HP LaserJet Enterprise M406, M407, MFP M430, MFP M431, Managed E40040, Managed MFP E42540 - Image-quality troubleshooting

Learn about image-quality troubleshooting.

Use the information in this topic to troubleshoot and resolve image-quality (what you see on the final printed page) problems including copy-quality, print-quality, and color problems (color printers only).

Various printer hardware problems can cause image-quality defects. This topic is a guide to the steps used to isolate the specific areas of the printer that are causing image-quality defects on the printed page, and to provide solutions to resolve those image-quality defects.

Image-quality problems are defined as:

- **Print-quality (PQ) problems** : PQ problems are associated with the print engine (printer base) of an MFP printer (single function non MFP image-quality problems are always PQ defects). PQ defects appear on pages that are **printed** by the print engine and not fed through an integrated scanner assembly (ISA).
- **Copy-quality (CQ) problems** : CQ problems are associated with the integrated-scanner assembly (ISA) portion of an MFP printer. CQ defects appear on pages that are **copied** using the document feeder or flatbed glass.

If the print defect is already known to be a PQ or CQ problem, skip to the appropriate troubleshooting topic listed below. Otherwise, follow the steps in the next section below to get started troubleshooting image-quality problems.

- **Print-quality (PQ) problems** : See Print-quality troubleshooting.
- **Copy-quality (CQ) problems** : See Copy-quality troubleshooting.

Get started troubleshooting image-quality problems

Print a demonstration page to identify the defect as a PQ (print engine) or CQ (ISA) problem.

 NOTE:
If the image defect appears on the printed demonstration page, the issue is a print-quality (PQ) problem (associated with the print engine and not the document feeder or flatbed glass) and not a CQ problem.

Make sure that the demonstration page is printed on **plain paper** .

ENTERPRISE PRINTERS

1. Select **Reports** > **Other pages**.
2. Select Demonstration Page.

PRO PRINTERS

1. At the printer, scroll to or select Setup.
2. Go to Reports, and then select Demonstration Page.

DOES THE DEMONSTRATION PAGE SHOW ANY IMAGE-QUALITY DEFECTS?

- **Yes**: If defects appear on the printed demonstration page the issue is PQ related. See [Print-quality troubleshooting](#).
- **No**: If defects does not appear on the printed demonstration page the issue is CQ related. See [Copy-quality troubleshooting](#).

Print-quality troubleshooting

Learn about the print-quality troubleshooting.

 NOTE:

Print-quality (PQ) problems are associated with the print engine (printer base) of an MFP printer (single function non MFP image-quality problems are always PQ defects). PQ defects appear on pages that are **printed** by the print engine and not feed through an integrated scanner assembly (ISA).

Repetitive image defect ruler

Review the following information about a repetitive image defect ruler.

When troubleshooting the source of some print image defects, one solution is to identify if it is a repetitive defect (does the print quality defect appear multiple times on the printed page?). If this is the case, use a ruler to measure occurrences of repetitive image defects to help solve image-quality problems. For more information, see Using a ruler to measure between repetitive defects.

Use a ruler to measure occurrences of repetitive image defects to help solve image-quality problems. Place the ruler next to the first occurrence of the defect on the page. Find the distance between identical defects and use the table below to identify the component that is causing the defect.

 CAUTION:

Do not use solvents or oils to clean rollers. Instead, rub the roller with a lint-free cloth. If dirt is difficult to remove, rub the roller with a lint-free cloth that has been dampened with water.

NOTE:

The primary charging roller, photosensitive drum, and developer roller cannot be cleaned because they are internal assemblies in the toner cartridge or imaging drum. If one of these assemblies is causing the defect, replace the toner cartridge.

The primary fuser sleeve unit or pressure roller cannot be cleaned because they are internal assemblies in the fuser. If one of these assemblies is causing the defect, replace the fuse

TIP:

To make a printer specific repetitive defect ruler, use a metric ruler to transfer the measurements in the table below to a transparency or the edge of a piece of paper—clearly label each ruler mark with the associated defective assembly.

REPETITIVE DEFECTS

Assembly	Distance between defects
Primary charging roller	28 mm 1.10 in
Developer roller	31 mm 1.22 in
Transfer roller	39 mm 1.54 in

REPETITIVE DEFECTS

Assembly	Distance between defects
Registration roller	43 mm 1.69 in
Cassette separation roller	44 mm 1.73 in
Cassette pickup or feed roller	50 mm 1.97 in
Fuser film	57 mm 2.24 in
Pressure roller	63 mm 2.48 in
Photosensitive drum	75 mm 2.95 in

Use a ruler to measure between repetitive defects

The figures in this section show color repetitive defect pages. However, the process for measuring repetitive defects is valid for mono pages.

1. Identify a repetitive defect on the page.

    TIP:
    Print a cleaning page to see if that resolves the defect.

    NOTE:
    Some printers allow loading Letter and A4 media in short-edge-first or long-edge-first orientation in the paper trays. When measuring repetitive defects, make sure to place the ruler at the leading edge of the page. This is the edge of the page that feeds into the printer first.

    The example pages below show the following types of repetitive defects.
    - o   Lines (callout 1)
    - o   Smudges (callout 2)
    - o   Dots or spots (callout 3)

