Before you begin reading a chapter

This chapter explains all the features available for this series' models to help users easily understand the features.

You can check the features available for each model in the Basic Guide (see "Menu overview" on page 27).

The following are tips for using this chapter

• The control panel provides access to various menus to set up the machine or use the machine's functions. These menus can be accessed by pressing (**Menu**).

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

• For models that do not have the (**Menu**) on the control panel, this feature is not applicable (see "Control panel overview" on page 19).

• Some menu names may differ from your machine depending on its options or the models.

Information

 Some menus may not appear in the display depending on options or models. If so, it is not applicable to your machine (see "Menu overview" on page 27).

To change the menu options:

• Press (**Menu**) > **Information** on the control panel.

Item	Description
Menu Map	Prints the menu map which shows the layout and current settings of this machine.
Configuration	Prints a report on the machine's overall configuration.
Supplies Info.	Prints supplies' information page.
Demo Page	Prints the demo page to check whether your machine is printing properly or not.
PCL Font	Prints the PCL font list.
PS Font	Prints the PS font list.
Usage Counter	Prints a usage page. The usage page contains the total number of pages printed.
Account	This is used only available when Job Accounting is enabled from the SyncThru™ Web Admin Service. You can print a report of printout counts for each user.

Layout

> 📝 Some menus may not appear in the display depending on options or models. If so, it is not applicable to your machine (see "Menu overview" on page 27).
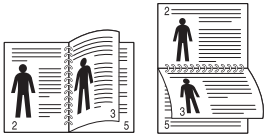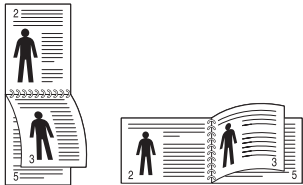
To change the menu options:

- Press 🔲 (**Menu**) > **Layout** on the control panel.

Item	Description
Orientation	Selects the direction in which information is printed on a page. • **Portrait** • **Landscape**

Item	Description
Common Margin	• **Simplex:** Sets the margin for one-sided printing. • **Duplex:** Sets the margin for double-sided printing. • **Binding:** When printing on both sides of the paper, side A's margin closest to the binding will be the same as side B's margin closest to the binding. Likewise, the sides' margins farthest from the binding will be the same.
MP Tray	Sets the paper margins in multi-purpose tray. • **Simplex:** Sets the margin for one-sided printing. • **Duplex:** Sets the margins for double-sided printing.
Manual Feeder	Sets the paper margins in manual feeder tray.
<Tray X>	Sets the paper margins for the paper trays. • **Simplex:** Sets the margin for one-sided printing. • **Duplex:** Sets the margins for double-sided printing.
Emulation Mar.	Sets the paper margins for emulation print page. • **Top Margin:** Sets the top margin. • **Left Margin:** Sets the left margin.

Layout

Item	Description
Duplex	To print on both sides of the paper, choose the binding edge. • **Off:** Disables this option. • **Long Edge** • **Short Edge**

Paper

 Some menus may not appear in the display depending on options or models. If so, it is not applicable to your machine (see "Menu overview" on page 27).

To change the menu options:

• Press (**Menu**) > **Paper** on the control panel.

Item	Description
Copies	Selects the number of copies.
MP Tray / [Tray<x>]	• **Paper Size:** Selects the default paper size. • **Paper Type:** Selects the paper type currently loaded in the tray.
Paper Source	Sets the default paper tray to use. **Auto:** You can set the machine to automatically to the tray with the same sized paper when the tray in use is empty.

Graphic

 Some menus may not appear in the display depending on options or models. If so, it is not applicable to your machine (see "Menu overview" on page 27).

To change the menu options:

• Press ⊡ (**Menu**) > **Graphic** on the control panel.

Item	Description
Resolution	Specifies the number of dots printed per inch (dpi). The higher the setting, the sharper printed characters and graphics.
Clear Text	Prints text darker than on a normal document.
Edge Enhance	It allows user to enhance sharpness of text and graphics for improving readability.
Trapping	It reduces the white gap caused by misalignment of color channels in color printing mode. Also black text will be overprinted on other colors.
Screen	This option allows you to select options to convert a continous-tone image into printable binary image.

System Setup

 Some menus may not appear in the display depending on options or models. If so, it is not applicable to your machine (see "Menu overview" on page 27).

To change the menu options:

• Press ⊡ (**Menu**) > **System Setup** on the control panel.

Item	Description
Date & Time	Sets the date and time.
Clock Mode	Selects the format for displaying time between 12 hr and 24 hr.
Language	Sets the language of the text that appears on the control panel display.
Power Save	Sets how long the machine waits before going to power save mode. When the machine does not receive data for an extended period of time, power consumption is automatically lowered.

Item	Description
Wakeup Event	You can set the condition to wake up from power-save mode. Set the item on. • **Button Press:** When you press any button except power button, the machine wake up from the power save mode. • **Printer:** When you open or close the paper tray, the machine wake up from the power save mode. • **USB Host:** When you insert the USB memory, the machine wake up from the power save mode. This menu may not appear in the display depending on options or models.
Job Timeout	When there is no input for a certain period of time, the machine cancels the current job. You can set the amount of time the machine will wait before canceling the job.
Import Setting	Imports data stored on a USB memory stick to the machine ("Backing up data" on page 52).
Export Setting	Exports data stored on a USB memory stick to the machine ("Restoring data" on page 52).
Altitude Adj.	Optimize print quality according to the machine's altitude ("Altitude adjustment" on page 204).

