

ML-1640 Series
ML-2240 Series

Mono Laser Printer User's Guide

imagine the possibilities

Thank you for purchasing a Samsung product. To receive a more complete service, please register your product at

www.samsung.com/global/register



features of your new laser product

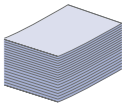
Your new machine is equipped with a number of special features that improve the quality of the documents you print. With the machine, you can:

SPECIAL FEATURES



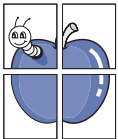
Print with excellent quality and speed

- You can print with a resolution of up to 1200*600 dpi.
- Your machine prints A4-sized paper at up to 16 ppm,(ML-1640 series), 22 ppm (ML-2240 series) and lettersized paper at up to 17ppm (ML-1640 series), 23ppm(ML-2240 series).



Handle many different types of printable material

- The 150-sheet tray supports plain paper in various sizes, letterhead, envelopes, labels, custom-sized media, postcards, and heavy paper.



Create professional documents

- Print watermarks. You can customize your documents with words, such as “Confidential”. See Software section.
- Print posters. The text and pictures of each page of your document are magnified and printed across the sheet of paper and can then be taped together to form a poster. See Software section.
- You can use preprinted forms and letterhead with plain paper. See Software section.



Save time and money

- To save paper, you can print multiple pages on one single sheet of paper.
- This machine automatically conserves electricity by substantially reducing power consumption when not in use.



Print in various environments

- You can print with Windows 2000 and Windows XP/2003/ Vista as well as Linux and Macintosh systems.
- Your machine is equipped with a USB interface.

FEATURES BY MODELS

The machine is designed to support all of your document needs.

Basic features of this machine include;

FEATURES	ML-1640	ML-2240
USB 2.0 Full speed	●	●
Duplex (2-sided) printing (Manual)	●	●

(●: Included)



ABOUT THIS USER'S GUIDE

This user's guide provides information about basic understanding of the machine as well as detailed explanation on each step during the actual usage. Both novice users and professional users can refer to this guide for installing and using the machine.

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

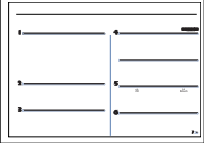
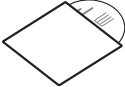

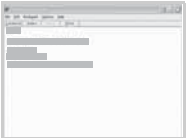
- Document is synonymous with original.
- Paper is synonymous with media, or print media.
- The explanation in this user guide is mainly based on **ML-2240 Series**. Some illustrations might be different for **ML-1640 Series**.

Following table offers the conventions of this guide:

CONVENTION	DESCRIPTION	EXAMPLE
Bold	Used for texts on the display or actual prints on the machine.	Start
Note	Used to provide additional information or detailed specification of the machine function and feature.	 The date format may differ from country to country
Caution	Used to give users information to protect the machine from possible mechanical damage or malfunction.	 Do not touch the green underside of the toner cartridge.
Footnote	Used to provide more detailed information on certain words or a phrase.	a. pages per minute
(See page 1 for more information)	Used to guide users to the reference page for the additional detailed information.	(See page 1 for more information)

FINDING MORE INFORMATION











You can find information for setting up and using your machine from the following resources, either as a print-out or onscreen.

<p>Quick Install Guide</p> 	<p>Provides information on setting up your machine and this requires that you follow the instructions in the guide to prepare the machine.</p>
<p>Online User's Guide</p> 	<p>Provides you with step-by-step instructions for using your machine's full features, and contains information for maintaining your machine, troubleshooting, and installing accessories.</p> <p>This user's guide also contains a <i>Software section</i> to provide you with information on how to print documents with your machine in various operating systems, and how to use the included software utilities.</p> <p> You can access the user's guide in other languages from the Manual folder on the printer software CD.</p>
<p>Printer Driver Help</p> 	<p>Provides you with help information on printer driver properties and instructions for setting up the properties for printing. To access a printer driver help screen, click Help from the printer properties dialog box.</p>
<p>Samsung website</p>	<p>If you have Internet access, you can get help, support, printer drivers, manuals, and order information from the Samsung website, www.samsungprinter.com.</p>















safety information

IMPORTANT SAFETY SYMBOLS AND PRECAUTIONS

What the icons and signs in this user's guide mean:

 WARNING	Hazards or unsafe practices that may result in severe personal injury or death.
 CAUTION	Hazards or unsafe practices that may result in minor personal injury or property damage.
 CAUTION	To reduce the risk of fire, explosion, electric shock, or personal injury when using your laser MFP, follow these basic safety precautions:
	Do NOT attempt.
	Do NOT disassemble.
	Do NOT touch.
	Follow directions explicitly.
	Unplug the power plug from the wall socket.
	Make sure the MFP is grounded to prevent electric shock.
	Call the service center for help.

These warning signs are here to prevent injury to you and others. Follow them explicitly. After reading this section, keep it in a safe place for future reference.

-  1. Read and understand all instructions.
-  2. Use common sense whenever operating electrical appliances.
-  3. Follow all warnings and instructions marked on the machine and in the literature accompanying the machine.
-  4. If an operating instruction appears to conflict with safety information, heed the safety information. You may have misunderstood the operating instruction. If you cannot resolve the conflict, contact your sales or service representative for assistance.
-  5. Unplug the machine from the AC wall socket before cleaning. Do not use liquid or aerosol cleaners. Use only a damp cloth for cleaning.
-  6. Do not place the machine on an unstable cart, stand or table. It may fall, causing serious damage.
-  7. Your machine should never be placed on, near or over a radiator, heater, air conditioner or ventilation duct.
-  8. Do not allow anything to rest on the power cable. Do not locate your machine where the cords will be abused by persons walking on them.
-  9. Do not overload wall outlets and extension cords. This can diminish performance, and may result in the risk of fire or electric shock.
-  10. Do not allow pets to chew on the AC power or PC interface cords.
-  11. Never push objects of any kind into the machine through case or cabinet openings. They may touch dangerous voltage points, creating a risk of fire or shock. Never spill liquid of any kind onto or into the machine.
-  12. To reduce the risk of electric shock, do not disassemble the machine. Take it to a qualified service technician when repair work is required. Opening or removing covers may expose you to dangerous voltages or other risks. Incorrect reassembly could cause electric shock when the unit is subsequently used.



13. Unplug the machine from the PC and AC wall outlet, and refer servicing to qualified service personnel under the following conditions:
- When any part of the power cord, plug, or connecting cable is damaged or frayed.
 - If liquid has been spilled into the machine.
 - If the machine has been exposed to rain or water.
 - If the machine does not operate properly after instructions have been followed.
 - If the machine has been dropped, or the cabinet appears damaged.
 - If the machine exhibits a sudden and distinct change in performance.



14. Adjust only those controls covered by the operating instructions. Improper adjustment of other controls may result in damage, and may require extensive work by a qualified service technician to restore the machine to normal operation.



15. Avoid using this machine during a lightning storm. There may be a remote risk of electric shock from lightning. If possible, unplug the AC power for the duration of the lightning storm.

16. If you continuously print multiple pages, the surface of the output tray may become hot. Be careful not to touch the surface, and keep children away from the surface.

17. The Power cord supplied with your machine should be used for safe operation. If you are using a cord which is longer than 2 m with 110 V machine, then it should be 16 AWG^a or bigger.



18. SAVE THESE INSTRUCTIONS

19. This machine can be operated only in the country you have purchased. (Due to different voltage, frequency, telecommunication configuration and etc)

a. AWG: American Wire Gauge

LASER SAFETY STATEMENT

The printer is certified in the U.S. to conform to the requirements of DHHS 21 CFR, chapter 1 Subchapter J for Class I(1) laser products, and elsewhere is certified as a Class I laser product conforming to the requirements of IEC 825.

Class I laser products are not considered to be hazardous. The laser system and printer are designed so there is never any human access to laser radiation above a Class I level during normal operation, user maintenance or prescribed service condition.

WARNING

Never operate or service the printer with the protective cover removed from Laser/Scanner assembly. The reflected beam, although invisible, can damage your eyes.

When using this product, these basic safety precautions should always be followed to reduce risk of fire, electric shock, and injury to persons:

	CAUTION - CLASS 3B LASER RADIATION WHEN OPEN AVOID EXPOSURE TO THE BEAM.
	DANGER - LASER RADIATION AVOID DIRECT EXPOSURE TO BEAM.
	DANGER - RADIATIONS INVISIBLES DU LASER EN CAS D'OUVERTURE. EVITER TOUTE EXPOSITION DIRECTE AU FAISCEAU.
	VORSICHT - UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.
	ATTENZIONE - RADIAZIONE LASER INVISIBILE IN CASO DI APERTURA. EVITARE L'ESPOSIZIONE AL FASCIO.
	PRECAUCIÓN - RADIACIÓN LASER INVISIBLE CUANDO SE ABRE. EVITAR EXPONERSE AL RAYO.
	PERIGO - RADIAÇÃO LASER INVISÍVEL AO ABRIR. EVITE EXPOSIÇÃO DIRECTA AO FEIXE.
	GEVAAR - ONZICHTBARE LASERSTRALLEN BIJ GEOPENDE KLEP. DEZE KLEP NIET OPENEN.
	ADVARSEL - USYNLIG LASERSTRÅLNING VED ÅBNING. UNDGÅ UDSAETTELSE FOR STRÅLNING.
	ADVARSEL - USYNLIG LASERSTRÅLNING NÅR DEKSEL ÅPNES. UNNGÅ EKSPONERING FOR STRÅLEN.
WARNING - OSYNLIG LASERSTRÅLNING NÅR DENNA DEL ÅR ÖPPEN. STRÅLEN ÅR FARLIG.	
VAROITUS - NÄKYMÄTÖNTÄ LASERSÄTEILYÄ AVATTAESSA. VARO SUORAA ALTISTUMISTA SÄTEELLE.	
注 意 - 严禁揭开此盖, 以免激光泄露灼伤	
주 의 - 이 덮개를 열면 레이저광에 노출될 수 있으므로 주의하십시오.	

OZONE SAFETY



During normal operation, this machine produces ozone. The ozone produced does not present a hazard to the operator. However, it is advisable that the machine be operated in a well ventilated area.

If you need additional information about ozone, request your nearest Samsung dealer.

POWER SAVER



This printer contains advanced energy conservation technology that reduces power consumption when it is not in active use.

When the printer does not receive data for an extended period of time, power consumption is automatically lowered.

ENERGY STAR and the ENERGY STAR mark are registered U.S. marks.

For more information on the ENERGY STAR program see <http://www.energystar.gov>

RECYCLING



Recycle or dispose of the packaging material for this product in an environmentally responsible manner.

CORRECT DISPOSAL OF THIS PRODUCT (WASTE ELECTRICAL & ELECTRONIC EQUIPMENT)



(Applicable in the European Union and other European countries with separate collection systems)

This marking shown on the product or its literature, indicates that it should not be disposed with other household wastes at the end of its working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take this item for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract. This product should not be mixed with other commercial wastes for disposal.

RADIO FREQUENCY EMISSIONS

FCC Information to the User

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

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

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



Change or modifications not expressly approved by the manufacturer responsible for compliance could void the user's authority to operate the equipment.