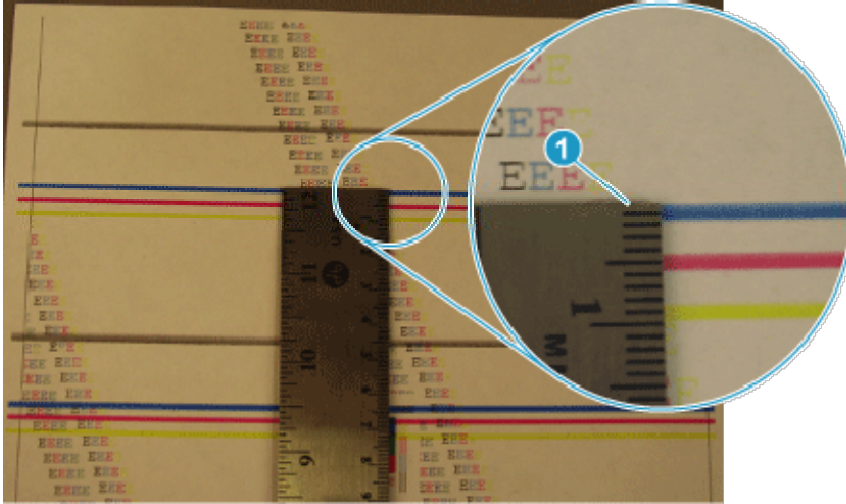   EXAMPLES OF REPETITIVE DEFECTS
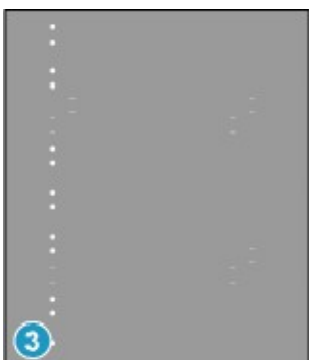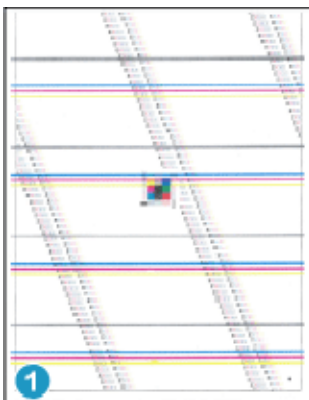
    NOTE:
    These are examples only, other types of repetitive defects might appear on a page.

2. Position a metric ruler on the page with the "zero" ruler mark at one occurrence of the defect (callout 1).

PLACE THE RULER ON THE PAGE

3. Locate the next occurrence of the defect (callout 1).
   LOCATE THE NEXT REPETITIVE DEFECT

4. Measure the distance (in millimeters) between the two occurrences (callout 1), and
   then use the Repetitive defects table to determine the defective assembly.
   TIP:
   Always measure from and to the same point on the defects. For example, if the ruler
   is "zeroed" at the top edge of a defect, measure to the top edge of the next
   occurrence of that defect.

   DETERMINE THE DEFECTIVE ASSEMBLY
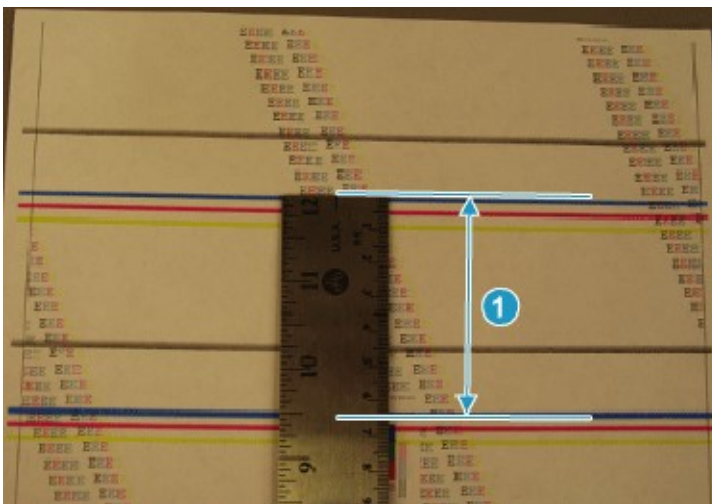
Print from a different software program

Try printing from a different software program.

If the page prints correctly, the problem is with the software program from which you were printing.

Check the paper-type setting for the print job

Check the paper type setting when printing from a software program and the printed pages have smears, fuzzy or dark print, curled paper, scattered dots of toner, loose toner, or small areas of missing toner.

Check the paper type setting on the control panel

Check the paper type setting on the printer control panel, and change the setting as needed.

1. Open and close the paper tray.
2. Follow the control panel prompts to confirm or modify the paper type and size settings for the tray.
3. Make sure the paper loaded meets specifications.
4. Adjust the humidity and resistance setting on the control panel to match the environment.
   a. Open the following menus:
      i. Settings
      ii. Copy/Print
      iii. Print quality
      iv. Adjust paper type
   b. Select the paper type that matches the type loaded in the tray.
   c. Use the arrows to increase or decrease the humidity and resistance setting.
5. Make sure the driver settings match the control panel settings.
   NOTE:
   The print driver settings will override any control panel settings.

Check the paper type setting (Windows)

Check the paper type setting for Windows, and change the setting as needed.

 NOTE:
The print driver settings will override any control panel settings.

1. From the software program, select the **Print** option.
2. Select the printer, and then click the **Properties** or **Preferences** button.
3. Click the **Paper/Quality** tab.
4. From the **Paper Type** drop-down list, click the **More…** option.
5. Expand the list of **Type is**: options.

6. Expand the category of paper types that best describes your paper.
7. Select the option for the type of paper you are using, and click the **OK** button.
8. Click the **OK** button to close the **Document Properties** dialog box. In the **Print** dialog box, click the **OK** button to print the job.

Check the paper type setting (macOS)

Check the paper type setting for macOS, and change the setting as needed.

1. Click the **File** menu, and then click the **Print** option.
2. In the **Printer** menu, select the printer.
3. Click **Show Details** or **Copies & Pages**.
4. Open the menus drop-down list, and then click the **Paper/Quality** menu.
5. Select a type from the **Media Type** drop-down list.
6. Click the **Print** button.

Check toner-cartridge status

Follow these steps to check the estimated life remaining in the toner cartridges and if applicable, the status of other replaceable maintenance parts.

Step one: Print the Supplies Status Page

The supplies status page indicates the cartridge status.

1. From the Home screen on the printer control panel, select the Reports menu.
2. Select the Configuration/Status Pages menu.
3. Select Supplies Status Page, and then select Print to print the page.

Step two: Check supplies status

Check the supplies status report as follows.

1. Look at the supplies status report to check the percent of life remaining for the toner cartridges and, if applicable, the status of other replaceable maintenance parts.
   Print quality problems can occur when using a toner cartridge that is at its estimated end of life. The supplies status page indicates when a supply level is very low. After an HP supply has reached the very low threshold, HP's premium protection warranty on that supply has ended.
   The toner cartridge does not need to be replaced now unless the print quality is no longer acceptable. Consider having a replacement available to install when print quality is no longer acceptable.
   If you determine that you need to replace a toner cartridge or other replaceable maintenance parts, the supplies status page lists the genuine HP part numbers.