System Setup

Item	Description
Auto Continue	Determine whether or not the machine continues printing when it detects the paper does not match the paper settings. • **Off:** If a paper mismatch occurs, the machine waits until you insert the correct paper. • **On:** If a paper mismatch occurs, an error message will display. The machine waits for about 30 second, then automatically clear the message and continue printing.
Auto CR	Allows you to append the required carriage return to each line feed, which is useful for Unix or DOS users.
Auto Tray Swi.	Determine whether or not the machine continues printing when it detects the paper does not match. For example, if both tray 1 and tray 2 are filled with the same size paper, the machine automatically prints from tray 2 after the tray 1 runs out of paper. 📝 This option does not appear if you selected **Auto** for **Paper Source** from printer driver.
Paper Substit.	Automatically substitutes the printer driver's paper size to prevent the paper mismatch between Letter and A4. For example, if you have A4 paper in the tray but you set the paper size to Letter in the printer driver, the machine prints on A4 paper and vice versa.

Item	Description
Tray Protect	Decides to use or not use the **Auto Tray Swi.** feature. If you set tray 1 to on, for example, then tray 1 is excluded during tray switching.
Print BlankPage	The printer detects the printing data from computer whether a page is empty or not. You can set to print or skip the blank page.
Maintenance	• **CLR Empty Msg.:** This option appears only when toner cartridge is empty. • **Supplies Life:** Allows you to check how many pages are printed and how much toner is left in the cartridge. • **TonerLow Alert:** If toner in the cartridge has run out, a message informing the user to change the toner cartridge appears. You can set the option for this message to appear or not.

System Setup

Item	Description
Eco Setup	Allows you to save print resources and enables eco-friendly printing (see "Eco printing" on page 48). • **Default Mode:** Select whether to turn the Eco mode on or off. > **Onforce**: Sets the Eco mode on. If a user wants to turn the Eco mode off, the user needs to enter the password. • **Change Temp.:** Selects the eco template set from the SyncThru™ Web Service.
Clear Setting	Restores the machine's factory default settings.

Emulation

 Some menus may not appear in the display depending on options or models. If so, it is not applicable to your machine (see "Menu overview" on page 27).

To change the menu options:

• Press   (**Menu**) > **Emulation** on the control panel.

Item	Description
Emulation Type	The machine language defines how the computer communicates with the machine.
Setup	Sets the detailed settings for the selected emulation type.

Image Mgr.

 Some menus may not appear in the display depending on options or models. If so, it is not applicable to your machine (see "Menu overview" on page 27).

To change the menu options:

• Press (**Menu**) > **Image Mgr.** on the control panel.

Option	Description
Custom Color	This menu allows you to adjust contrast, color by color. • **Default:** Optimizes colors automatically. • **Print Density:** Allows you to manually adjust color density for print. Adjust the print density. It is recommended to use the **Default** setting for best color quality.

Option	Description
Auto Color Reg.	The machine virtually prints certain patterned image to calibrate the color printing position. This feature enhances the colored image sharper and clearer,which means the machine prints the colored image on the paper more like the one in the monitor. If you have moved the machine, it is strongly recommended to operate this menu manually.
Tone Adjust.	• **Default:** The machine automatically calibrate the toner density of machine for the best possible color print quality. If you select **Off**, the machine is calibrated by the factory default toner density. • **Auto Tone Adj.:** Allows you to automatically adjust tone for the best possible print quality. • **Cal. ID Sensor:** Automatically calculates the reduced or worn out supplies like toner or machine parts and uses this information to adjust the color density. For example, if the yellow toner is running out, the machine calculates the amount of remaining yellow toner and adjusts color density so the printouts are fine.

Network

Network

> Some menus may not appear in the display depending on options or models. If so, it is not applicable to your machine (see "Menu overview" on page 27).

To change the menu options:

- Press ▣ (**Menu**) > **Network** on the control panel.

> You can also use this feature from the SyncThru™ Web Service. Open the Web browser from your networked computer and type the IP address of your machine. When SyncThru™ Web Service opens, click **Settings** > **Network Settings** (see "Using SyncThru™ Web Service" on page 228).

Option	Description
TCP/IP (IPv4)	Selects the appropriate protocol and configure parameters to use the network environment (see "Setting IP address" on page 136). ✎ There are lots of parameters to be set. If you are not sure, leave as is, or consult the network administrator.
TCP/IP (IPv6)	Selects this option to use the network environment through IPv6 (see "IPv6 configuration" on page 147).
Ethernet Speed	Configure the network transmission speed.
802.1x	You can selects the user authentication for network communication. For detailed information consult the network administrator.
Wireless	Selects this option to use the wireless network (see "Wireless network setup" on page 150).
Clear Setting	Reverts the network settings to the default values.
Network Configuration	This list shows information on your machine's network connection and configuration (see "Printing a network configuration report" on page 136).
Net. Activate	You can sets whether to use Ethernet on or off.

Option	Description
Http Activate	You can sets whether to use SyncThru™ Web Service or not.

Option	Description
WINS	You can configure the WINS server. WINS(Windows Internet Name Service) is used in the Windows operating system.
SNMP V1/V2	You can set SNMP (Simple Network Management Protocol). Administrator's can use SNMP to monitor and manage machines on the network.
SNTP	You can set SNTP (Simple Network Time Protocol) settings. SNTP synchronizes the clocks of the computer systems through the Internet (NTP) so there would not be a time difference when exchanging data.
UPnP(SSDP)	You can set UPnP (SSDP) protocol.
MDNS	You can set mDNS (Multicast Domain Name System) settings.
SetIP	You can set SetIP settings.
SLP	You can configure SLP (Service Location Protocol) settings. This protocol allows host applications to find services in a local area network without prior configuration.

Direct USB

Direct USB

 Some menus may not appear in the display depending on options or models. If so, it is not applicable to your machine (see "Menu overview" on page 27).

If you want to use this feature, you need to insert a USB memory device into the USB memory port on your machine.