Canadian Radio Interference Regulations

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled "Digital Apparatus", ICES-003 of the Industry and Science Canada.

Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe B prescrites dans la norme sur le matériel brouilleur: "Appareils Numériques", ICES-003 édictée par l'Industrie et Sciences Canada.

REPLACING THE FITTED PLUG (FOR UK ONLY)

Important

The mains lead for this machine is fitted with a standard (BS 1363) 13 amp plug and has a 13 amp fuse. When you change or examine the fuse, you must re-fit the correct 13 amp fuse. You then need to replace the fuse cover. If you have lost the fuse cover, do not use the plug until you have another fuse cover.

Contact the people from you purchased the machine.

The 13 amp plug is the most widely used type in the UK and should be suitable. However, some buildings (mainly old ones) do not have normal 13 amp plug sockets. You need to buy a suitable plug adaptor. Do not remove the moulded plug.



If you cut off the moulded plug, get rid of it straight away.

You cannot rewire the plug and you may receive an electric shock if you plug it into a socket.



Important warning:

You must earth this machine.

The wires in the mains lead have the following color code:

- Green and Yellow: Earth
- Blue: Neutral
- Brown: Live

If the wires in the mains lead do not match the colors marked in your plug, do the following:

You must connect the green and yellow wire to the pin marked by the letter "E" or by the safety 'Earth symbol' or colored green and yellow or green.

You must connect the blue wire to the pin which is marked with the letter "N" or colored black.

You must connect the brown wire to the pin which is marked with the letter "L" or colored red.

You must have a 13 amp fuse in the plug, adaptor, or at the distribution board.

DECLARATION OF CONFORMITY (EUROPEAN COUNTRIES)



Approvals and Certifications

The CE marking applied to this product symbolizes Samsung Electronics Co., Ltd. Declaration of Conformity with the following applicable 93/68/EEC Directives of the European Union as of the dates indicated:

January 1, 1995: Council Directive 73/23/EEC Approximation of the laws of the member states related to low voltage equipment.

January 1, 1996: Council Directive 89/336/EEC (92/31/EEC), approximation of the laws of the Member States related to electromagnetic compatibility.

March 9, 1999: Council Directive 1999/5/EC on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity.

A full declaration, defining the relevant Directives and referenced standards can be obtained from your Samsung Electronics Co., Ltd. representative.

EU Declaration of Conformity

We, Samsung Electronics Co., Ltd.

- of Samsung Electronics Co., Ltd.
#259, Gongdan-dong, Gumi-si, Gyeongbuk, Korea, [730-030]
- of Samsung Electronics(Shandong) Digital Printing Co., Ltd.
#264209, Samsung Road, Weihai Hi-Tech IDZ, Shandong Province, China

declare under our sole responsibility that the product

to which this declaration relates is in conformity with

**Low Voltage Directive 2006/95/EC
EMC Directive 89/336/EEC , 92/31/EEC**

By application of the following standards,

LVD : EN 60950-1:2001+A11	EN 60825-1:1993+A1:2002
.....
EMC : EN 55022:1998+A1:2000+A2:2003	EN 55024:1998+A1:2001+A2:2003
.....
EN61000-3-2:2000	EN61000-3-3:1995+A1:2001
.....

(Manufacturer)

Samsung Electronics Co., Ltd. #259,
Gongdan-Dong, Gumi-Si
Gyeongbuk, Korea [730-030] Korea

2007-03-21

(place and date of issue)



Whan-Soon Yim / Senior Manager

(name and signature of authorized person)

(Representative in the EU)

Samsung Electronics Euro QA Lab.
Blackbushe Business Park, Saxony Way
Yateley, Hampshire, GU46 6GG, UK

2007-03-21

(place and date of issue)



Yong-Sang Park / Manager

(name and signature of authorized person)

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introduction

These are the main components of your machine:

This chapter includes:

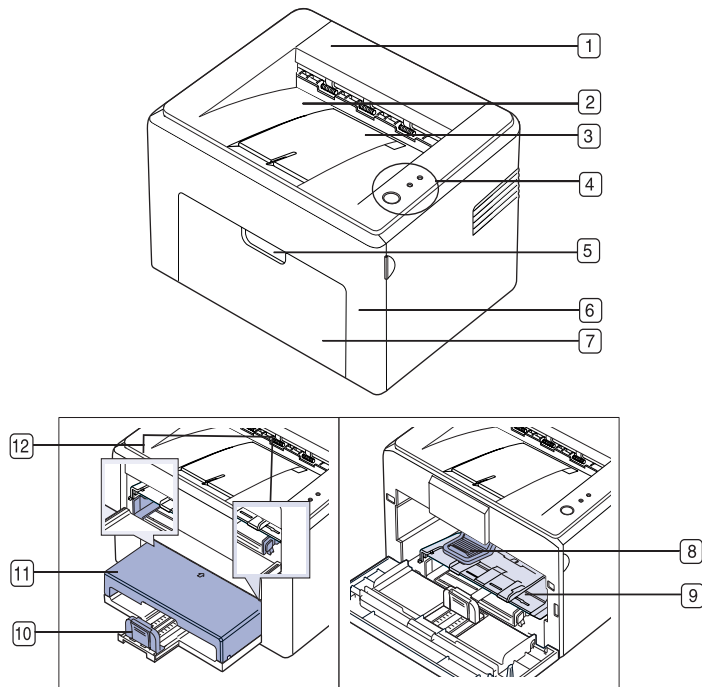
- Printer overview
- Control panel overview
- Understanding the control panel
- Supplied software
- Printer driver features



The illustrations of the machine are based on ML-2240 series. ML-1640 series does not have a manual tray.

PRINTER OVERVIEW

Front view

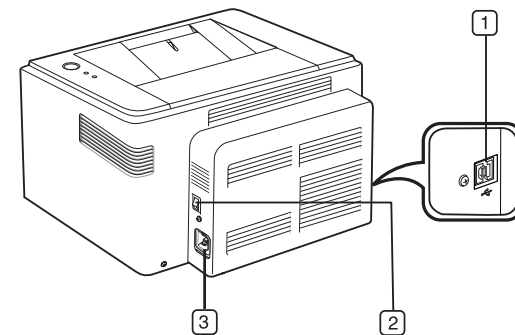


- | | |
|---|-------------------------|
| 1 | Top cover |
| 2 | Output tray (face down) |
| 3 | Output support |
| 4 | Control panel |
| 5 | Front cover handle |
| 6 | Front cover |
| 7 | Paper input tray |
| 8 | Toner cartridge |

- | | |
|----|--------------------------|
| 9 | Manual tray ^a |
| 10 | Rear guides |
| 11 | Paper cover ^a |
| 12 | Side guides |

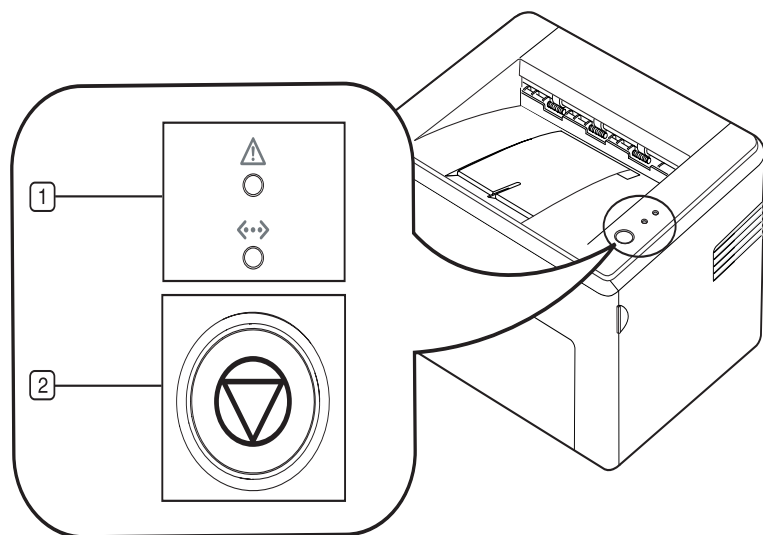
a. ML-2240 only.


Rear view



- | | |
|---|------------------|
| 1 | USB port |
| 2 | Power switch |
| 3 | Power receptacle |

CONTROL PANEL OVERVIEW



1	Status LED	Shows the status of your machine. (See "Understanding the control panel" on page 14 for more information.)
2	Cancel 	Stops an operation at any time and there are more functions. (See "Understanding the control panel" on page 14 for more information.)

UNDERSTANDING THE CONTROL PANEL


The color of the status and toner LED indicates the machine's current status.

On-Line LEDs

STATUS		DESCRIPTION
Green	On	The machine is warming up or ready to receive the data.
	Blinking	The machine is printing data.

Toner/Error LEDs

STATUS		DESCRIPTION
Red	On	<ul style="list-style-type: none">The machine is experiencing an error, such as open cover, paper empty, toner exhausted, installer error, or invalid error.The machine is experiencing a service required error, such as LSU error, or fuser error. Contact your sales or service representative.
	Blinking	The toner is low, replace the toner soon.
	Rapidly Blinking	The toner is empty, replace the toner soon.
Orange	On	The machine is experiencing an error such as jammed paper.

 All printing errors will be appear in the **Smart Panel** program window.

Cancel button

STATUS LED	DESCRIPTION
Printing demo page	In ready mode, press and hold this button until the status LED blinks, and release.
Canceling print job	Press this button during printing. The red LED blinks while the print job is cleared from both the machine and the computer, and then the machine returns to ready mode. This may take some time depending on the size of the print job.
Manual print	Press this button during printing. The On Line/Error LED blinks while the print job is cleared from both the machine and the computer, and then return to ready mode. This may take some time depending on the size of the print job. In Manual Feed mode, you can't cancel the print job by pressing this button.

SUPPLIED SOFTWARE

You must install the printer software using the supplied CD after you have set up your machine and connected it to your computer. CD provides you with the following software.

CD	CONTENTS	
Printer software CD	Windows	<ul style="list-style-type: none">Printer driver: Use this driver to take full advantage of your printer's features.Smart Panel: This program allows you to monitor the machine's status and alerts you when an error occurs during printing.
	Linux	<ul style="list-style-type: none">Printer driver: Use this driver to run your machine from a Linux computer and print documents.Smart Panel: This program allows you to monitor the machine's status and alerts you when an error occurs during printing.
	Macintosh	<ul style="list-style-type: none">Printer driver: Use this driver to run your machine from a Macintosh computer and print documents.Smart Panel: This program allows you to monitor the machine's status and alerts you when an error occurs during printing.

PRINTER DRIVER FEATURES

Your printer drivers support the following standard features:

- Paper orientation, size, source and media type selection
- Number of copies

In addition, you can use various special printing features. The following table shows a general overview of features supported by your printer drivers:

Printer driver

FEATURE	WINDOWS	LINUX	MACINTOSH
Machine quality option	○	○	○
Poster printing	○	X	X
Multiple pages per sheet (N-up)	○	○ (2, 4)	○ (2, 4, 6, 9, 16)
Fit to page printing	○	X	○
Scale printing	○	X	○
Watermark	○	X	X
Overlay	○	X	X
Toner Save	○	X	X
Duplex (Manual)	○	X	X

getting started

This chapter gives you step-by-step instructions for setting up the machine.