2. Check to see if you are using a genuine HP cartridge.
   A genuine HP toner cartridge has the word "HP" on it, or has the HP logo on it. For more information on identifying HP cartridges go to www.hp.com/go/learnaboutsupplies.

Print a cleaning page

Learn how to print a cleaning page.

Print a cleaning page from a non-touchscreen control panel

1. From the Home screen on the printer control panel, use the arrow keys to navigate to Support Tools, and then press the OK button.
2. Use the arrow buttons to scroll to Maintenance, and then press the OK button.
3. Use the arrow buttons to scroll to Calibration/Cleaning, and then press the OK button.
4. Use the arrow buttons to scroll to Cleaning page, and then press the OK button.

   TIP:
   Use this screen to set up automatic cleaning page intervals if desired.

5. Use the arrow buttons to scroll to Print (at the bottom of the control-panel display), and then press the OK button to print the cleaning page.

   NOTE:
   A **Cleaning…** message displays on the control-panel display. Do not turn the printer off until the cleaning process has finished. When it is finished, discard the printed page.

Print a cleaning page from a touchscreen control panel

1. From the Home screen on the printer control panel, scroll to and touch the Support Tools button.
2. Open the following menus:
   o Maintenance
   o Calibration/Cleaning
3. Touch Cleaning Page, and then touch the Print button to print the cleaning page.

   NOTE:
   A **Cleaning…** message displays on the control-panel display. Do not turn the printer off until the cleaning process has finished. When it is finished, discard the printed page.

   TIP:
   Use this screen to set up automatic cleaning page intervals if desired.

Check paper and the printing environment

Use the following information to check the paper selection and the printing environment.

Step one: Use paper that meets HP specifications

Some print-quality problems arise from using paper that does not meet HP specifications.

- Always use a paper type and weight that this printer supports.
- Use paper that is of good quality and free of cuts, nicks, tears, spots, loose particles, dust, wrinkles, voids, staples, and curled or bent edges.
- Use paper that has not been previously printed on.
- Use paper that does not contain metallic material, such as glitter.
- Use paper that is designed for use in laser printers. Do not use paper that is designed only for use in Inkjet printers.
- Use paper that is not too rough. Using smoother paper generally results in better print quality.

Step two: Check the environment

The environment can directly affect print quality and is a common cause of print-quality or paper-feeding issues. Try the following solutions:

- Move the printer away from drafty locations, such as open windows or doors, or air-conditioning vents.
- Make sure the printer is not exposed to temperatures or humidity outside of printer specifications.
- Do not place the printer in a confined space, such as a cabinet.
- Place the printer on a sturdy, level surface.
- Remove anything that is blocking the vents on the printer. The printer requires good air flow on all sides, including the top.
- Protect the printer from airborne debris, dust, steam, grease, or other elements that can leave residue inside the printer.

Step three: Set the individual tray alignment

Follow these steps when text or images are not centered or aligned correctly on the printed page when printing from specific trays.

1. From the Home screen on the printer control panel, select the Settings menu.
2. Select the following menus:
   a. Copy/Print or Print
   b. Print Quality
   c. Image Registration

3. Select Tray, and then select the tray to adjust.
4. Select Print Test Page, and then follow the instructions on the printed pages.
5. Select Print Test Page again to verify the results, and then make further adjustments if necessary.
6. Select Done to save the new settings.

Try a different print driver

Try a different print driver when printing from a software program and the printed pages have unexpected lines in graphics, missing text, missing graphics, incorrect formatting, or substituted fonts.

Download any of the following drivers from the HP Web site: www.hp.com/support/ljM406 or www.hp.com/support/ljM407 or or www.hp.com/support/ljM431MFP or www.hp.com/support/ljE40040 or www.hp.com/support/ljE42540MFP.

PRINT DRIVERS

Driver	Description
HP PCL.6 driver	If available, this printer-specific print driver supports older operating systems like Windows XP and Windows Vista. For a list of supported operating systems, go to www.hp.com/go/support.
HP PCL 6 driver	This printer-specific print driver supports Windows 7 and newer operating systems that support version 3 drivers. For a list of supported operating systems, go to www.hp.com/go/support.

PRINT DRIVERS

Driver	Description
HP PCL-6 driver	This product-specific print driver supports Windows 8 and newer operating systems that support version 4 drivers. For a list of supported operating systems, go to www.hp.com/go/support.
HP UPD PS driver	• Recommended for printing with Adobe software programs or with other highly graphics-intensive software programs • Provides support for printing from Postscript emulation needs, or for Postscript flash font support
HP UPD PCL 6	• Recommended for printing in all Windows environments • Provides the overall best speed, print quality, and printer feature support for most users

PRINT DRIVERS

Driver	Description
	- Developed to align with Windows Graphic Device Interface (GDI) for best speed in Windows environments - Might not be fully compatible with third-party and custom software programs that are based on PCL 5

Troubleshoot image defects

Review examples of image defects and steps to resolve these defects.

IMAGE DEFECTS TABLE QUICK REFERENCE

Sample	Description	Possible solutions
Light print	Gray background or dark print	Blank page — No print

IMAGE DEFECTS TABLE QUICK REFERENCE
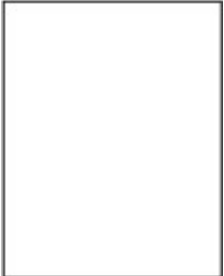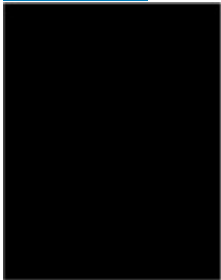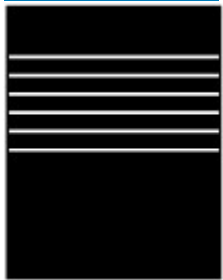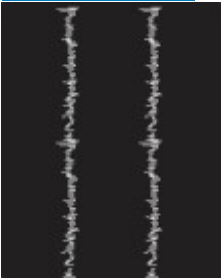
Sample	Description	Possible solutions
AaBbCc AaBbCc AaBbCc AaBbCc AaBbCc AaBbCc AaBbCc	AaBbCc AaBbCc AaBbCc AaBbCc AaBbCc AaBbCc	
[Black page](#)	[Banding defects](#)	[Streak defects](#)
[Fixing/fuser defects](#)	[Image placement defects](#)	[Output defects](#)

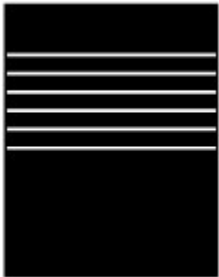Image defects, no matter the cause, can often be resolved using the same steps. Use the following steps as a starting point for solving image defect issues.

