consist mostly of white space, this minimizes the transmission time of most faxes.

MMR

Modified Modified READ (MMR) is a compression method recommended by ITU-T T.6.

Modem

A device that modulates a carrier signal to encode digital information, and also demodulates such a carrier signal to decode transmitted information.

MR

Modified Read (MR) is a compression method recommended by ITU-T T.4. MR encodes the first scanned line using MH. The next line is compared to the first, the differences determined, and then the differences are encoded and transmitted.

NetWare

A network operating system developed by Novell, Inc. It initially used cooperative multitasking to run various services on a PC, and the network protocols were based on the archetypal Xerox XNS stack. Today NetWare supports TCP/IP as well as IPX/SPX.

OPC

Organic Photo Conductor (OPC) is a mechanism that makes a virtual image for print using a laser beam emitted from a laser printer, and it is usually green or rust colored and has a cylinder shape. A toner cartridge containing a drum slowly wears the drum surface by its usage in the printer, and it should be replaced appropriately since it gets worn from contact with the cartridge development brush, cleaning mechanism, and paper.

Originals

The first example of something, such as a document, photograph or text, etc., which is copied, reproduced or translated to produce others, but which is not itself copied or derived from something else.

OSI

Open Systems Interconnection (OSI) is a model developed by the International Organization for Standardization (ISO) for communications. OSI offers a standard, modular approach to network design that divides the required set of complex functions into manageable, self-contained, functional layers. The layers are, from top to bottom, Application, Presentation, Session, Transport, Network, Data Link and Physical.

PABX

A private automatic branch exchange (PABX) is an automatic telephone switching system within a private enterprise.

PCL

Printer Command Language (PCL) is a Page Description Language (PDL) developed by HP as a printer protocol and has become an industry standard. Originally developed for early inkjet printers, PCL has been released in varying levels for thermal, dot matrix printer, and laser printers.

PDF

Portable Document Format (PDF) is a proprietary file format developed by Adobe Systems for representing two dimensional documents in a device independent and resolution independent format.

PostScript

PostScript (PS) is a page description language and programming language used primarily in the electronic and desktop publishing areas. - that is run in an interpreter to generate an image.

PPM

Pages Per Minute (PPM) is a method of measurement for determining how fast a printer works, meaning the number of pages a printer can produce in one minute.

Print Media

The media like paper, envelopes, labels, and transparencies which can be used in a printer, a scanner, a fax or, a copier.

Printer Driver

A program used to send commands and transfer data from the computer to the printer.

PRN file

An interface for a device driver, this allows software to interact with the device driver using standard input/output system calls, which simplifies many tasks.

Protocol

A convention or standard that controls or enables the connection, communication, and data transfer between two computing endpoints.

PS

See PostScript.

PSTN

The Public-Switched Telephone Network (PSTN) is the network of the world's public circuit-switched telephone networks which, on industrial premises, is usually routed through the switchboard.

RADIUS

Remote Authentication Dial In User Service (RADIUS) is a protocol for remote user authentication and accounting. RADIUS enables centralized management of authentication data such as usernames and passwords using an AAA (authentication, authorization, and accounting) concept to manage network access.

Resolution

The sharpness of an image, measured in Dots Per Inch (DPI). The higher the dpi, the greater the resolution.

SMB

Server Message Block (SMB) is a network protocol mainly applied to share files, printers, serial ports, and miscellaneous communications between nodes on a network. It also provides an authenticated Inter-process communication mechanism.

SMTP

Simple Mail Transfer Protocol (SMTP) is the standard for e-mail transmissions across the Internet. SMTP is a relatively simple, text-based protocol, where one or more recipients of a message are specified, and then the message text is transferred. It is a client-server protocol, where the client transmits an email message to the server.

SSID

Service Set Identifier (SSID) is a name of a wireless local area network (WLAN). All wireless devices in a WLAN use the same SSID in order to communicate with each other. The SSIDs are case-sensitive and have a maximum length of 32 characters.

Subnet Mask

The subnet mask is used in conjunction with the network address to determine which part of the address is the network address and which part is the host address.

TCP/IP

The Transmission Control Protocol (TCP) and the Internet Protocol (IP); the set of communications protocols that implement the protocol stack on which the Internet and most commercial networks run.

TCR

Transmission Confirmation Report (TCR) provides details of each transmission such as job status, transmission result and number of pages sent. This report can be set to print after each job or only after failed transmissions.

TIFF

Tagged Image File Format (TIFF) is a variable-resolution bitmapped image format. TIFF describes image data that typically come from scanners. TIFF images make use of tags, keywords defining the characteristics of the image that is included in the file. This flexible and platform-independent format can be used for pictures that have been made by various image processing applications.

Toner Cartridge

A kind of bottle or container used in a machine like a printer which contains toner. Toner is a powder used in laser printers and photocopiers, which forms the text and images on the printed paper. Toner can be fused by a combination of heat/pressure from the fuser, causing it to bind to the fibers in the paper.

TWAIN

An industry standard for scanners and software. By using a TWAIN-compliant scanner with a TWAIN-compliant program, a scan can be initiated from within the program. It is an image capture API for Microsoft Windows and Apple Mac operating systems.

UNC Path

Uniform Naming Convention (UNC) is a standard way to access network shares in Window NT and other Microsoft products. The format of a UNC path is: \\<servername>\<sharename>\<Additional directory>.

URL

Uniform Resource Locator (URL) is the global address of documents and resources on the Internet. The first part of the address indicates what protocol to use, the second part specifies the IP address or the domain name where the resource is located.

USB

Universal Serial Bus (USB) is a standard that was developed by the USB Implementers Forum, Inc., to connect computers and peripherals. Unlike the parallel port, USB is designed to concurrently connect a single computer USB port to multiple peripherals.

Watermark

A watermark is a recognizable image or pattern in paper that appears lighter when viewed by transmitted light. Watermarks were first introduced in Bologna, Italy in 1282; they have been used by papermakers to identify their product, and also on postage stamps, currency, and other government documents to discourage counterfeiting.

WEP

Wired Equivalent Privacy (WEP) is a security protocol specified in IEEE 802.11 to provide the same level of security as that of a wired LAN. WEP provides security by encrypting data over radio so that it is protected as it is transmitted from one end point to another.

WIA

Windows Imaging Architecture (WIA) is an imaging architecture that is originally introduced in Windows Me and Windows XP. A scan can be initiated from within these operating systems by using a WIA-compliant scanner.

WPA

Wi-Fi Protected Access (WPA) is a class of systems to secure wireless (Wi-Fi) computer networks, which was created to improve upon the security features of WEP.

WPA-PSK

WPA-PSK (WPA Pre-Shared Key) is special mode of WPA for small business or home users. A shared key, or password, is configured in the wireless access point (WAP) and any wireless laptop or desktop devices. WPA-PSK generates a unique key for each session between a wireless client and the associated WAP for more advanced security.

WPS

The Wi-Fi Protected Setup (WPS) is a standard for establishing a wireless home network. If your wireless access point supports WPS, you can configure the wireless network connection easily without a computer.

XPS

XML Paper Specification (XPS) is a specification for a Page Description Language (PDL) and a new document format, which has benefits for portable document and electronic document, developed by Microsoft. It is an XML-based specification, based on a new print path and a vector-based device-independent document format.

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