This chapter includes:

- Setting up the hardware
- Printing a demo page

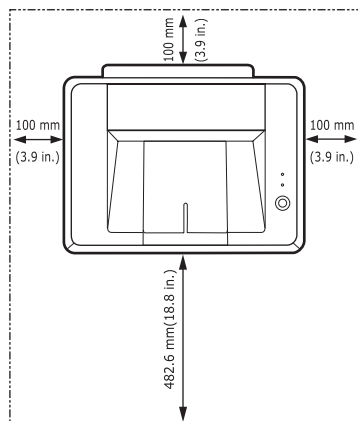
SETTING UP THE HARDWARE

This section shows the steps to set up the hardware which is explained in the *Quick Install Guide*. Make sure you read *Quick Install Guide* and complete following steps.

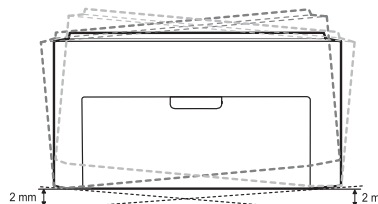
1. Select a stable location.

Select a level, stable place with adequate space for air circulation. Allow extra space to open covers and trays.

The area should be well-ventilated and away from direct sunlight or sources of heat, cold, and humidity. Do not set the machine close to the edge of your desk or table.




Printing is suitable for altitudes under 1,000 m (3,281 ft). Refer to the altitude setting to optimize your printing. Place the machine on a flat and stable surface, not letting it lean more than 2 mm (0.08 inches). Otherwise, it may affect the printing quality.



2. Unpack the machine and check all the enclosed items.
3. Remove the tape holding the machine tightly.
4. Install all four of the toner cartridge.
5. Load paper. (See "Loading paper" on page 22.)
6. Make sure that all the cables are connected to the machine.

- System requirements
- Installing the software

7. Turn the machine on.

 When you move the machine, do not tilt or turn it upside down. Otherwise, the inside of the machine may be contaminated by toner, which can cause damage to the machine or bad print quality.

PRINTING A DEMO PAGE

Print a demo page to make sure that the machine is operating correctly. To print a demo page:

In ready mode, press and hold the  **Cancel** button for about 2 seconds.


SYSTEM REQUIREMENTS

Before you begin, ensure that your system meets the following requirements:

Windows

Your machine supports the following Windows operating systems.

OPERATING SYSTEM	REQUIREMENT (RECOMMENDED)		
	CPU	RAM	FREE HDD SPACE
Windows 2000	Pentium II 400 MHz (Pentium III 933 MHz)	128 MB (256 MB)	600 MB
Windows XP	Pentium III 933 MHz (Pentium IV 1 GHz)	128 MB (256 MB)	1.5 GB
Windows 2003 Server	Pentium III 933 MHz (Pentium IV 1 GHz)	128 MB (512 MB)	1.25 GB to 2 GB
Windows Vista	Pentium IV 4.3 GHz	512 MB (1024 MB)	15 GB

-  Internet Explorer 6.0 or higher is the minimum requirement for all Windows operating systems.
- Users who have an administrator right can install the software.

Linux


ITEM	REQUIREMENTS
Operating system	RedHat 8.0 ~ 9.0 Fedora Core 1, 2, 3, 4 Mandrake 9.2 ~ 10.1 SuSE 8.2 ~ 9.2 Ubuntu 6.0
CPU	Pentium IV 1 GHz or higher
RAM	256 MB or higher
Free HDD space	1 GB or higher
Connection	USB interface,
Software	Linux Kernel 2.4 or higher Glibc 2.2 or higher CUPS

Macintosh

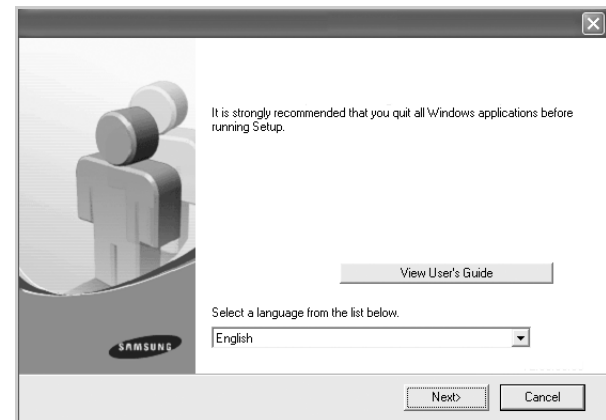
ITEM	REQUIREMENTS
Operating system	Mac OS X 10.3~10.5
CPU	Intel processor Power PC G4/G5
RAM	512 MB for an Intel-based Mac, 128 MB for a Power PC based Mac
Free HDD space	1 GB
Connection	USB interface,

INSTALLING THE SOFTWARE

You have to install the machine software for printing. The software includes drivers, applications, and other user friendly programs.

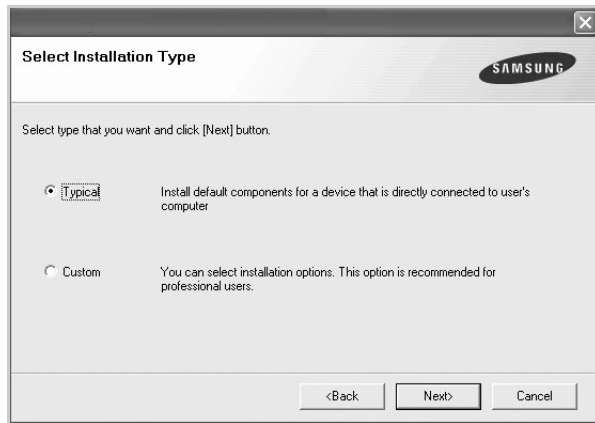
 The following procedure is based on the Windows XP operating system. The procedure and popup window which appear during the installation may differ depending on the operating system, the printer feature, or the interface in use.

1. Make sure that your machine is connected to the computer.
2. Insert the Printer Software CD-ROM into your CD-ROM drive. The CD-ROM should automatically run, and an installation window appears. If the installation window does not appear, click **Start > Run**. Type X:\Setup.exe, replacing "X" with the letter which represents your drive and click **OK**. If you use Windows Vista, click **Start > All Programs > Accessories > Run**, and type X:\Setup.exe. If the **AutoPlay** window appears in Windows Vista, click **Run Setup.exe** in **Install or run program** field, and click **Continue** in the **User Account Control** window.
3. Click **Next**.



- The window above may slightly differ, if you are reinstalling the driver.
- **View User's Guide:** Allows you to view the User's Guide. If your computer does not have Adobe Acrobat, clicking on this button will automatically install Adobe Acrobat Reader for you, and then open the User's Guide.

4. Select **Typical**, and then click **Next**.



5. After the installation is finished, a window appears asking you to print a test page and to register yourself as a user of Samsung machines in order to receive information from Samsung. If you desire, select the corresponding checkbox(es) and click **Finish**.




- If your machine does not work properly after the installation, try to reinstall the printer driver. See *Software section*.
- During the printer driver installation process, the driver installer detects the location information for your operating system and sets the default paper size for your machine. If you use a different Windows location, you must change the paper size to match the paper you usually use. Go to printer properties to change the paper size after installation is complete.

selecting and loading print media

This chapter introduces you how to load originals and print media into your machine.

This chapter includes:

- Selecting print media
- Loading paper
- Setting the paper size and type

 The illustrations of the machine are based on ML-2240 series. ML-1640 series does not have a manual tray.


SELECTING PRINT MEDIA


You can print on a variety of print media, such as plain paper, envelopes, labels, and transparencies. Always use print media that meet the guidelines for use with your machine. Print media that does not meet the guidelines outlined in this user's 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 later in this section.
- 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.

-  • Some print media may meet all of the guidelines in this section and still not produce satisfactory results. This may be the result of improper handling, unacceptable temperature and humidity levels, or other variables over which Samsung has no control.
- Before purchasing large quantities of print media, ensure that it meets the requirements specified in this user's guide.

 Using print media that does not meet these specifications may cause problems, requiring repairs. Such repairs are not covered by Samsung's warranty or service agreements.

Specifications on print media

TYPE	SIZE	DIMENSIONS	WEIGHT ^A	CAPACITY ^B
Plain paper	Letter	216 x 279 mm (8.5 x 11 inches)	<ul style="list-style-type: none"> 60 to 90 g/m² (16 to 24 lb bond) for the tray 60~165 g/m² (16 to 43 lb bond) for manual feeding in the tray 	<ul style="list-style-type: none"> 150 sheets of 75 g/m² (20 lb bond) paper for the tray 1 sheet for manual feeding in the tray
	Legal	216 x 356 mm (8.5 x 14 inches)		
	Folio	216 x 330 mm (8.5 x 13 inches)		
	A4	210 x 297 mm (8.26 x 11.69 inches)		
	Oficio	216 x 343 mm (8.5 x 13.5 inches)		
	JIS B5	182 x 257 mm (7.16 x 10.11 inches)		
	ISO B5	176 x 250 mm (6.93 x 9.84 inches)		
	Executive	184 x 267 mm (7.25 x 10.5 inches)		
	A5	148 x 210 mm (5.82 x 8.26 inches)		
	A6	105 x 148 mm (4.13 x 5.82 inches)		
Envelope	Monarch	98 x 191 mm (3.87 x 7.5 inches)	75 to 90 g/m ² (20 to 24 lb bond)	1 sheet for manual feeding in the tray
	No. 10	105 x 241 mm (4.12 x 9.5 inches)		
	DL	110 x 220 mm (4.33 x 8.66 inches)		
	C5	162 x 229 mm (6.37 x 9.01 inches)		
	C6	114 x 162 mm (4.48 x 6.38 inches)		
Thick paper	Refer to the Plain paper section	Refer to the Plain paper section	90 to 105 g/m ² (24 to 28 lb bond)	
Labels ^c	Letter, A4	Refer to the Plain paper section	120 to 150 g/m ² (32 to 40 lb bond)	
Transparency	Letter, A4	Refer to the Plain paper section	138 to 146 g/m ² (37 to 39 lb bond)	
Card stock	Post card	101.6 x 152.4 mm (4 x 6 inches)	90 to 163 g/m ² (24 to 43 lb bond)	
Minimum size (custom)		76 x 127 mm (3 x 5 inches)	60 to 165 g/m ² (16 to 43 lb bond)	
Maximum size (custom)		216 x 356 mm (8.5 x 14 inches)		

a. If media weight is over 90 g/m² (24 lb bond), load a paper into the tray one by one.

b. Maximum capacity may differ depending on media weight, thickness, and environmental conditions.


c. Smoothness: 100 to 250 (sheffield)

Guidelines for special print media

MEDIA TYPE	GUIDELINES
Envelopes	<ul style="list-style-type: none"> Successful printing on envelopes depends upon the quality of the envelopes. When selecting envelopes, consider the following factors: <ul style="list-style-type: none"> Weight: The weight of the envelope paper should not exceed 90 g/m² or jamming may occur. Construction: Prior to printing, envelopes should lie flat with less than 6 mm curl, and should not contain air. Condition: Envelopes should not be wrinkled, nicked, or otherwise damaged. Temperature: You should use envelopes that are compatible with 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. <div data-bbox="479 832 788 1083" style="text-align: center;"> <p>1 Acceptable 2 Unacceptable</p> </div> <ul style="list-style-type: none"> 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. Check your machine's specification to view the fusing temperature, see page 40. 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.