1. Reprint the document. Print quality defects can be intermittent in nature or can go away completely with continued printing.
2. Check the condition of the cartridge or cartridges. If a cartridge is in a **Very Low** state (it has passed the rated life), replace the cartridge.
3. Make sure that the driver and tray print mode settings match the media that is loaded in the tray. Try using a different ream of media or a different tray. Try using a different print mode.
4. Make sure that the printer is within the supported operating temperature/humidity range.
5. Make sure that the paper type, size, and weight are supported by the printer. See support.hp.com for a list of the supported paper sizes and types for the printer.

 NOTE:
The term "fusing" refers to the part of the printing process where toner is affixed to paper.

The following examples depict letter-size paper that has passed through the printer short edge first.
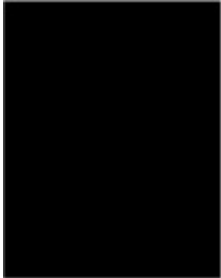

BANDING DEFECTS

Sample	Description	Possible solutions
	Dark or light lines which repeat down the length of the page, and are wide-pitch and/or impulse bands. They might be sharp or soft in nature. The defect	1. Reprint the document. 2. Try printing from another tray. 3. Replace the cartridge. 4. Use a different paper type. 5. **Enterprise models only:** From the Home screen on the printer control panel, go to the Adjust Paper Types menu, and then choose a

BANDING DEFECTS

Sample	Description	Possible solutions
	displays only in areas of fill, not in text or sections with no printed content.	print mode that is designed for a slightly heavier media than what you are using. This slows the print speed and might improve the print quality. 6. If the issue persists, go to support.hp.com.

BLACK PAGE

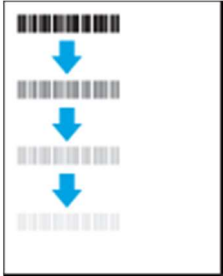| Sample	Description	Possible solutions
■	The entire printed page is black.	1. Visually inspect the cartridge to check for damage. 2. Make sure that the cartridge is installed correctly. 3. Replace the cartridge. 4. If the issue persists, go to support.hp.com.

BLANK PAGE — NO PRINT

Sample	Description	Possible solutions
	The page is completely blank and contains no printed content.	1. Make sure that the cartridges are genuine HP cartridges. 2. Make sure that the cartridge is installed correctly. 3. Print with a different cartridge. 4. Check the paper type in the paper tray and adjust the printer settings to match. If necessary, select a lighter paper type. 5. If the issue persists, go to support.hp.com.

FIXING/FUSER DEFECTS

Sample	Description	Possible solutions

BLANK PAGE — NO PRINT

Sample	Description	Possible solutions
	Slight shadows or offsets of the image are repeated down the page. The repeated image might fade with each recurrence.	1. Reprint the document. 2. Check the paper type in the paper tray and adjust the printer settings to match. If necessary, select a lighter paper type. 3. If the issue persists, go to support.hp.com.
	Toner rubs off along either edge of the page. This defect is more common at the edges of high-coverage jobs, and on light media types, but can occur anywhere	1. Reprint the document. 2. Check the paper type in the paper tray and adjust the printer settings to match. If necessary, select a heavier paper type. 3. **Enterprise models only:** From the printer control panel, go to the Edge-to-Edge menu and then

BLANK PAGE — NO PRINT

Sample	Description	Possible solutions
	on the page.	select Normal. Reprint the document. 4. **Enterprise models only:** From the printer control panel, select Auto Include Margins and then reprint the document. 5. If the issue persists, go to support.hp.com.

GRAY BACKGROUND OR DARK PRINT

Sample	Description	Possible solutions
AaBbCc AaBbCc AaBbCc AaBbCc AaBbCc AaBbCc	The image or text is darker than expected and/or the background is gray.	1. Make sure that the paper in the trays has not already been run through the printer. 2. Use a different paper type. 3. Reprint the document. 4. **Mono models only:** From the

GRAY BACKGROUND OR DARK PRINT

Sample	Description	Possible solutions
		Home screen on the printer control panel, go to the Adjust Toner Density menu, and then adjust the toner density to a lower level. 5. Make sure that the printer is within the supported operating temperature and humidity range. 6. Replace the cartridge. 7. If the issue persists, go to support.hp.com.

IMAGE PLACEMENT DEFECTS

Sample	Description	Possible solutions

GRAY BACKGROUND OR DARK PRINT

Sample	Description	Possible solutions
	The image is not centered, or is skewed on the page. The defect occurs when the paper is not positioned properly as it is pulled from the tray and moves through the paper path.	1. Reprint the document. 2. Remove the paper and then reload the tray. Make sure that all the paper edges are even on all sides. 3. Make sure that the top of the paper stack is below the tray-full indicator. Do not overfill the tray. 4. Make sure that the paper guides are adjusted to the correct size for the paper. Do not adjust the paper guides tightly against the paper stack. Adjust them to the indentations or markings in the tray. 5. If the issue persists, go to support.hp.com.

LIGHT PRINT

Sample	Description	Possible solutions
AaBbCc AaBbCc AaBbCc AaBbCc AaBbCc AaBbCc AaBbCc	The printed content is light or faded on the entire page.	1. Reprint the document. 2. Remove the cartridge, and then shake it to redistribute the toner. Reinsert the toner cartridges into the printer and close the cover. For a graphical representation of this procedure, see *Replace the toner cartridges*. 3. **Mono models only:** Make sure that the EconoMode setting is disabled, both at the printer control panel and in the print driver. 4. Make sure that the cartridge is installed correctly. 5. Print a Supplies Status Page and check the life and usage of the cartridge.