To change the menu options:

• Press (**Menu**) > **Direct USB** on the control panel (see "Using USB memory device" on page 50).

Item	Description
USB Print	You can directly print files stored on a USB memory device.
File Manage	You can delete image files stored on a USB memory device one by one or all at once by reformatting the device.
Check Space	You can check the amount of memory space available for saving documents.

Job Manage

> Some menus may not appear in the display depending on options or models. If so, it is not applicable to your machine (see "Menu overview" on page 27).

To change the menu options:

- Press ⊟ (**Menu**) > **Job Manage** on the control panel.

Item	Description
Active Job	Shows the print job lists that are waiting to be printed.
Secured Job	Shows the print job lists that are secured on the disk.
Stored Job	Shows the print job lists that are stored on the disk.
File Policy	If the memory already has the same name when you entered a new file name, you can rename or overwrite it.

Custom

This menu appears only when the XOA (eXtensible Open Architecture) web application is installed. Contact the administrator to use this menu.

To change the menu options:

- Press ⊞ (**Menu**) > **Custom** on the control panel.

4. Special Features

This chapter explains special printing features.

> - The procedures in this chapter are mainly based on Windows 7.
> - It may be necessary to press **OK** to navigate to lower-level menus for some models.

Altitude adjustment

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

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

1 High 3
2 High 2
3 High 1
4 Normal
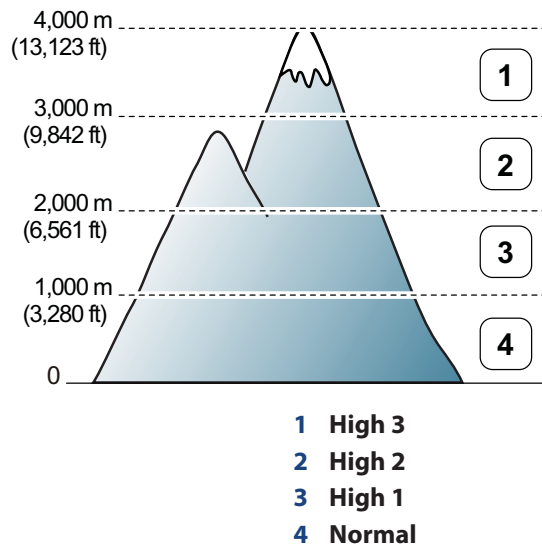
You can set the altitude value from **Device Settings** in Samsung Easy Printer Manager program.

- For Windows and Macintosh users, you set from **Samsung Easy Printer Manager** > (Switch to advanced mode) > **Device Settings**, see "Device Settings" on page 234.

> - If your machine is connected to the network, you can set the altitude via SyncThru™ Web Service (see "Using SyncThru™ Web Service" on page 228).
> - You can also set the altitude in **System Setup** option on the machine's display (see "Machine's basic settings" on page 30).

Entering various characters

As you perform various tasks, you may need to enter names and numbers.

Entering alphanumeric characters

Press the button until the correct letter appears on the display. For example, to enter the letter O, press 6, labeled with MNO. Each time you press 6, the display shows a different letter, M, N, O, m, n, o and finally 6. To find the letter that you want to enter, see "Keypad letters and numbers" on page 205.

- You can enter a space by pressing 1 twice.
- To delete the last digit or character, press the arrow button.

Keypad letters and numbers

- Special character sets may differ from your machine depending on its options or the models.
- Some of the follow key values may not appear depending on the job you are doing.

Key	Assigned numbers, letters, or characters
1	@ / . ' 1

Key	Assigned numbers, letters, or characters
2	A B C a b c 2
3	D E F d e f 3
4	G H I g h i 4
5	J K L j k l 5
6	M N O m n o 6
7	P Q R S p q r s 7
8	T U V t u v 8
9	W X Y Z w x y z 9
0	& + - , 0
*	* % ^ _ ~ ! # $ ( ) [ ] (These symbols are available when you type for network authentication.)
#	# = | ? " : { } < > ; (These symbols are available when you type for network authentication.)

Printing features

> - For basic printing features, refer to the **Basic Guide** (see "Basic printing" on page 44).
> - This feature may not be available depending on model or optional goods (see "Features by models" on page 7).

Changing the default print settings

1 Click the Windows **Start** menu.

2 Select **Control Panel** > **Devices and Printers**.

3 Right-click on your machine.

4 Select **Printing preferences**.

> If **Printing preferences** has a ▶, you can select other printer drivers connected to the selected printer.

5 Change the settings on each tab.

6 Click **OK**.

> If you want to change the settings for each print job, change it in **Printing Preferences**.

Setting your machine as a default machine

1 Click the Windows **Start** menu.

2 Select **Control Panel** > **Devices and Printers**.

3 Select your machine.

4 Right-click your machine and select **Set as Default Printer**.

> If **Printing preferences** has a ▶, you can select other printer drivers connected to the selected printer.

# Printing features

Using advanced print features

> - See "Features by models" on page 7.
> - **XPS printer driver**: used to print XPS file format.
>   - The XPS printer driver can be installed only on Windows Vista OS or higher.
>   - Install optional memory when an XPS job does not print because the printer is out of memory.
>   - You can install the XPS printer driver when you insert the software CD into your CD-ROM drive. When the installation window appears, select **Custom Installation**. You can select the XPS printer driver in the **Select Software** window.

Printing to a file (PRN)

You will sometimes need to save the print data as a file.