MEDIA TYPE	GUIDELINES
Labels	<ul style="list-style-type: none"> To avoid damaging the machine, use only labels designed for use in laser machines. <ul style="list-style-type: none"> When selecting labels, consider the following factors: <ul style="list-style-type: none"> Adhesives: The adhesive material should be stable at your machine's fusing temperature. Check your machine's specification to view the fusing temperature, see page 40. Arrangement: Only use labels with no exposed backing between them. Labels can peel off sheets that have spaces between the labels, causing serious jams. Curl: Prior to printing, labels must lie flat with no more than 13 mm 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 or custom-sized materials	<ul style="list-style-type: none"> Do not print on media smaller than 76 mm wide or 127 mm long. In the software application, set margins at least 6.4 mm away from the edges of the material.
Transparencies	<ul style="list-style-type: none"> To avoid damaging the machine, use only transparencies designed for use in laser printers. Transparencies used in the machine must be able to withstand 180 °C, the machine's fusing temperature. Place them on a flat surface after removing them from the machine. Do not leave them in the paper tray for long periods of time. Dust and dirt may accumulate on them, resulting in spotty printing. To avoid smudging caused by fingerprints, handle them carefully. To avoid fading, do not expose printed transparencies to prolonged sunlight. Ensure that transparencies are not wrinkled, curled, or have any torn edges.

MEDIA TYPE	GUIDELINES
Preprinted paper	<ul style="list-style-type: none"> • Letterhead 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. Check your machine's specification to view the fusing temperature, see page 40. • Letterhead ink must be non-flammable and should not adversely affect printer rollers. • Forms and letterhead should be sealed in a moisture-proof wrapping to prevent changes during storage. • Before you load preprinted paper, such as forms and letterhead, verify that the ink on the paper is dry. During the fusing process, wet ink can come off preprinted paper, reducing print quality.

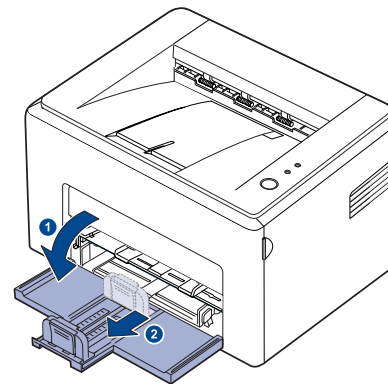
 Using photographic paper or coated paper may cause problems, requiring repairs. Such repairs are not covered by Samsung's warranty or service agreements.


LOADING PAPER

Loading paper in the tray

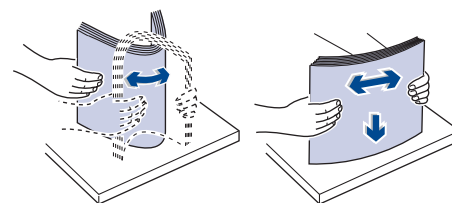
Load the print media you use for the majority of your print jobs in the tray. The tray can hold a maximum of 150 sheets of 75 g/m² (20 lb bond) plain paper.

1. Grasp the paper input tray and pull it toward you to open. Pinch the rear guide and pull it out to extend the tray.

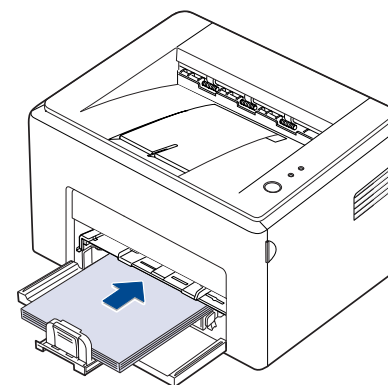



 Because the machine is very light, it may be moved when you use it; for example, when opening/closing the tray or installing/removing the toner cartridge. Be careful not to move the machine.

2. Prepare a stack of paper for loading by flexing or fanning them back and forth. Straighten the edges on a level surface.

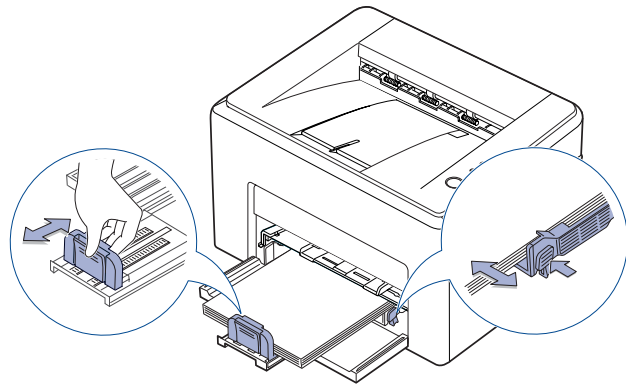


3. Load paper with the print side facing up. Make sure that all four corners are flat in the tray.

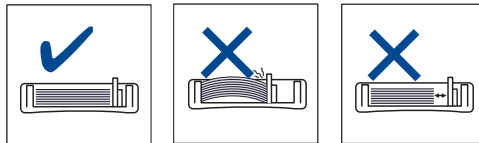


 Pay attention not to overload paper. Paper overloading may cause paper jams.

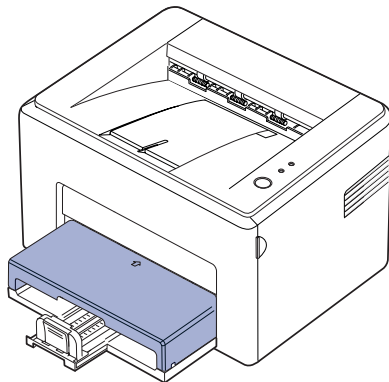
- Pinch the rear guide to adjust for the paper length and pinch the side guide and slide it to the left flush against the paper.



- Do not push the width guide far enough to cause the material to warp.
- If you do not adjust the width guide, it may cause paper jam.



- If necessary, close the paper cover to keep the paper loaded in the tray from dust.



SETTING THE PAPER SIZE AND TYPE

After loading paper in the paper tray, you need to set the paper size and type using the printer driver. Follow these steps to make your changes permanent.

 The following procedure is for Windows XP. For other Windows OS, refer to the corresponding Windows User's Guide or online help.

- Click the **Start** button on the computer screen.
- Select **Printers and Faxes**.
- Right-click on the printer driver icon and select **Printing Preferences**.
- Click the **Paper** tab, and change the settings on **Paper Options**.
- Click **OK**.

basic printing

This chapter explains common printing tasks.

This chapter includes:

- Printing a document
- Canceling a print job

PRINTING A DOCUMENT

Your machine allows you to print from various Windows, Macintosh, or Linux applications. The exact steps for printing a document may vary depending on the application you use.

For details about printing, see the *Software section*.


CANCELING A PRINT JOB

If the print job is waiting in a print queue or print spooler, such as the printer group in Windows, delete the job as follows:

1. Click the Windows **Start** menu.
2. For Windows 2000, select **Settings** and then **Printers**.
For Windows XP/2003, select **Printers and Faxes**.
For Windows Vista, select **Control Panel > Hardware and Sound > Printers**.
3. Double-click the **Samsung ML-2240 Series** icon.
4. From the **Document** menu, select **Cancel**.



You can also access this window by simply double-clicking the printer icon at the bottom right corner of the Windows desktop.


You can also cancel the current job by pressing  **Cancel** on the control panel.

maintenance

This chapter provides information for maintaining your machine and the toner cartridge.


This chapter includes:

- Cleaning your machine
- Maintaining the cartridge
- Replacing the toner cartridge

 The illustrations of the machine are based on ML-2240 series. ML-1640 series does not have a manual tray.

CLEANING YOUR MACHINE

To maintain print quality, follow the cleaning procedures below each time the toner cartridge is replaced or if print quality problems occur.

-  • Cleaning the cabinet of the machine with cleaning materials containing large amounts of alcohol, solvent, or other strong substances can discolor or distort the cabinet.
- If your machine or its surrounding is contaminated with toner, we recommend you to use cloth or tissue dampened with water to clean it. If you use a vacuum cleaner, toner blown into the air may be harmful.

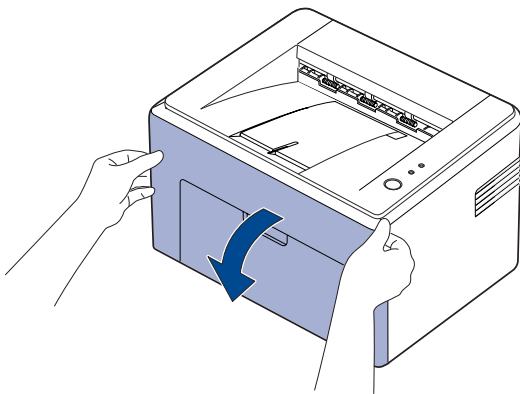
Cleaning the outside

Clean the cabinet of the machine with a soft lint-free cloth. You can dampen the cloth slightly with water, but be careful not to let any water drip onto or into the machine.

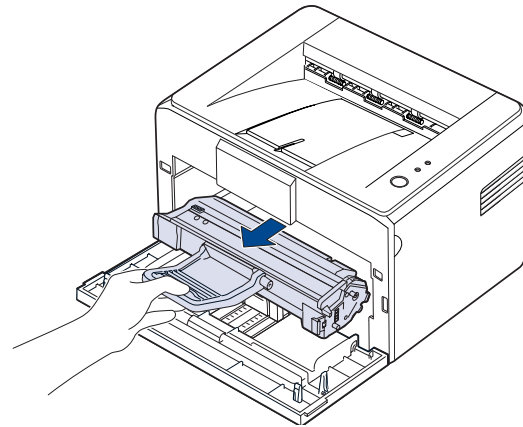
Cleaning the inside


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 or reduces these problems.

1. Turn the machine off and unplug the power cord, then wait for the machine to cool down.
2. Open the front cover.




3. Pull the toner cartridge out and remove it from the machine.

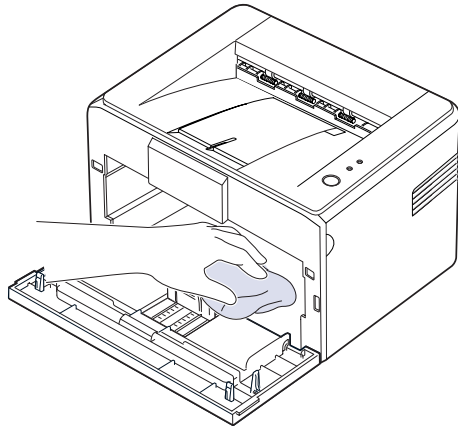



-  Because the machine is very light, it may be moved when you use it; for example, when opening/closing the tray or installing/removing the toner cartridge. Be careful not to move the machine.