LIGHT PRINT

Sample	Description	Possible solutions
		6. Replace the cartridge. 7. If the issue persists, go to support.hp.com.

OUTPUT DEFECTS

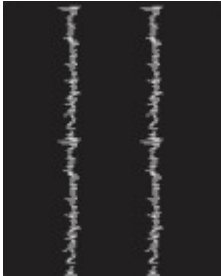| Sample	Description	Possible solutions
	Printed pages have curled edges. The curled edge can be along the short or long side of the paper. Two types of curl are possible: • **Positive curl:** The paper curls toward the printed side. The defect occurs in dry environments or when printing high-	1. Reprint the document. 2. **Positive curl:** From the printer control panel, select a heavier paper type. The heavier paper type creates a higher temperature for printing. **Negative curl:** From the printer control panel, select a lighter paper type. The lighter paper type creates a lower temperature for printing. Try storing the paper in a dry environment prior to use, or use freshly opened paper. 3. Print in duplex mode. 4. If the issue persists, go to support.hp.com.

LIGHT PRINT

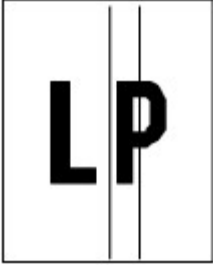| Sample	Description	Possible solutions
	coverage pages. • **Negative curl:** The paper curls away from the printed side. The defect occurs in high-humidity environments or when printing low-coverage pages.	
	The paper does not stack well in the output tray. The stack might be uneven, skewed, or the pages might be pushed out of the tray and onto the floor. Any of the following conditions can cause this defect: • Extreme paper curl	1. Reprint the document. 2. Extend the output bin extension. 3. If the defect is caused by extreme paper curl, refer to the troubleshooting steps for "Output curl." 4. Use a different paper type. 5. Use freshly opened paper. 6. Remove the paper from the output tray before the tray gets too full. 7. If the issue persists, go to support.hp.com.

LIGHT PRINT

Sample	Description	Possible solutions
	- The paper in the tray is wrinkled or deformed - The paper is a non-standard paper type, such as envelopes - The output tray is too full	

STREAK DEFECTS

Sample	Description	Possible solutions
	Light vertical streaks that usually span the length of the page. The defect displays only in areas of fill,	1. Reprint the document. 2. Remove the cartridge, and then shake it to redistribute the toner. Reinsert the toner cartridges into the printer and close the cover. For a graphical

STREAK DEFECTS

Sample	Description	Possible solutions
	not in text or sections with no printed content.	representation of this procedure, see *Replace the toner cartridges*. 3. If the issue persists, go to support.hp.com. **NOTE:** Both light and dark vertical streaks can occur when the printing environment is outside the specified range for temperature or humidity. Refer to your printer's environmental specifications for allowable temperature and humidity levels.
	Dark vertical lines which occur down the length of the page. The defect might occur anywhere on the page, in	1. Reprint the document. 2. Remove the cartridge, and then shake it to redistribute the toner. Reinsert the toner cartridges into the printer and close the cover. For a graphical

Sample	Description	Possible solutions
	areas of fill or in sections with no printed content.	representation of this procedure, see *Replace the toner cartridges*. 3. Print a cleaning page. 4. Check the toner level in the cartridge. 5. If the issue persists, go to support.hp.com.

Copy-quality troubleshooting

Learn about copy-quality troubleshooting.

 NOTE:

Copy-quality (CQ) problems are associated with the integrated-scanner assembly (ISA) portion of an MFP printer. CQ defects appear on pages that are **copied** using the document feeder or flatbed glass.

Identify the location and type of the CQ problem

Resolving CQ problems involves isolating the defect to the document feeder or flatbed glass. Comparing printed output between the document feeder and the flatbed glass might determine the ISA location that is causing the CQ defect.

 NOTE:

If a CQ defect appears on printed output from both the document feeder **and** the flatbed glass, carefully inspect the original source for a print-quality (PQ) problem.

DOCUMENT FEEDER ISOLATION TEST

1. Mark a printed page in a way that clearly identifies it as the source document used in this isolation procedure.
2. Place the source page in the document feeder, and then make a copy.
3. Mark the copied output page to clearly identify it as output from the document feeder.
4. Compare the original and copied pages. Defects appearing on the copied page are caused by a problem in the document feeder.

FLATBED ISOLATION TEST

1. Mark a printed page in a way that clearly identifies it as the source document used in this isolation procedure.
2. Place the source page on the flatbed glass, and then make a copy.
3. Mark the copied output page to clearly identify it as output from the flatbed.
4. Compare the original and copied pages. Defects appearing on the copied page are caused by a problem in the flatbed.

Check the scanner glass for dirt and smudges

Learn about solving copy-quality debris problems.

Over time, specks of debris might collect on the scanner glass and document feeder white plastic backing, which might cause print defects. Use the following procedure to clean the scanner if the printed pages have streaks, unwanted lines, black dots, poor print quality, or unclear text.