1 Check the **Print to file** box in the **Print** window.
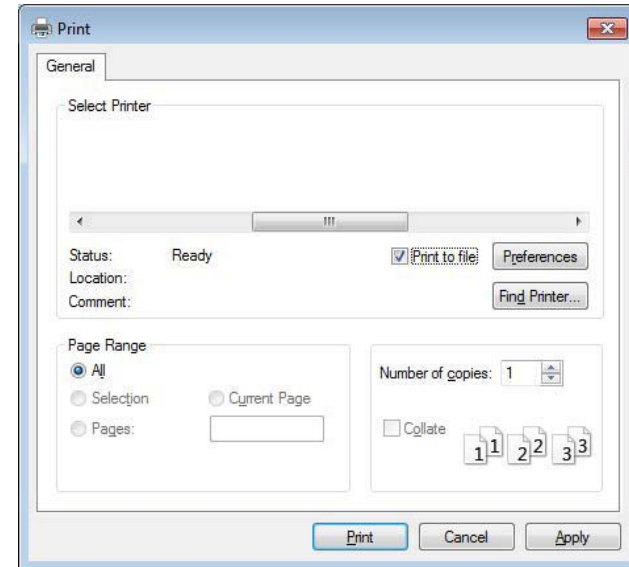
2 Click **Print**.

3 Type in the destination path and the file name, and then click **OK**.

For example, **c:\Temp\file name**.

> If you type in only the file name, the file is automatically saved in **My Documents**, **Documents and Settings**, or **Users**. The saved folder may differ, depending on your operating system or the application you are using.
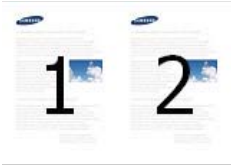
Printing features

Understanding special printer features

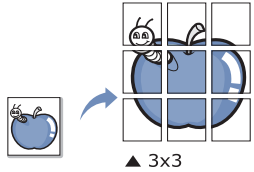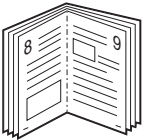You can use advanced printing features when using your machine.

To take advantage of the printer features provided by your printer driver, click **Properties** or **Preferences** in the application's **Print** window to change the print settings. The machine name, that appears in the printer properties window may differ depending on the machine in use.
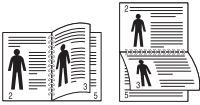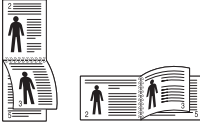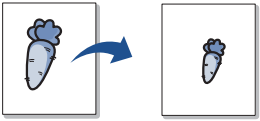
> • Some menus may not appear on the display depending on options or models. If so, it is not applicable to your machine.
>
> • Select the **Help** menu or click the ? button from the window or press **F1** on your keyboard and click on any option you want to know about (see "Using help" on page 47).

Item	Description
Multiple Pages per Side	Selects the number of pages to print on a single sheet of paper. To print more than one page per sheet, the pages will be reduced in size and arranged in the order you specify. You can print up to 16 pages on one sheet.

Printing features

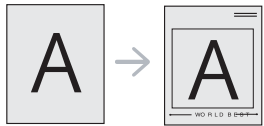| Item	Description
Poster Printing ▲ 3x3	Prints a single-page document onto 4 (Poster 2x2), 9 (Poster 3x3), or 16 (Poster 4x4) sheets of paper, for the purpose of pasting the sheets together to form one poster-size document. Select the **Poster Overlap** value. Specify **Poster Overlap** in millimeters or inches by selecting the radio button on the upper right of **Basic** tab to make it easier to paste the sheets together. 10 mm 10 mm
Booklet Printing[a]	Prints your document on both sides of a sheet of paper and arranges the pages so that the paper can be folded in half after printing to produce a booklet. • If you want to make a booklet, you need to print on Letter, Legal, A4, US Folio, or Oficio sized print media. • The **Booklet Printing** option is not available for all paper sizes. Select the available paper **Size** option under the **Paper** tab to see what paper sizes are available. • If you select an unavailable paper size, this option can be automatically canceled. Select only available paper (paper without ⚠ or ⊗ mark).
• **Double-sided Printing** • **Double-sided Printing (Manual)**[a]	Print on both sides of a sheet of paper (duplex). Before printing, decide how you want your document oriented. • You can use this feature with Letter, Legal, A4, US Folio or Oficio sized paper • If your machine does not have a duplex unit, you should complete the printing job manually. The machine prints every other page of the document first. After that, a message appears on your computer. • **Skip Blank Pages** feature does not work when you select the **Double-sided Printing (Manual)** option.

Printing features

Item	Description
• **Double-sided Printing** • **Double-sided Printing (Manual)**[a]	• **Printer Default:** If you select this option, this feature is determined by the settings you have selected on the control panel of the machine. This option is available only when you use the PCL/XPS printer driver. • **None:** Disables this feature. • **Long Edge:** This option is the conventional layout used in bookbinding. • **Short Edge:** This option is the conventional layout used in calendars. • **Reverse Double-Sided Printing:** Check this option to reverse the print order when duplex printing. This option is not available when you use **Double-sided Printing (Manual)**.
Paper Options	Changes the size of a document to appear larger or smaller on the printed page by entering in a percentage by which to enlarge or decrease the document.
Watermark	The watermark option allows you to print text over an existing document. For example, you use it when you want to have large gray letters reading "**DRAFT**" or "**CONFIDENTIAL**" printed diagonally across the first page or all pages of a document.