4. Remove the manual tray by pulling it out.

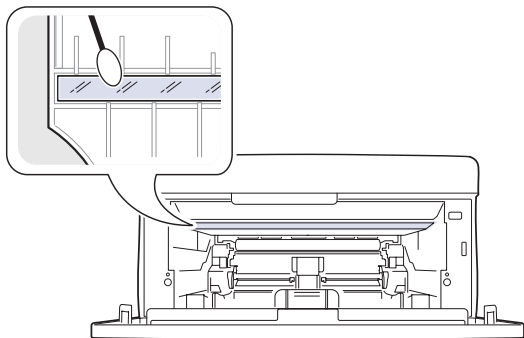
 ML-1640 series does not have a manual tray, go to step 5.

5. With a dry, lint-free cloth, wipe away any dust and spilled toner from the toner cartridge area and the toner cartridge cavity.




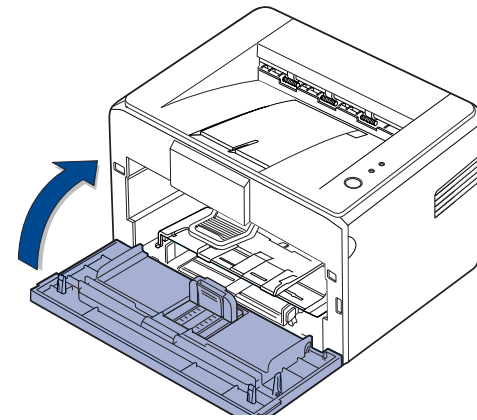
-  To prevent damage to the toner cartridge, do not expose it to light for more than few minute. Cover it with a piece of paper, if necessary. Also, do not touch the black transfer roller inside the machine.

6. Locate the long strip of glass (LSU) inside the top of the cartridge compartment, and gently swab the glass to see if dirt turns the white cotton black.



7. After inserting the manual tray and the toner cartridge, close the cover. Make sure that the cover is securely closed. If it is not firmly closed, printing errors may occur when you print.

-  If it is not firmly closed, printing errors may occur when you print.



8. Plug in the power cord, and turn the machine on.

MAINTAINING THE CARTRIDGE

Toner cartridge storage

To get the most from the toner cartridge, keep the following guidelines in mind:

- Do not remove the toner cartridge from its package until ready for use.
- Do not refill the toner cartridge. The machine warranty does not cover damage caused by using a refilled cartridge.
- Store toner cartridges in the same environment as your machine.
- To prevent damage to the toner cartridge, do not expose it to light for more than a few minutes.

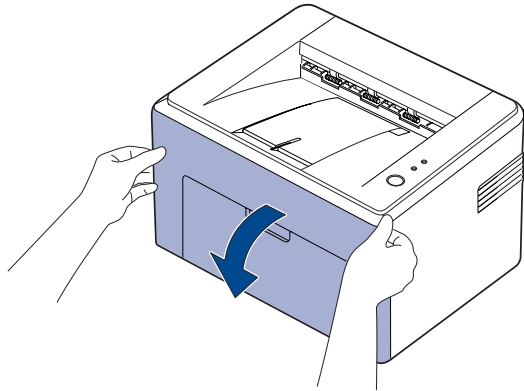
Expected cartridge life

The life of the toner cartridge yield depends on the amount of toner that print jobs require. The actual number may also be different depending on the print density of the pages you print on, and the number of pages may be affected by operating environment, printing interval, media type, and media size. If you print a lot of graphics, you may need to change the cartridge more often.

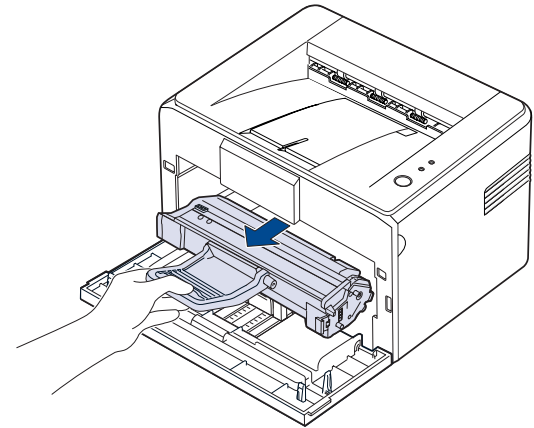
Redistributing toner

When a toner is low, faded or light areas may appear. You can temporarily improve print quality by redistributing the toner.

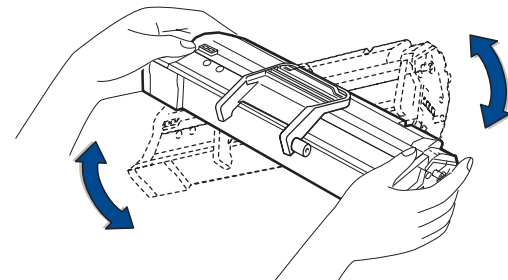
1. Open the front cover.



2. Pull the toner cartridge out and remove it from the machine.

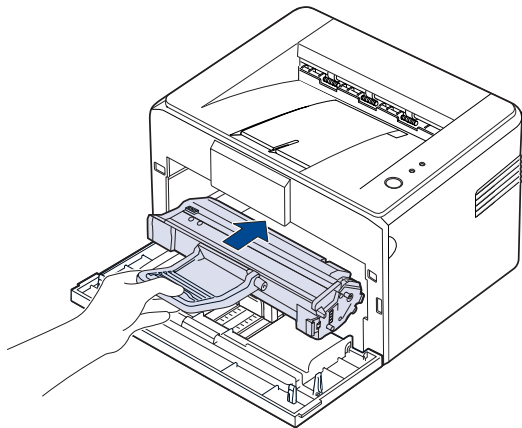


- ⚠ • Avoid reaching too far into the machine. The fusing area may be hot.
 - ⚠ • To prevent damage to the toner cartridge, do not expose it to light for more than few minutes.
 - ⚠ • Do not touch the green surface (or sky blue), the OPC drum, with your hands or any other material. Use the handle on the cartridge to avoid touching this area.
 - Be careful not to expose the green surface (or sky blue), the OPC drum, into light. This will cause damage to the OPC drum. Cover the toner cartridge's OPC drum with paper to avoid damaging it from the light.
 - Do not turn the toner cartridge over.
- ☑ Because the machine is very light, it may be moved when you use it; for example, when opening/closing the tray or installing/removing the toner cartridge. Be careful not to move the machine.
3. Gently shake the toner cartridge from side to side five or six times to redistribute the toner.

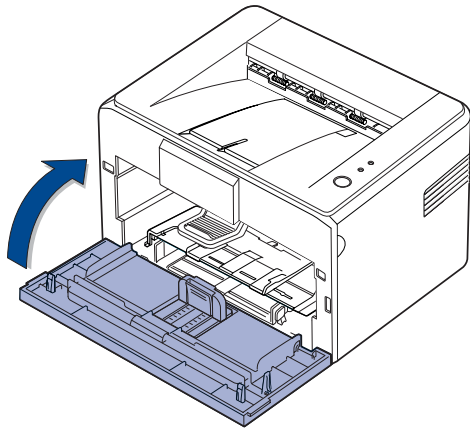


- ☑ If toner gets on your clothing, wipe it off with a dry cloth and wash it in cold water. Hot water sets toner into fabric.

4. Reinsert the toner cartridge into the machine. Ensure that the toner cartridge snaps into place.



5. Close the front cover. Make sure that the cover is securely closed. If it is not firmly closed, printing errors may occur when you print.

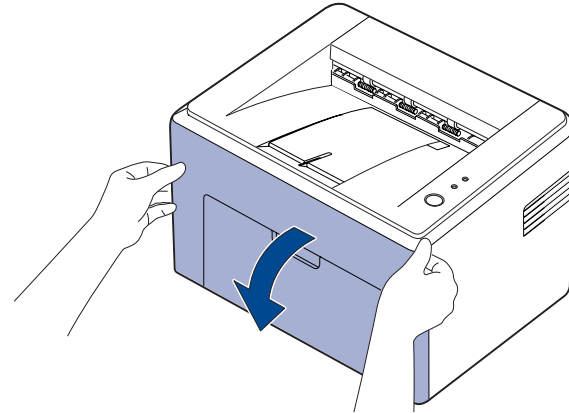



REPLACING THE TONER CARTRIDGE

When the status LED lights red, it means the machine cartridge is totally exhausted. Your machine stops printing. Also, the Smart Panel program window appears on the computer telling you to replace the cartridge.

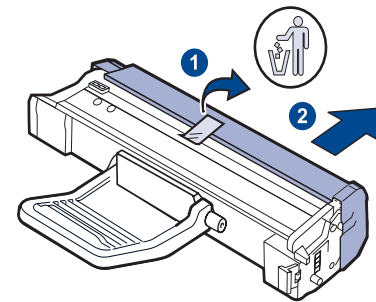
At this stage, the toner cartridge needs to be replaced. Check the type of toner cartridge for your machine. (See "Supply" on page 39.)


1. Turn the machine off, then wait a few minutes for the machine to cool.
2. Grasp the front cover and pull it toward you to open.



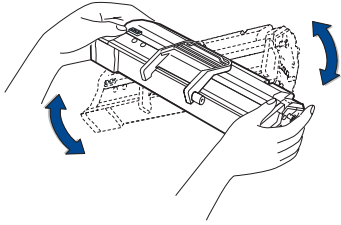
-  Because the machine is very light, it may be moved when you use it; for example, when opening/closing the tray or installing/removing the toner cartridge. Be careful not to move the machine.


3. Remove the toner cartridge from its bag and remove the cap protecting the cartridge by pulling the packing tape.




-  • Do not touch the green surface (or sky blue), the OPC drum, with your hands or any other material. Use the handle on the cartridge to avoid touching this area.
- Be careful not to expose the green surface (or sky blue), the OPC drum, into light. This will cause damage to the OPC drum. Cover the toner cartridge's OPC drum with paper to avoid damaging it from the light.
 - Do not turn the toner cartridge over.

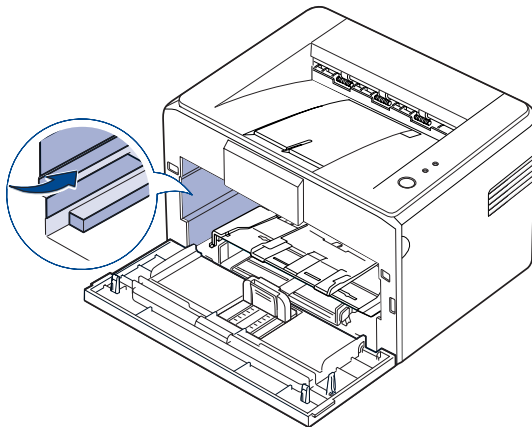
4. Holding both handles on the toner cartridge, thoroughly rock it from side to side to evenly distribute the toner.