1. Press the power button to turn the printer off, and then disconnect the power cable from the electrical outlet.
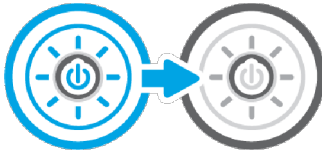
2. Open the scanner lid.
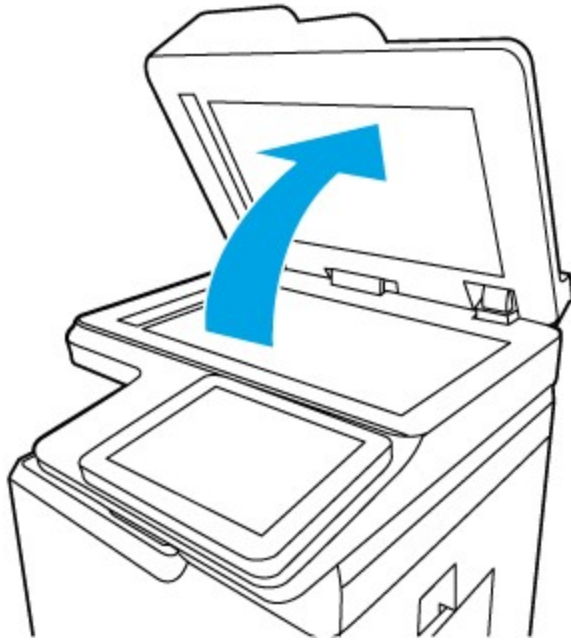
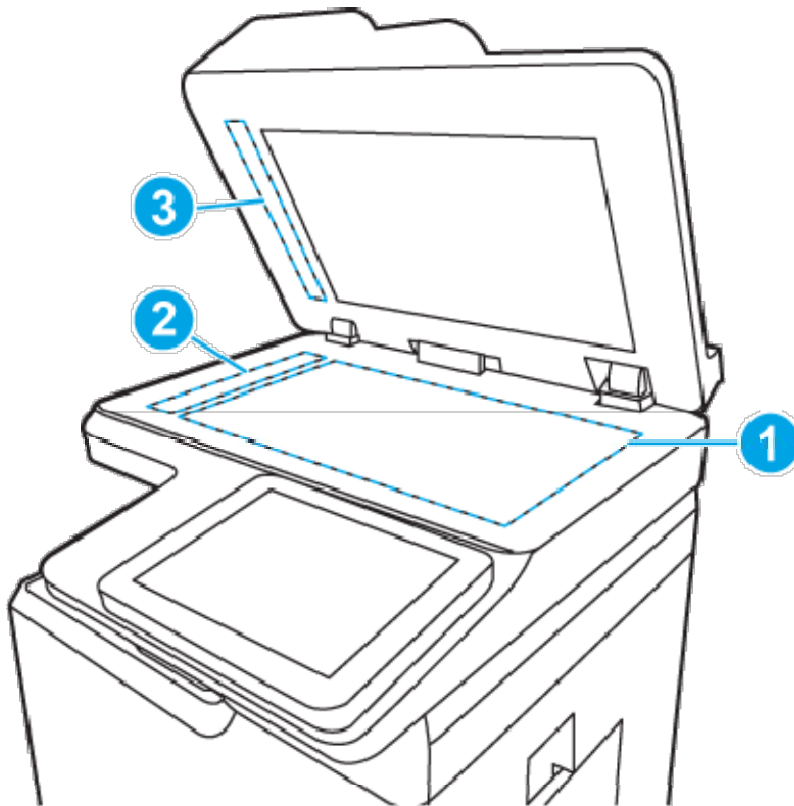3. Clean the scanner glass (callout 1) and the document feeder strips (callout 2, callout 3) with a soft cloth or sponge that has been moistened with nonabrasive glass cleaner.


CAUTION:

Do not use abrasives, acetone, benzene, ammonia, ethyl alcohol, or carbon tetrachloride on any part of the printer; these can damage the printer. Do not place liquids directly on the glass or platen. They might seep and damage the printer.

 NOTE:

If you are having trouble with streaks on copies when you are using the document feeder, be sure to clean the small strips of glass on the left side of the scanner (callout 2, callout 3).

4. Dry the glass and white plastic parts with a chamois or a cellulose sponge to prevent spotting.
5. Connect the power cable to an outlet, and then press the power button to turn the printer on.
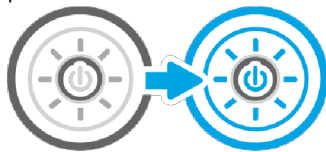
Vertical lines, bands, or streaks

Learn about vertical lines, bands, or streaks copy-quality problems.

Vertical lines or streaks appear on copies and/or scans in the same direction that the paper feeds when copying and/or scanning from the document feeder. Lines or streaks might be visible on the front and/or the back side of the page. Copies and/or scans from the flatbed glass look normal. Printouts also look normal.

The line or streak might be black or in color, and can also be present on fax or digital send output (for example, when using Scan to folder or Scan to email features.

 NOTE:

HP has determined that **99%** of all lines and streaks on copies made by feeding the original documents through the document feeder are caused by **debris on the document feeder glass strip**. Even small specks can cause the light reflected off the original to be distorted, resulting in a line, streak, or smudge on copies or scans made from the document feeder.

Even if the document feeder glass strip and/or flatbed glass has been wiped clean, the defect might persist. Persistent vertical lines, bands, or streaks when copying from the document feeder might mean that the debris causing the print quality are not readily visible and cannot be removed with a quick cleaning.

Use the procedures below to resolve persistent lines, bands, or streak copy-quality (CQ) problems.

Locate debris and thoroughly clean the document feeder glass

1. Place a blank sheet of paper in the document feeder and mark an **X** in the lower right corner as shown.
   LOAD THE DOCUMENT FEEDER

2. Press the Start button to make a copy of the blank page.
3. Place the copied paper face-up on the flatbed glass with the **X** located as shown.
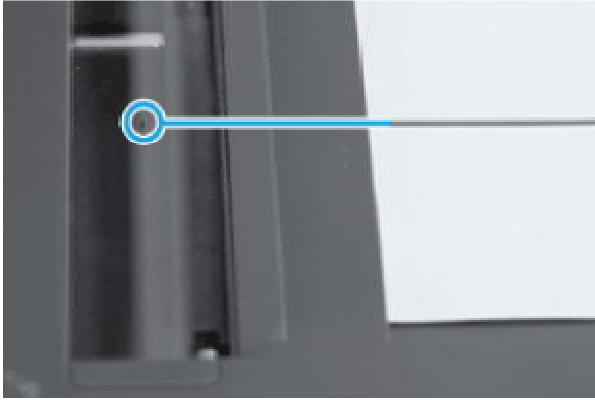
    NOTE:

   Make sure the upper left corner of the copy is aligned with the upper left corner of the flatbed glass.