Printing features

Item	Description
Watermark **(Creating a watermark)**	**a** To change the print settings from your software application, access **Printing Preferences**. **b** Click the **Advanced** tab, select **Edit** from the **Watermark** drop-down list. The **Edit Watermarks** window appears. **c** Enter a text message in the **Watermark Message** box. You can enter up to 256 characters. The message displays in the preview window.
Watermark **(Editing a watermark)**	**a** To change the print settings from your software application, access **Printing Preferences**. **b** Click the **Advanced** tab, select **Edit** from the **Watermark** drop-down list. The **Edit Watermarks** window appears. **c** Select the watermark you want to edit from the **Current Watermarks** list and change the watermark message and options. **d** Click **Update** to save the changes. **e** Click **OK** or **Print** until you exit the **Print** window.
Watermark **(Deleting a watermark)**	**a** To change the print settings from your software application, access **Printing Preferences**. **b** Click the **Advanced** tab, select **Edit** from the **Watermark** drop-down list. The **Edit Watermarks** window appears. **c** Select the watermark you want to delete from the **Current Watermarks** list and click **Delete**. **d** Click **OK** or **Print** until you exit the **Print** window.
Overlay[a]	This option is available only when you use the PCL/SPL printer driver (see "Software" on page 7). An overlay is text and/or images stored in the computer hard disk drive (HDD) as a special file format that can be printed on any document. Overlays are often used to take the place of letterhead paper. Rather than using preprinted letterhead, you can create an overlay containing exactly the same information that is currently on your letterhead. To print a letter with your company's letterhead, you do not need to load preprinted letterhead paper in the machine: just print the letterhead overlay on your document. To use a page overlay, you must create a new page overlay containing your logo or image. • The overlay document size must be the same as the document you print with the overlay. Do not create an overlay with a watermark. • The resolution of the overlay document must be the same as that of the document you will print with the overlay.

Printing features

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

Printing features

Item	Description

Print Mode
 	
(CLP-68xND Series/ CLP-68xDW Series only)
	• This feature is available only if you have installed the optional memory or mass storage device (HDD) (see "Variety feature" on page 8).
	• Some menus may not appear on the display depending on options or models. If so, it is not applicable to your machine.
	• To enable this feature, check **Storage Options** (see "Setting Device Options" on page 69).
	• Without installing the mass storage device (HDD) in the machine, the Ram Disk feature provides only 3 options: **Normal**, **Proof**, and **Confidential**.
	
	• **Print Mode:** The default **Print Mode** is **Normal**, which is for printing without saving the printing file in the memory.
	  - **Normal:** This mode prints without storing your document in the optional memory.
	  - **Proof:** This mode is useful when you print more than one copy. You can print one copy first to check, then print the rest of the copies later.
	  - **Confidential:** This mode is used for printing confidential documents. You need to enter a password to print.
	  - **Store:** Select this setting to save a document in the mass storage device (HDD) without printing.
	  - **Store and Print:** This mode is used when printing and storing document at the same time.
	  - **Spool:** This option can be useful when handling large amounts of data. If you select this setting, the printer spools the document into the mass storage device (HDD) and then prints it from the mass storage device (HDD) queue, decreasing the computer's work load.
	  - **Print Schedule:** Select this setting to print the document at a specified time.
	
	• **Job Name:** This option is used when you need to find a stored file using the control panel.
	• **User ID:** This option is used when you need to find a stored file using the control panel. The user name automatically appears as the user name that you use to log on Windows.
	• **Enter Password:** If the **Property** of the document box you selected is **Secured**, you have to enter the password for the document box. This option is used for loading a stored file using the control panel.
	• **Confirm Password:** Re-enter the password to confirm it.

Printing features

Item	Description
Job Accounting	This option allows you to print with the given permission. • **User permission:** If you check this option, only users with user permission can start a print job. • **Group permission:** If you check this option, only groups with group permission can start a print job. • Click the question mark(?) from the upper-right corner of the window and click on any option you want to know about. • Administrators can enable job accounting and configure permissions in the control panel or **SyncThru™ Web Service**.

a. This option is not available when you use XPS driver.

Printing features

Using Direct Printing Utility

> 📝 • Direct Printing Utility may not be available depending on model or optional goods (see "Software" on page 7).
> • Available for Windows OS users only.

What is Direct Printing Utility?

Direct Printing Utility is a program that sends the PDF files directly to your machine to print without having to opening the file.

To install this program, select **Advanced Installation** > **Custom Installation** and put a check mark in this program when you install the printer driver.

> ⚠ • Mass storage device (HDD) should be installed on your machine, to print files using this program. (see "Variety feature" on page 8).
> • You cannot print PDF files that are restricted. Deactivate the printing restriction feature and retry printing.
> • You cannot print PDF files that are restricted by a password. Deactivate the password feature, and retry printing.
> • Whether or not a PDF file can be printed using the Direct Printing Utility program depends on how the PDF file was created.
> • The Direct Printing Utility program supports PDF version 1.7 and below. For higher versions, you must open the file to print it.

Printing

There are several ways you can print using the Direct Printing Utility.

1 From the **Start** menu select **Programs** or **All Programs** > **Samsung Printers** > **Direct Printing Utility** > **Direct Printing Utility**.

The Direct Printing Utility window appears.

2 Select your machine from the **Select Printer** drop-down list and click **Browse**.

3 Select the file you wish to print and click **Open**.

The file is added in the **Select Files** section.

4 Customize the machine settings for your needs.

5 Click **Print**. The selected PDF file is sent to the machine.

Using the right-click menu

1 Right-click on the PDF file to print and select **Direct Printing**.

The Direct Printing Utility window appears with the PDF file is added.

2 Select the machine to use.

3 Customize the machine settings.

Printing features

4 Click **Print**. The selected PDF file is sent to the machine.

Macintosh printing

 Some features may not be available depending on models or options. It means that the features are not supported.

Printing a document

When you print with a Macintosh, you need to check the printer driver settings in each application you use. Follow the steps below to print from a Macintosh:

1 Open the document to print.

2 Open the **File** menu and click **Page Setup** (**Document Setup** in some applications).

3 Choose your paper size, orientation, scaling, other options, and make sure that your machine is selected. Click **OK**.