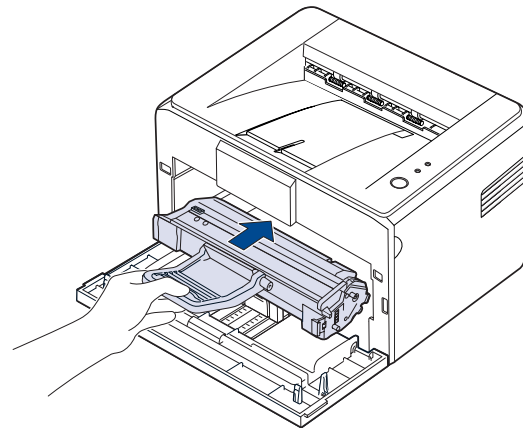
 If toner gets on your clothing, wipe it off with a dry cloth and wash it in cold water. Hot water sets toner into fabric.


-  • Don't use sharp objects, such as a knife or scissors, to open the toner cartridge package. You could damage the surface of the toner cartridge.
- To prevent damage, do not expose the toner cartridge to light for more than a few minutes. Cover it with a piece of paper to protect it if necessary.


5. Locate the cartridge slots inside the machine, one on each side.



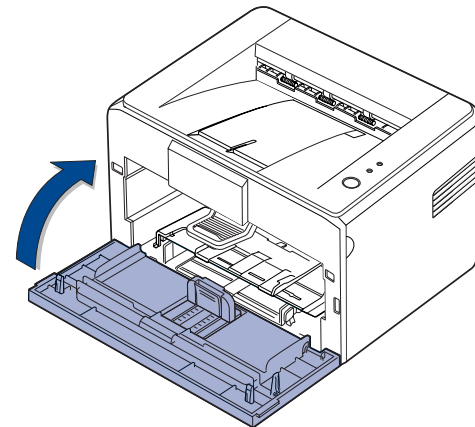
6. Unfold the toner cartridge handle and grasp it. Insert the cartridge in the machine until it snaps into place.




 Carefully insert or pull out the toner cartridge not to scratch against the machine.

-  • Do not touch the green surface (or sky blue), the OPC drum, with your hands or any other material. Use the handle on the cartridge to avoid touching this area.
- Be careful not to expose the green surface (or sky blue), the OPC drum, into light. This will cause damage to the OPC drum. Cover the toner cartridge's OPC drum with paper to avoid damaging it from the light.
- Do not turn the toner cartridge over.

7. Close the front cover. Make sure that the cover is securely closed. If the cover is not firmly closed, printing errors may occur when you print.




 Average yield for a new toner cartridge is 1,500 standard pages in accordance with the ISO/IEC 19752 standard. (Average yield for the original toner cartridge supplied with the machine is 700 standard pages.)

troubleshooting

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

This chapter includes:

- Tips for avoiding paper jams
- Clearing paper jams
- Solving other problems

 The illustrations of the machine are based on ML-2240 series. ML-1640 series does not have a manual tray.

TIPS FOR AVOIDING PAPER JAMS

By selecting the correct media types, most paper jams can be avoided. When a paper jam occurs, follow the steps outlined on page 30.


- Follow the procedures on page 22. 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 "Setting the paper size and type" on page 23.)
- Ensure that the recommended side of the print media is facing up in the tray.

If a paper jam occurs, the error LED on the control panel lights orange. Find and remove the jammed paper.

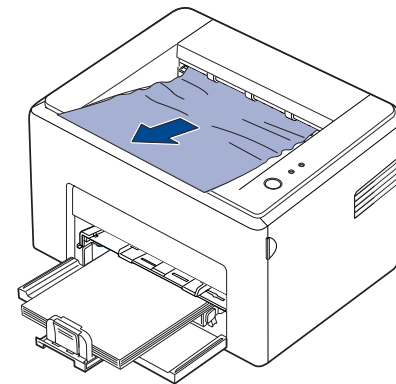
To resume printing after clearing paper jams, you must open and close the front cover.

CLEARING PAPER JAMS

In the paper exit area

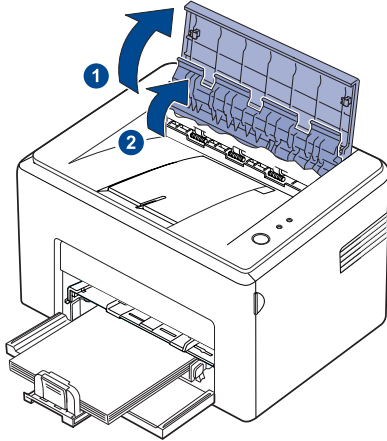
 Paper jams in this area may result in loose toner on the page. If you get any toner on your clothes, wash them in cold water as hot water will set the toner into the fabric.

1. If the paper jams as it exits to the output tray and a long portion of the paper is visible, pull the paper straight out.



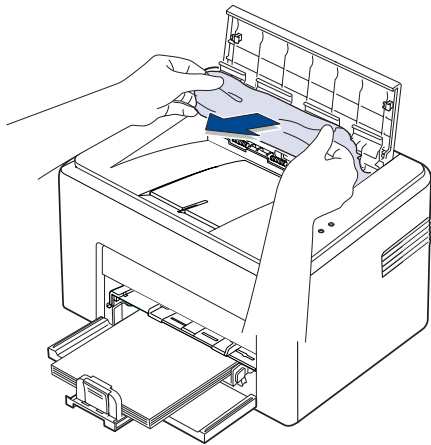
When you pull the jammed paper, if there is resistance and the paper does not move immediately, stop pulling. Continue with the next step.

2. Open the top cover and the inner cover.

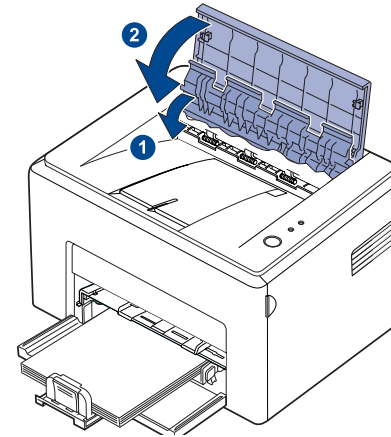


- When removing the jammed paper, be careful not to touch the heat roller (located underneath the inner cover). It is hot and could cause burns!
- The top and inner cover themselves may also be hot due to the heat roller. Allow the machine to cool before opening the covers.

3. Loosen the paper if it is caught in the heat rollers. Then pull the paper gently out.



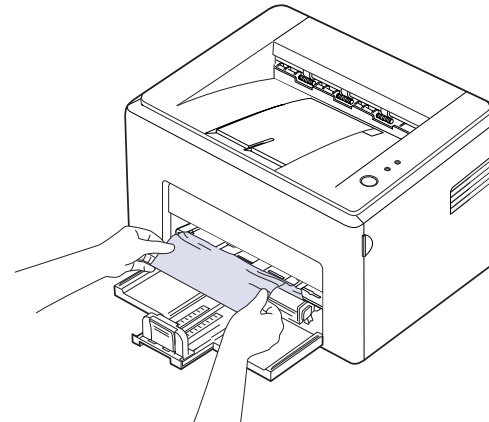
4. Close the inner cover and the top cover. Printing resumes automatically.



Failed pages will not reprint. Try printing the pages.

In the paper feed area

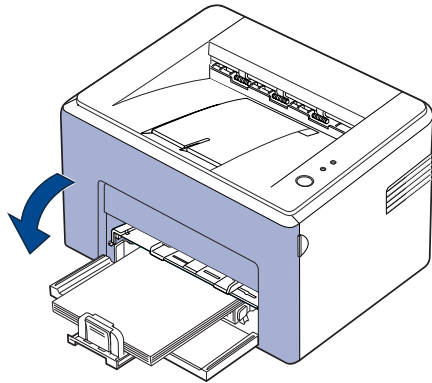
1. Remove any misfeed paper by pulling it out by the visible edge from the tray. Make sure that all of the paper is properly aligned in the tray.



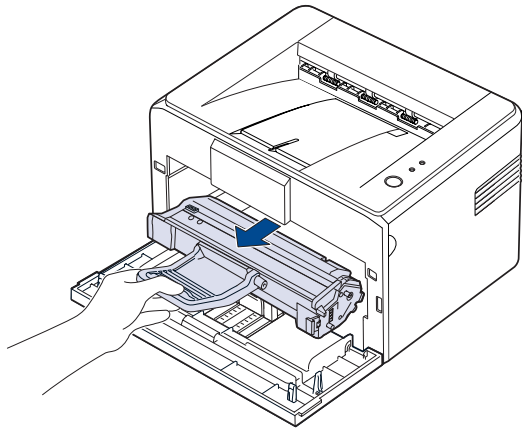
2. Open and close the front or top cover to resume printing the document from failed pages.

Around the toner cartridge

1. Open the front cover.

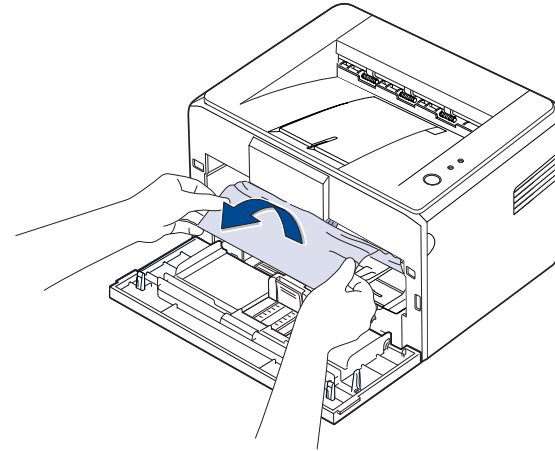


2. Pull the toner cartridge out and remove it from the machine.



- ⚠ Do not touch the green surface (or sky blue), the OPC drum, with your hands or any other material. Use the handle on the cartridge to avoid touching this area.
- Be careful not to expose the green surface (or sky blue), the OPC drum, into light. This will cause damage to the OPC drum. Cover the toner cartridge's OPC drum with paper to avoid damaging it from the light.
- Do not turn the toner cartridge over.

3. Gently pull the paper toward you.



4. Check that there is no other paper in the machine.
5. Reinstall the toner cartridge and close the front cover. Your machine resumes printing the document from failed pages.

SOLVING OTHER PROBLEMS

The following chart lists some conditions that may occur and the recommended chart solutions. Follow the suggested solutions until the problem is corrected. If the problem persists, call for service.


Paper feeding

CONDITION	SUGGESTED SOLUTIONS
Paper is jammed during printing.	Clear the paper jam. See page 30.
Paper sticks together.	<ul style="list-style-type: none">• Ensure there is not too much paper in the tray. The tray can hold up to 150 sheets of paper, depending on the thickness of your paper.• Make sure that you are using the correct type of paper. See page 23.• 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.	<ul style="list-style-type: none">• Different types of paper may be stacked in the tray. Load paper of only one type, size, and weight.• If multiple sheets have caused a paper jam, clear the paper jam. See page 30.
Paper does not feed into the machine.	<ul style="list-style-type: none">• 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. See page 19.

CONDITION	SUGGESTED SOLUTIONS
The paper keeps jamming.	<ul style="list-style-type: none"> There is too much paper in the tray. Remove excess paper from the tray. If you are printing on special materials, load only one size of print media at a time in the tray. An incorrect type of paper is being used. Use only paper that meets the specifications required by the machine. See page 20. There may be debris inside the machine. Open the front cover and remove the debris.
Envelopes skew or fail to feed correctly.	Ensure the paper guides are against both sides of the envelopes.