   PLACE THE COPY ON THE FLATBED
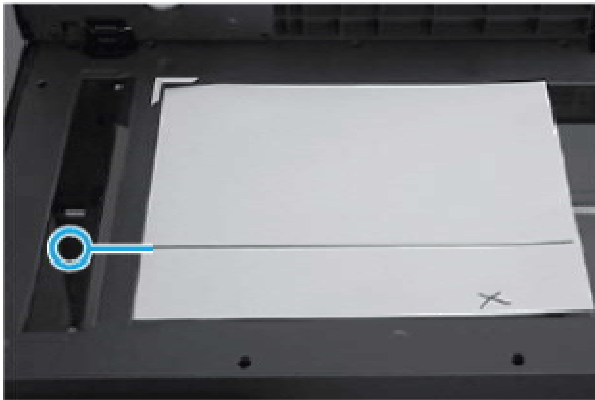
4. Follow the line or streak on the paper to the area on the document feeder glass that is causing the CQ problem.
   IDENTIFY THE CQ DEFECT LOCATION

5. Use a fingernail to loosen any stubborn debris.

WARNING:

Use only a fingernail. Other objects can scratch the document feeder glass.

Clean this specific area again (with a lint-free cloth dampened with water), and then dry the glass with a soft, lint-free cloth.
CLEAN THE GLASS

6. Make another copy or scan to determine if the defect is gone.

Clean the duplexer scanner glass (model specific)

NOTE:

Not all MFP printers use a background selector for duplex printing.
If a *Side 2 Background Selector* cannot be located for the printer (it might not include one) skip this procedure.

1. Release the latch and open the document feeder jam-access door.
OPEN THE JAM-ACCESS DOOR
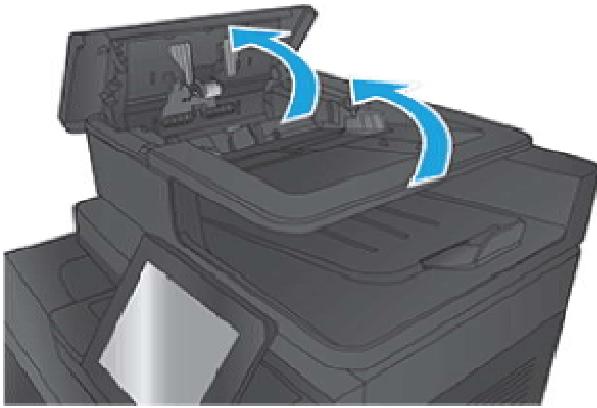
2. Unlock the Side 2 Background Selector by pressing and holding both green tabs inward towards each other.
RELEASE THE SIDE 2 BACKGROUND SELECTOR

3. While holding the green tabs, pull out and remove the Side 2 Background Selector.
REMOVE THE SIDE 2 BACKGROUND SELECTOR

4. Rotate the top to reveal the white and black backside reflector (circled in blue).

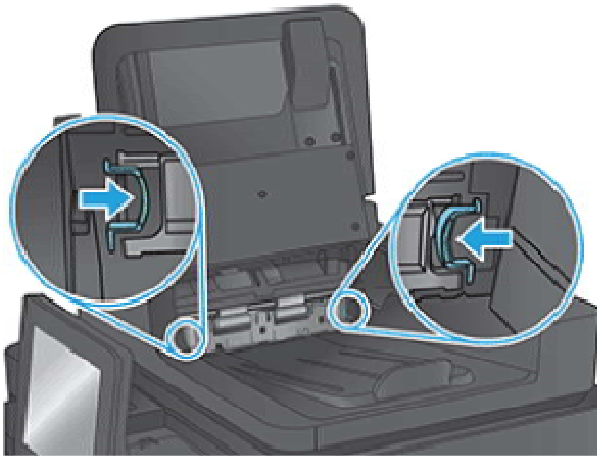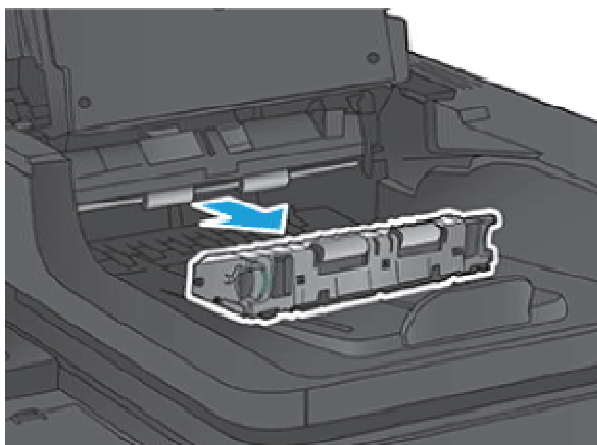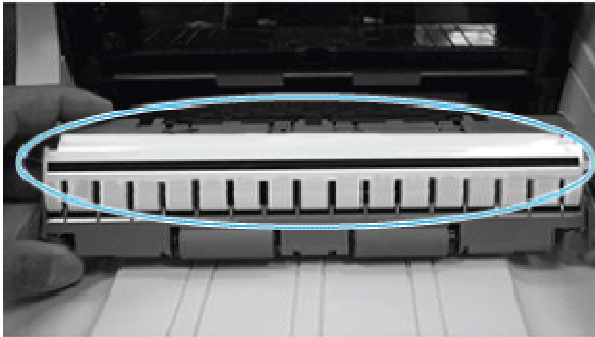**NOTE:**

If the white and black areas do not come clean, try again using isopropyl alcohol, and then wipe the surface thoroughly with a damp cloth to remove any residual alcohol. Dry the area with a soft, dry cloth to prevent spotting.

LOCATE THE BACKSIDE REFLECTOR

5. With the background selector removed from the document feeder, clean the inside of the scan module.
6. In the back area from where the background selector was removed, locate the Side 2 Scan Module glass found under the top area.

NOTE:

The glass surface of the Side 2 Scan module sits horizontally flat and might not be easily viewable.

7. Use a soft, lint-free cloth moistened with water and apply pressure upwards behind the rollers to clean the Side 2 Scan Module Glass, making sure to that the entire width of the glass is cleaned from left to right.

NOTE:

If needed, lens cleaner or non-abrasive glass cleaner can be applied to the cloth before cleaning the glass. Spray only onto the cloth and not directly onto the glass or device. Do not spray water or glass cleaner on the glass as it can seep under it and possibly damage the printer. Do not use abrasives, acetone, benzene, ethyl alcohol, or carbon tetrachloride on the glass; these can damage it and/or leave residue on the glass resulting in degraded copy/scan quality.

8. Reverse the removal steps to reinstall the Side 2 Background Selector.
9. Make another copy or scan to determine if the defect is gone.