4 Open the **File** menu and click **Print**.

5 Choose the number of copies and indicate which pages to print.

6 Click **Print**.

Changing printer settings

You can use advanced printing features when using your machine.

Open an application and select **Print** from the **File** menu. The machine name, which appears in the printer properties window, may differ depending on the machine in use. Except for the name, the composition of the printer properties window is similar to the following.

Printing multiple pages on one sheet

You can print more than one page on a single sheet of paper. This feature provides a cost-effective way to print draft copies.

1 Open an application, and select **Print** from the **File** menu.

2 Select **Layout** from the drop-down list under **Orientation**. In the **Pages per Sheet** drop-down list, select the number of pages you want to print on one sheet of paper.

3 Select the other options to use.

4 Click **Print**.

The machine prints the selected number of pages to print on one sheet of paper.

Printing features

Printing on both sides of the paper

> Some features may not be available depending on models or options. It means that the features are not supported (see "Variety feature" on page 8).

Before printing in the duplex mode, decide on which edge you will be binding your finished document. The binding options are, as follows:

- **Long-Edge Binding:** This option is the conventional layout used in book binding.
- **Short-Edge Binding:** This option is the type often used with calendars.

1 From your Macintosh application, select **Print** from the **File** menu.

2 Select **Layout** from the drop-down list under **Orientation**.

3 Select a binding orientation from the **Two-Sided** option.

4 Select the other options to use.

5 Click **Print** and the machine prints on both sides of the paper.

> If you print more than 2 copies, the first copy and the second copy might print on the same sheet of paper. Avoid printing on both sides of paper when you are printing more than 1 copy.

Using help

Click the question mark on the bottom-left corner of the window and click on the topic you want to know about. A pop-up window appears with information about that option's feature, which is provided from the driver.
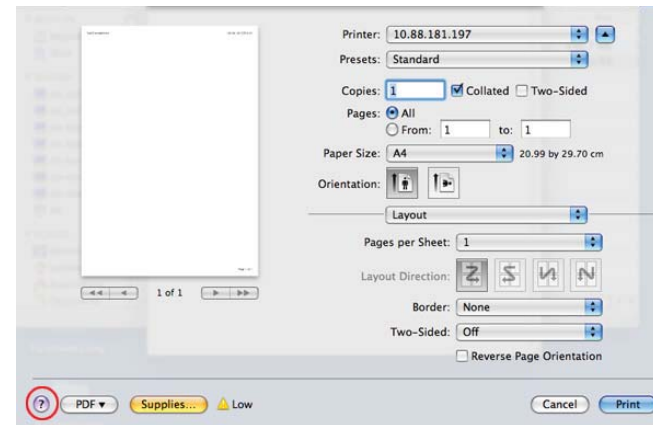
Linux printing

> Some features may not be available depending on models or options. It means that the features are not supported.

Printing features

Printing from applications

There are a lot of Linux applications that allow you to print using Common UNIX Printing System (CUPS). You can print on your machine from any such application.

1 Open an application, and select **Print** from the **File** menu

2 Select **Print** directly using lpr.

3 In the LPR GUI window, select the model name of your machine from the printer list and click **Properties**.

4 Change the print job properties using the following four tabs displayed at the top of the window.

- **General:** Changes the paper size, the paper type, and the orientation of the documents. It enables the duplex feature, adds start and end banners, and changes the number of pages per sheet.

 Automatic/manual duplex printing may not be available depending on models. You can alternatively use the lpr printing system or other applications for odd-even printing.

- **Text:** Specifies the page margins and set the text options, such as spacing or columns.

- **Graphics:** Sets image options that are used when printing image files, such as color options, image size, or image position.

- **Advanced:** Sets the print resolution, paper source, and destination.

5 Click **Apply** to apply the changes and close the **Properties** window.

6 Click **OK** in the **LPR GUI** window to start printing.

7 The Printing window appears, allowing you to monitor the status of your print job.

To abort the current job, click **Cancel**.

Printing files

You can print many different types of files on your machine using the standard CUPS, directly from the command line interface. The CUPS lpr utility allows you to do that, but the driver's package replaces the standard lpr tool by a much more user-friendly LPR GUI program.

To print any document file:

1 Enter lpr <file_name> from the Linux shell command line and press Enter. The **LPR GUI** window appears.

When you type only lpr and press **Enter**, the **Select file(s) to print** window appears first. Just select any files you want to print and click **Open**.

2 In the **LPR GUI** window, select your machine from the list, and change the print job properties.

3 Click **OK** to start printing.

Printing features

Configuring Printer Properties

Using the **Printer Properties** window provided by the **Printers configuration**, you can change the various properties for your machine as a printer.

1 Open the **Unified Driver Configurator**.

If necessary, switch to **Printers configuration**.

2 Select your machine on the available printers list and click **Properties**.

3 The **Printer Properties** window appears.

The following five tabs display at the top of the window:

- **General:** Allows you to change the printer location and name. The name entered in this tab displays on the printer list in **Printers configuration**.

- **Connection:** Allows you to view or select another port. If you change the machine port from USB to parallel or vice versa while in use, you must re-configure the machine port in this tab.

- **Driver:** Allows you to view or select another machine driver. By clicking **Options**, you can set the default device options.

- **Jobs:** Shows the list of print jobs. Click **Cancel job** to cancel the selected job and select the **Show completed jobs** check box to see previous jobs on the job list.

- **Classes:** Shows the class that your machine is in. Click **Add to Class** to add your machine to a specific class or click **Remove from Class** to remove the machine from the selected class.

4 Click **OK** to apply the changes and close the **Printer Properties** window.

Unix printing

> Some features may not be available depending on models or options. It means that the features are not supported (see "Features by models" on page 7).