Printing problems

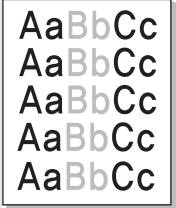
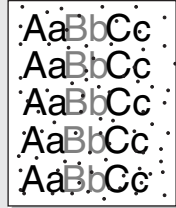
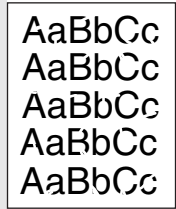
CONDITION	POSSIBLE CAUSE	SUGGESTED SOLUTIONS
The machine does not print.	The machine is not receiving power.	Check the power cord connections. Check the power switch and the power source.
	The machine is not selected as the default printer.	Select Samsung ML-2240 Series as your default printer in your Windows.
	<ul style="list-style-type: none"> Check the machine for the following: <ul style="list-style-type: none"> The front cover is not closed. Close the cover. Paper is jammed. Clear the paper jam. See page 30. No paper is loaded. Load paper. See page 22. The toner cartridge is not installed. Install the toner cartridge. If a system error occurs, contact your service representative. 	
	The connection cable between the computer and the machine is not connected properly.	Disconnect the printer cable and reconnect it.
	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 printer cable.
	The port setting is incorrect.	Check the Windows printer setting 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 printer properties to ensure that all of the print settings are correct.
	The printer driver may be incorrectly installed.	Repair the printer software. See the <i>Software section</i> .
The machine is malfunctioning.	Check the LEDs status on the control panel to see if the machine is indicating a system error.	
The machine selects print materials from the wrong paper source.	The paper source selection in the printer properties may be incorrect.	For many software applications, the paper source selection is found under the Paper tab within the printer properties. Select the correct paper source. See the printer driver help screen.

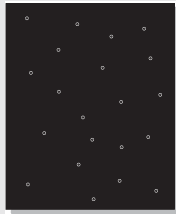
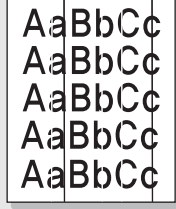
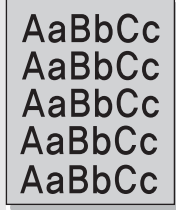
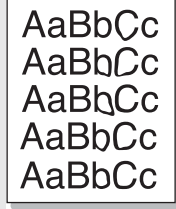
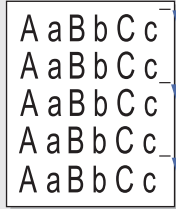
CONDITION	POSSIBLE CAUSE	SUGGESTED SOLUTIONS
A print job is extremely slow.	The job may be very complex.	Reduce the complexity of the page or try adjusting the print quality settings.
Half the page is blank.	The page orientation setting may be incorrect.	Change the page orientation in your application. See the printer driver help screen.
	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.
The machine prints, but the text is wrong, garbled, or incomplete.	The printer cable is loose or defective.	Disconnect the printer cable and reconnect. Try a print job that you have already printed successfully. If possible, attach the cable and the machine to another computer and try a print job that you know works. Finally, try a new printer 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 then back on again.
Pages print, but are blank.	The toner cartridge is defective or out of toner.	Redistribute the toner, if necessary. See page 27. If necessary, replace the toner cartridge.
	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.
The machine does not print PDF file correctly. Some parts of graphics, text, or illustrations are missing.	Incompatibility between the PDF file and the Acrobat products.	Printing the PDF file as an image may solve this problem. Turn on Print As Image from the Acrobat printing options.  It will take longer to print when you print a PDF file as an image.

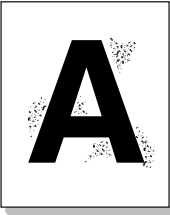
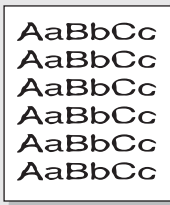
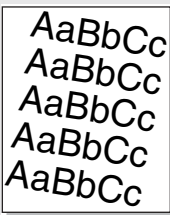
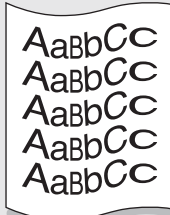
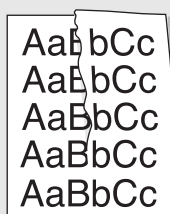
CONDITION	POSSIBLE CAUSE	SUGGESTED SOLUTIONS
Your machine has an odd smell during initial use.	The oil used to protect the fuser is evaporating.	It is a temporary issue.
The print quality of photos is not good. Images are not clear.	The resolution of the photo is very low.	Reduce the photo size. If you increase the photo size in the software application, the resolution will be reduced.
Before printing, the machine emits vapor near the output tray.	Using damp paper can cause vapor during printing.	This is not a problem. Just keep printing.

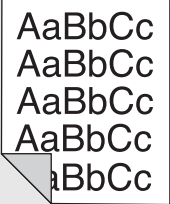

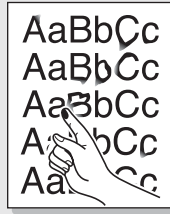
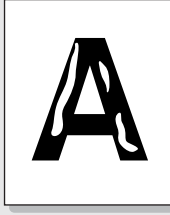
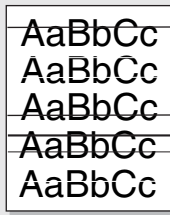
Printing quality problems

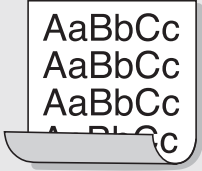
If the inside of the machine is dirty or paper has been loaded improperly, you may notice a reduction in print quality. See the table below to clear the problem.

CONDITION	SUGGESTED SOLUTIONS
Light or faded print 	<p>If a vertical white streak or faded area appears on the page:</p> <ul style="list-style-type: none"> The toner supply is low. You may be able to temporarily extend the toner cartridge life. See page 28. If this does not improve the print quality, install a new toner cartridge. The paper may not meet paper specifications; for example, the paper is too moist or too rough. See page 19. If the entire page is light, the print resolution setting is too low. Adjust the print resolution. See the help screen of the printer driver. A combination of faded or smeared defects may indicate that the toner cartridge needs cleaning. The surface of the LSU part inside the machine may be dirty. Clean the LSU by opening and closing the front cover several times and if the problem still occurs call the contact a service representative.
Toner specks 	<ul style="list-style-type: none"> The paper may not meet specifications; for example, the paper is too moist or too rough. See page 19. The paper path may need cleaning. See "Cleaning the inside" on page 25.
Dropouts 	<p>If faded areas, generally rounded, occur randomly on the page:</p> <ul style="list-style-type: none"> 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. See page 19. 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 printer properties, click Paper tab, and set type to Thick Paper. Refer to the <i>Software section</i> for details. <p>If these steps do not correct the problem, contact a service representative.</p>

CONDITION	SUGGESTED SOLUTIONS
White Spots 	<p>White spots appear on the page:</p> <ul style="list-style-type: none"> The paper is too rough and a lot of dirt from the paper falls to the inner devices within the machine, which means the transfer belt may be dirty. Clean the inside of your machine. Contact a service representative. The paper path may need cleaning. Contact a service representative.
Vertical lines 	<p>If white vertical streaks appear on the page:</p> <ul style="list-style-type: none"> The surface of the LSU part inside the machine may be dirty. Clean the LSU by opening and closing the front cover several times and if the problem still occurs call the contact a service representative.
Black background 	<p>If the amount of background shading becomes unacceptable:</p> <ul style="list-style-type: none"> Change to a lighter weight paper. See page 19. Check the machine's environment: very dry (low humidity) or high humidity (higher than 80% RH) conditions can increase the amount of background shading. Remove the old toner cartridge and install a new one. See page 28.
Toner smear 	<ul style="list-style-type: none"> Clean the inside of the machine. See page 25. Check the paper type and quality. See page 19. Remove the toner cartridge and install a new one. See page 28.
Vertical repetitive defects 	<p>If marks repeatedly appear on the printed side of the page at even intervals:</p> <ul style="list-style-type: none"> The toner cartridge may be damaged. If a repetitive mark occurs on the page, print a cleaning sheet several times to clean the cartridge. After the printout, if you still have the same problems, remove the toner cartridge and install a new one. See page 28. 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.


CONDITION	SUGGESTED SOLUTIONS
Background scatter 	<p>Background scatter results from bits of toner randomly distributed on the printed page.</p> <ul style="list-style-type: none"> 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. If background scatter covers the entire surface area of a printed page, adjust the print resolution through your software application or the printer properties.
Misformed characters 	<ul style="list-style-type: none"> If characters are improperly formed and producing hollow images, the paper stock may be too slick. Try a different paper. See page 19.
Page skew 	<ul style="list-style-type: none"> Ensure that the paper is loaded properly. Check the paper type and quality. See page 19. Ensure that the paper or other material is loaded correctly and the guides are not too tight or too loose against the paper stack.
Curl or wave 	<ul style="list-style-type: none"> Ensure that the paper is loaded properly. Check the paper type and quality. Both high temperature and humidity can cause paper curl. See page 19. Turn over the stack of paper in the tray. Also try rotating the paper 180° in the tray.
Wrinkles or creases 	<ul style="list-style-type: none"> Ensure that the paper is loaded properly. Check the paper type and quality. See page 19. Turn over the stack of paper in the tray. Also try rotating the paper 180° in the tray.

CONDITION	SUGGESTED SOLUTIONS
Back of printouts are dirty 	<ul style="list-style-type: none"> Check for leaking toner. Clean the inside of the machine. See page 25.
Black pages 	<ul style="list-style-type: none"> The toner cartridge may not be installed properly. Remove the cartridge and reinsert it. The toner cartridge may be defective and need replacing. Remove the toner cartridge and install a new one. See page 28. The machine may require repair. Contact a service representative.
Loose toner 	<ul style="list-style-type: none"> Clean the inside of the machine. See page 25. Check the paper type and quality. See page 19. Remove the toner cartridge and install a new one. See page 28. If the problem persists, the machine may require repair. Contact a service representative.
Character Voids 	<p>Character voids are white areas within parts of characters that should be solid black:</p> <ul style="list-style-type: none"> If you are using transparencies, try another type of transparency. Because of the composition of transparencies, some character voids are normal. 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. See page 19.
Horizontal stripes 	<p>If horizontally aligned black streaks or smears appear:</p> <ul style="list-style-type: none"> The toner cartridge may be installed improperly. Remove the cartridge and reinsert it. The toner cartridge may be defective. Remove the toner cartridge and install a new one. See page 28. If the problem persists, the machine may require repair. Contact a service representative.