Modify printer settings to improve scan or copy quality

Learn about printer settings to improve scan or copy quality.

Optimize printer settings to potentially improve scan or copy quality.

 IMPORTANT:
The printer settings described in this section are firmware dependent and might not be available for a specific printer (for example, color adjustment settings do not apply to mono printers).

Image Adjustment settings

 NOTE:
Settings **>** Print (SFP) or Copy/Print (MFP) **>**Image Adjustment**>**Background Cleanup.

Use the sliders to perform a Background Cleanup, adjust the image Darkness as well as changing the Sharpness and Contrast.

Use this feature to improve the overall quality of the copy (for example, adjusting the Darkness and Sharpness. Use the Background Cleanup setting to remove faint images from the background or to remove a light background color.

- Darkness: Adjust this setting to increase or decrease the amount of white and black in the colors.
- Contrast: Adjust this setting to increase or decrease the difference between the lightest and darkest color on the page.
- Background Cleanup: Adjust this setting if copying a faint image is a problem.
- Sharpness: Adjust this setting to clarify or soften the image. Increasing the sharpness might make text appear crisper, but decreasing it would make photographs appear smoother.

Optimize Text/Picture settings

 NOTE:
Settings **>** Scan/Digital Send Settings **>** Optimize Text/Picture.

Use to optimize the output for a particular type of content. You can optimize the output for text, printed pictures, or a mixture.

Use this setting to optimize the output for a particular type of content.

- Mixed: Use to optimize the setting for text and for pictures.

- Text: Use to optimize the text portion of the copy when text and/or pictures are on the original.
- Printed picture: Use to optimize line drawing and preprinted images such as magazine clippings or pages from a book. If you see bands of irregular intensity on copies, try selecting Printed picture to improve quality.
- Photographs: Use to optimize photographic prints.

Color/Black settings

NOTE:
Settings **>** Scan/Digital Send Settings **>** Color/Black.

Use to enable or disable color scanning.(some highlighters will not auto detect as color).

- Automatically detect color or black: When pages without color are detected, the printer creates an image of the page in 1-bit black if other settings allow. If the other settings don't allow (File Type, for example), the image is in grayscale.
- Automatically detect color or gray: When pages without color are detected, the printer creates an image of the page in grayscale. Select this option for the best image quality for non-color pages.
- Color: Scans the documents in color.
- Black: Scans documents in black and white with a compressed file size.
- Black/Gray: Scans or prints documents in grayscale.

Light or faint copies (color models)

Learn how to resolve light or faint copy-quality problems.

Are you attempting to copy or scan highlighted text?

NOTE:
When digitally sending or copying highlighted images or text objects, the image might appear lighter than expected or does not show up at all with certain brands/types of highlighter pens.

Highlighters come in bright, often fluorescent colors. Fluorescent highlighter inks tend to reflect more light than that which is absorbed by the paper source. This reflection might cause the image to not show up as well as non-fluorescent colors depending upon the scanner/MFP being used.

The most common color for highlighters is yellow, but many other colors are also found such as pink, blue, green, orange, and purples. Yellow is often the preferred color to use when making a photocopy as it tends to not produce as much of a shadow on copies or scans.

There are different color and ink properties depending upon the brand of highlighters used. Due to these differences, scanning of the images might vary greatly from not being seen at all to changing colors (for example, orange highlighter might appear brown in the copy or scan or yellow highlighter might appear green).

Automatic color detect

HP has a feature in all FutureSmart (LaserJet Enterprise Series only) printers which automatically detects color on each page. Depending upon the amount of color information on a page, the scanner might determine the page to be black and white due to a very, very small amount of color which might be considered background artifacts. This helps to reduce the file size of sent files as well as toner usage on a copied page. You might see small highlighted marks on pages print out in black and white or even disappear.

The black and white effect is due to the printer not seeing enough color on the page, in which case the whole image is rendered as a black and white page. The highlighted mark disappearing might be due to the marker characteristics not being detected by the scanner.

Does the printer have the latest firmware version installed?

No or I don't know.

A Firmware enhancement has been introduced for certain LaserJets to help with the reproduction of highlighted images.

 NOTE:
Some Multifunction Printers (MFPs) using FutureSmart firmware v3.5.3 or later have improved color reproduction of fluorescent highlighters when scanning or copying.

Use the following steps to identify the installed firmware version, and then upgrade the firmware if needed.

1. Print a configuration page (from the printer control panel).
2. On the printed configuration page look in the section marked **Device Information** , and then identify the **Firmware Datecode** and **Firmware Revision** .
   This is the current version of firmware installed on this printer.
3. In the US, go to www.hp.com/support/ljM406 or www.hp.com/support/ljM407 or or www.hp.com/support/ljM431MFP or www.hp.com/support/ljE40040 or www.hp.com/support/ljE42540MFP.
   o Select **Get drivers, Software, and Firmware**, and then select the appropriate product by name.

- o Select the driver language and operating system.
- o Locate the firmware download. If the firmware version is more recent than the one shown on the printed configuration page, select **Download**.

4. Outside the U.S., go to .

- o Select your country/region.
- o Select **Drivers & Downloads**.
- o Enter the product name in the **Find my product** dialogue box, and then select **Go**.

TIP:

Click on the **How do I find my product name/number?** link to see a short video on identifying the printer name and number.

- o Select the appropriate product by name.

- o Select the driver language and operating system.
- o Locate the firmware download. If the firmware version is more recent than the one shown on the printed configuration page, select **Download**.

5. Perform a firmware upgrade. See the *Firmware upgrades* topic in the product service manual.
6. When the upgrade process is complete, print a configuration page and verify that the upgrade firmware version was installed.

YES

These procedures help provide settings which affect the way highlighters are scanned or copied. A firmware enhancement is available for certain printers that helps with the reproduction of highlighted images.

- • Enable Firmware Enhancement
  1. From the Home screen, select the desired scanning application (for example, Copy, E-Mail, Save to Network Folder).
  2. Select More Options > Optimize Text/Picture > Text button (not slider). This enables the improved color reproduction of fluorescent highlighters.

TIP:

Administrators can set Text as the default setting on the device.

- **Alternative Settings**

  See [Modify printer settings to improve scan or copy quality](#) for more information.