Proceeding the print job

After installing the printer, choose any of the image, text, or PS files to print.

1 Execute "**printui <file_name_to_print>**" command.

For example, if you are printing "**document1**"

printui document1

This will open the UNIX Printer Driver **Print Job Manager** in which the user can select various print options.

2 Select a printer that has been already added.

3 Select the printing options from the window such as **Page Selection**.

4 Select how many copies are needed in **Number of Copies**.

Printing features

> 📝 To take advantage of the printer features provided by your printer driver, press **Properties**.

5 Press **OK** to start the print job.

Changing the machine settings

The UNIX printer driver **Print Job Manager** in which the user can select various print options in printer **Properties**.

The following hot keys may also be used: "H" for **Help**, "O" for **OK**, "A" for **Apply**, and "C" for **Cancel**.

General tab

- **Paper Size:** Set the paper size as A4, Letter, or other paper sizes, according to your requirements.

- **Paper Type:** Choose the type of the paper. Options available in the list box are **Printer Default**, **Plain**, and **Thick**.

- **Paper Source:** Select from which tray the paper is used. By default, it is **Auto Selection**.

- **Orientation:** Select the direction in which information is printed on a page.

- **Duplex:** Print on both sides of paper to save paper.

> 📝 Automatic/manual duplex printing may not be available depending on models. You can alternatively use the lpr printing system or other applications for odd-even printing.

- **Multiple pages:** Print several pages on one side of the paper.

- **Page Border:** Choose any of the border styles (e.g., **Single-line hairline**, **Double-line hairline**)

Image tab

In this tab, you can change the brightness, resolution, or image position of your document.

Text tab

Set the character margin, line space, or the columns of the actual print output.

Margins tab

- **Use Margins:** Set the margins for the document. By default, margins are not enabled. The user can change the margin settings by changing the values in the respective fields. Set by default, these values depend on the page size selected.

- **Unit:** Change the units to points, inches, or centimeters.

Printer-Specific Settings tab

Select various options in the **JCL** and **General** frames to customize various settings. These options are specific to the printer and depend on the PPD file.

Using optional device features

 * CLP-68xND Series/ CLP-68xDW Series only.
 * Some features may not be available depending depending on model or optional goods (see "Variety feature" on page 8).

From the printer driver

If you install the optional device, you can use advanced printing features, such as proofing a job and printing a private job in the **Print** window. Check the mass storage (HDD) or RAM disk option in **Device Options**, then you can select the various features from **Print Mode** (see "Setting Device Options" on page 69).

1 Open the document you want to print.

2 Select **Print** from the **File** menu. The **Print** window appears.

3 Select your printer driver from the **Select Printer** list.
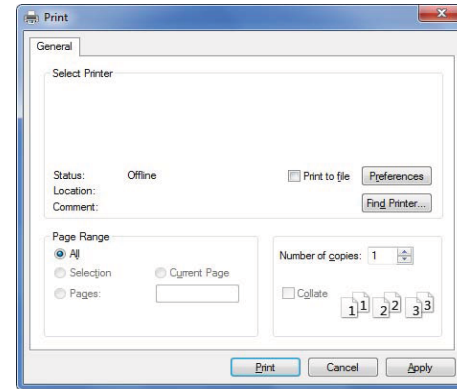
4 Click **Properties** or **Preferences** .

5 Click the each tab then select **Print Mode**.

6 Select the option you want (see "Understanding special printer features" on page 208).

From the control panel

If your machine has optional mass storage device (HDD) or ram disk, you can use these features from the (**Menu**) button > **System Setup** > **Job Manage**.

Using optional device features

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

- **Active Job:** All of the print jobs waiting to be printed are listed in the active job queue in the order you sent them to the printer. You can delete a job from the queue before printing, or promote a job to print sooner.

- **Secured Job:** You can print or delete a secured job. Shows the list of secured jobs the user has set in the printer driver. You need to enter the user name and password set in the printer driver.

- **Stored Job:** You can print or delete a stored job.

- **File Policy:** You can choose the file policy for generating file name before you proceed with the job through optional memory. If the optional memory already has the same name when you entered a new file name, you can rename or overwrite it.

5. Useful Management Tools

This chapter introduces management tools provided to help you make full use of your machine.

Easy Capture Manager

 - This feature may not be available depending on model or optional goods (see "Software" on page 7).
 - Available for Windows OS users only (see "Software" on page 7).

Capture your screen and launch Easy Capture Manager by simply pressing the Print Screen key. Now you can easily print your captured screen as captured or edited.

Samsung AnyWeb Print

	• This feature may not be available depending on model or optional goods (see "Software" on page 7).
	• Available for Windows and Macintosh OS users only (see "Software" on page 7).

This tool helps you screen-capture, preview, scrap, and print Windows Internet Explorer pages more easily, than when you use an ordinary program. Click **Start** > **All programs** > **Samsung Printers** > **Samsung AnyWeb Print** > **Download the latest version** to link to the website where the tool is available for download.

Samsung Easy Color Manager

Samsung Easy Color Manager helps users do fine adjustments with 6 color tones and other properties, such as brightness, contrast, and saturation. Color tone changes can be saved as a profile and can be used from the driver or from inside of the machine.

- This feature may not be available depending on model or optional goods (see "Software" on page 7).
- Available for Windows and Macintosh OS users only (see "Software" on page 7).

Helps Samsung color laser printer users to adjust color as they like.

To download the latest Samsung Easy Color Manager, go to the Samsung website:

www.samsung.com/support > **Find Useful Software**> **Printers & Multi-function Printers downloads**.

Easy Eco Driver

· This feature may not be available depending on model or optional goods (see "Software" on page 7). · Available for Windows OS users only (see "Software" on page 7).