CONDITION	SUGGESTED SOLUTIONS
<p>Curl</p> 	<p>If the printed paper is curled or paper does not feed into the machine:</p> <ul style="list-style-type: none"> • Turn over the stack of paper in the tray. Also try rotating the paper 180° in the tray. • Change the printer option and try again. Go to printer properties, click Paper tab, and set type to Thin Paper. Refer to the <i>Software section</i> for details.
<p>An unknown image repetitively appears on a next few sheets or loose toner, light print, or contamination occurs.</p>	<p>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. You can set this option through Paper or Printer tab in printer driver's properties.</p>


Common Windows problems

CONDITION	SUGGESTED SOLUTIONS
<p>“File in Use” message appears during installation.</p>	<p>Exit all software applications. Remove all software from the StartUp Group, then restart Windows. Reinstall the printer driver.</p>
<p>“General Protection Fault”, “Exception OE”, “Spool32”, or “Illegal Operation” messages appear.</p>	<p>Close all other applications, reboot Windows and try printing again.</p>
<p>“Fail To Print”, “A printer timeout error occurred.” messages appear.</p>	<p>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 been completed, check the connection and/or whether an error has occurred.</p>


 Refer to the Microsoft Windows documentation that came with your computer for further information on Windows error messages.


Common Linux problems

CONDITION	SUGGESTED SOLUTIONS
<p>The machine does not print.</p>	<ul style="list-style-type: none"> • Check if the printer driver is installed in your system. Open Unified Driver Configurator and switch to the Printers tab in Printers configuration window to look at the list of available printers. Make sure that your machine is displayed on the list. If not, please, invoke Add new printer wizard to set up your device. • Check if the printer is started. Open Printers configuration and select your machine on the printers list. Look at the description in the Selected printer pane. If its status contains “(stopped)” string, please, press the Start button. After that normal operation of the printer should be restored. The “stopped” status might be activated when some problems in printing occurred. • Check if your application has special print option such as “-oraw”. If “-oraw” is specified in the command line parameter then remove it to print properly. For Gimp front-end, select “print” -> “Setup printer” and edit command line parameter in the command item.
<p>The machine does not print whole pages and its output is half page printed.</p>	<p>The problem is solved in AFPL Ghostscript v. 8.52 or above. Download the latest version of AFPL Ghostscript from http://sourceforge.net/projects/ghostscript/ and install it to solve this problem.</p>
<p>I encounter error “Unable to open mfp port device file!” when printing a document.</p>	<p>Please avoid changing print job parameters (via LPR GUI, for example) while a print job is in progress. Known versions of CUPS server break the print job whenever print options are changed and then try to restart the job from the beginning. Since Unified Linux Driver locks mfp port while printing, the abrupt termination of the driver keeps the port locked and therefore unavailable for subsequent print jobs. If this situation occurred, please, try to release the mfp port.</p>

 Refer to Linux User's Guide that came with your computer for further information on Linux error messages.

Common Macintosh problems

CONDITION	SUGGESTED SOLUTIONS
The machine does not print PDF file correctly. Some parts of graphics, text, or illustrations are missing.	<p>Incompatibility between the PDF file and the Acrobat products: Printing the PDF file as an image may solve this problem. Turn on Print As Image from the Acrobat printing options.</p> <p> It will take longer to print when you print a PDF file as an image.</p>
The document has printed, but the print job has not disappeared from the spooler in Mac OS 10.3.2.	<p>Update your Mac OS to OS 10.3.3. or higher.</p>
Some letters are not displayed normally during the Cover page printing.	<p>This problem is caused because Mac OS cannot create the font during the Cover page printing. English alphabet and numbers are displayed normally at the Cover page.</p>

 Refer to Mac OS User's Guide that came with your computer for further information on Mac OS error messages.

ordering supplies and accessories

This chapter provides information on purchasing cartridges and accessories available for your machine.

This chapter includes:

- Supply
- Maintenance parts


 The optional parts or features may differ by countries. Contact your sales representatives whether the part you want is available in your country.

SUPPLY

When the toner runs out, you can order the following type of toner cartridge for your machine:

TYPE	AVERAGE YIELD	PART NUMBER
Standard yield ^a toner cartridge	Average cartridge yield: 1,500 standard pages	Europe region MLT-D1082S
		Others region MLT-D108S

a. Declared yield value in accordance with ISO/IEC 19752.

 When you purchase a new toner cartridge or supplies, you must purchase them in the same country you have purchased your machine. Otherwise, the toner cartridge or supplies will be incompatible with your machine since the configuration of the toner cartridge or supplies vary depending on the countries.

MAINTENANCE PARTS

To avoid print quality and paper feed problems resulting from worn parts, and to maintain your machine in top working condition the following condition, the following items will need to be replaced after the specified number of pages, or when the life span of each item has expired.

ITEMS	YIELD (AVERAGE)
Pick-up roller	Approx. 50,000 pages
Fuser unit	Approx. 50,000 pages
Transfer roller	Approx. 50,000 pages

We highly recommend that this maintenance be performed by an authorized service provider, dealer or the retailer where you bought the machine. The warranty does not cover the replacement of the maintenance parts after their lifespan.

HOW TO PURCHASE

To order Samsung-authorized supplies or accessories, contact your local Samsung dealer or the retailer where you purchased your machine, or visit www.samsungprinter.com and select your country/region to obtain information on calling for technical support.

specifications

This chapter guides you about this machine's specifications such as various features.

This chapter include:

- ML-1640 Series specifications
- ML-2240 Series Specifications

ML-1640 SERIES SPECIFICATIONS

ITEM	DESCRIPTION
Printing method	Laser beam printing
Printing speed ^a	Up to 16 ppm (A4), 17 ppm (Letter)
First print out time	<ul style="list-style-type: none">• From ready: Less than 10 seconds• From coldboot: Less than 36 seconds
Print resolution	Max. 1,200 x 600 dpi effective output
Printer language	SPL
OS compatibility ^b	<ul style="list-style-type: none">• Windows: 2000/XP/2003/Vista• Linux: RedHat 8.0~9.0, Mandrake 9.2~10.1, SuSE 8.2~9.2, Fedra Core 1~4, Ubuntu 6.0• Macintosh: Mac OS 10.3~10.5
Interface	Full speed USB 2.0
Paper input capacity	Tray: 150 sheets for plain paper, 75 g/m ² (20 lb bond) For details about paper input capacity, see 20 page.
Paper output capacity	Face down: 50 sheets 75 g/m ² (20 lb bond)
Power rating	AC 110 - 127 V or AC 220 - 240 V See the Rating label on the machine for the correct voltage, frequency (hertz) and type of current for your machine.
Power consumption	<ul style="list-style-type: none">• Average operating mode: Less than 300 W• Ready mode: Less than 70 W• Sleep mode: Less than 6W• Power off mode: 0W
Noise Level ^c	<ul style="list-style-type: none">• Ready mode: Less than 26 dBA• Printing mode: Less than 50 dBA
Default time to power save mode from ready mode	5 minutes
Warm-up time	Less than 35 seconds
Operating environment	Temperature: 10 to 32.5 °C (50 to 90 °F) Humidity: 20 to 80% RH

ITEM	DESCRIPTION
Toner cartridge life ^d	Average cartridge yield: 1,500 standard pages (Shipped with 700 pages toner cartridge.)
External dimension (W x D x H)	353 x 308x 209 mm (14.1 x 10.83 x 8.46 inches)
Weight (Including consumables)	5.7 Kg (lb)
Package weight	Paper: 5.8 Kg (12.7 lbs) Plastic: 1.8 Kg (3.86 lbs)
Duty cycle	Up to 5,000 images (Monthly) 8,000 images
Fusing temperature	180 °C (356 °F)

a. It will be affected by operating system used, computing performance, application software, connecting method, media type, media size and job complexity.

b. Visit www.samsungprinter.com to download the latest software version.

c. Sound Pressure Level, ISO 7779

d. Declared yield value in accordance with ISO/IEC 19752. The number of pages may be affected by operating environment, printing interval, media type, and media size.

ML-2240 SERIES SPECIFICATIONS

ITEM	DESCRIPTION
Printing method	Laser beam printing
Printing speed ^a	Up to 22 ppm (A4), 23 ppm (Letter)
First print out time	<ul style="list-style-type: none"> From ready: Less than 10 seconds From coldboot: Less than 25 seconds
Print resolution	Max. 1,200 x 600 dpi effective output
Printer language	SPL
OS compatibility ^b	<ul style="list-style-type: none"> Windows: 2000/XP/2003/Vista Linux: RedHat 8.0~9.0, Mandrake 9.2~10.1, SuSE 8.2~9.2, Fedora Core 1~4, Ubuntu 6.0 Macintosh: Mac OS 10.3~10.5
Interface	Full speed USB 2.0
Paper input capacity	Tray: 150 sheets for plain paper, 75 g/m ² (20 lb bond) For details about paper input capacity, see 20 page.
Paper output capacity	Face down: 100 sheets 75 g/m ² (20 lb bond)
Power rating	AC 110 - 127 V or AC 220 - 240 V See the Rating label on the machine for the correct voltage, frequency (hertz) and type of current for your machine.
Power consumption	<ul style="list-style-type: none"> Average operating mode: Less than 350 W Ready mode: Less than 70W Sleep mode: Less than 6W Power off mode: 0W
Noise Level ^c	<ul style="list-style-type: none"> Ready mode: Less than 26 dBA Printing mode: Less than 49 dBA
Default time to power save mode from ready mode	5 minutes
Warm-up time	Less than 25 seconds
Operating environment	Temperature: 10 to 32.5 °C (50 to 90 °F) Humidity: 20 to 80% RH
Toner cartridge life ^d	Average cartridge yield: 1,500 standard pages (Shipped with 700 pages toner cartridge.)
External dimension (W x D x H)	353 x 308x 209 mm (14.1 x 10.83 x 8.46 inches)
Weight (Including consumables)	5.7 Kg (lb)

ITEM	DESCRIPTION
Package weight	Paper: 5.8 Kg (12.7 lbs) Plastic: 1.8 Kg (3.86 lbs)
Duty cycle	Up to 5,000 images (Monthly) 8,000 images
Fusing temperature	180 °C (356 °F)


a. It will be affected by operating system used, computing performance, application software, connecting method, media type, media size and job complexity.

b. Visit www.samsungprinter.com to download the latest software version.

c. Sound Pressure Level, ISO 7779

d. Declared yield value in accordance with ISO/IEC 19752. The number of pages may be affected by operating environment, printing interval, media type, and media size.

glossary

 The following glossary helps you get familiar with the product by understanding the terminologies commonly used with printing as well as mentioned in this user's guide.

ADF

An Automatic Document Feeder (ADF) is a mechanism 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 Macintosh (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 pseudo standard throughout the industry, even among non-Microsoft platforms.

DADF

A Duplex Automatic Document Feeder (DADF) is a mechanism that will automatically feed and flip 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.

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 automatically flip 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 can print double-sided of paper.

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 Macintosh (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 melts the toner onto the print media. It consists of a hot roller and a back-up 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 shades 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 gray colored and a cylinder shaped.

An exposing unit of a drum is slowly worn away by its usage of the printer, and it should be replaced appropriately since it gets scratches from grits of a 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, matrix printer, and page 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.

Printer Driver

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

Print Media

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

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.

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.

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.

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 within a machine like 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 melted by the heat of 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.; an image capture API for Microsoft Windows and Apple Macintosh 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.

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.

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