With the Easy Eco Driver, you can apply Eco features to save paper and toner before printing. To use this application, **Start Easy Eco Driver before printing job** checkbox in the printer properties should be checked.

Easy Eco Driver also allows you simple editing such as removing images and texts, changing fonts, and more. You can save frequently used settings as a preset.

How to use:

1 Open a document to print.

2 Print the document.

A preview window appears.

3 Select the options you want to apply to the document.

You can see the preview of the applied features.

4 Click **Print**.

Using SyncThru™ Web Service

> • Internet Explorer 6.0 or higher is the minimum requirement for SyncThru™ Web Service.
>
> • SyncThru™ Web Service explanation in this user's guide may differ from your machine depending on its options or models.
>
> • Network model only (see "Software" on page 7).

Accessing SyncThru™ Web Service

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

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

2 Your machine's embedded website opens.

Logging into SyncThru™ Web Service

Before configuring options in SyncThru™ Web Service, you need to log-in as an administrator. You can still use SyncThru™ Web Service without logging in but you won't have access to **Settings** tab and **Security** tab.

1 Click **Login** on the upper right of the SyncThru™ Web Service website.

2 Type in the **ID** and **Password** then click **Login**. Type in the below default ID and password. We recommend you to change the default password for security reasons.

- **ID: admin**

- **Password: sec00000**

SyncThru™ Web Service overview

> Some tabs may not appear depending on your model.

Using SyncThru™ Web Service

Information tab

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

- **Active Alerts:** Shows the alerts that have occurred in the machine and their severity.

- **Supplies:** Shows how many pages are printed and amount of toner left in the cartridge.

- **Usage Counters:** Shows the usage count by print types: simplex and duplex.

- **Current Settings:** Shows the machine's and network's information.

- **Print information:** Prints reports such as system related reports, e-mail address, and font reports.

Settings tab

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

- **Machine Settings** tab**:** Sets options provided by your machine.

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

Security tab

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

- **System Security:** Sets the system administrator's information and also enables or disables machine features.

- **Network Security:** Sets settings for HTTPs, IPSec, IPv4/IPv6 filtering, 802.1x, and Authentication servers.

- **User Access Control:** Classifies users into several groups according to each user's role. Each user's authorization, authentication and accounting will be controlled by the group's role definition.

Maintenance tab

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

- **Firmware Upgrade:** Upgrade your machine's firmware.

- **Contact Information:** Shows the contact information.

- **Link:** Shows links to useful sites where you can download or check information.

Using SyncThru™ Web Service

E-mail notification setup

You can receive emails about your machine's status by setting this option. By setting information such as IP address, host name, e-mail address and SMTP server information, the machine status (toner cartridge shortage or machine error) will be sent to a certain person's e-mail automatically. This option may be used more frequently by a machine administrator.

> Some menus may not appear in the display depending on options or models. If so, it is not applicable to your machine.

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

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

2 Your machine's embedded website opens.

3 From the **Settings** tab, select **Machine Settings** > **E-mail Notification**.

> If you have not configured outgoing server environment, go to **Settings** > **Network Settings** > **Outgoing Mail Server(SMTP)** to configure network environment before setting e-mail notification.

4 Select **Enable** check box to use the **E-mail Notification**.

5 Click **Add** button to add e-mail notification user.

Set the recipient name and e-mail address(es) with notification items you want to receive an alert for.

6 Click **Apply**.

> If the firewall is activated, the e-mail may not be sent successfully. In that case, contact the a network administrator.

Setting the system administrator's information

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

> Some menus may not appear in the display depending on options or models. If so, it is not applicable to your machine.

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

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

2 Your machine's embedded website opens.

3 From the **Security** tab, select **System Security** > **System Administrator**

4 Enter the name of the administrator, phone number, location, and email address.

5 Click **Apply**.

Using Samsung Easy Printer Manager

Using Samsung Easy Printer Manager

> • This feature may not be available depending on model or optional goods (see "Software" on page 7).
>
> • Available for Windows and Macintosh OS users only (see "Software" on page 7).
>
> • For Windows, Internet Explorer 6.0 or higher is the minimum requirement for Samsung Easy Printer Manager.

Samsung Easy Printer Manager is an application that combines Samsung machine settings into one location. Samsung Easy Printer Manager combines device settings as well as printing environments, settings/actions and launching. All of these features provide a gateway to conveniently use your Samsung machine. Samsung Easy Printer Manager provides two different user interfaces for the user to choose from: the basic user interface and the advanced user interface. Switching between the two interfaces is easy: just click a button.

Understanding Samsung Easy Printer Manager

To open the program:

For Windows,

Select **Start** > **Programs** or **All Programs** > **Samsung Printers** > **Samsung Easy Printer Manager** > **Samsung Easy Printer Manager**.

For Macintosh,

Open the **Applications** folder > **Samsung** folder > **Samsung Easy Printer Manager**.

The Samsung Easy Printer Manager interface is comprised of various basic sections as described in the table that follows:

> The screenshot may differ depending on operating system you are using.

Using Samsung Easy Printer Manager

1	Printer list	The Printer List displays printers installed on your computer and network printers added by network discovery (Windows only).
2	Printer information	This area gives you general information about your machine. You can check information, such as the machine's model name, IP address (or Port name), and machine status. You can view the online **User's Guide**. **Troubleshooting button:** This button opens the **Troubleshooting Guide** when an error occurs. You can directly open the necessary section in the user's guide.
3	Application information	Includes links for changing to the advanced settings(switching UI), refresh, preference setting, summary, help, and about. The button is used to change the user interface to the **advanced settings user interface** (see "Advanced settings user interface overview" on page 233).

4	Quick links	Displays **Quick links** to machine specific functions. This section also includes links to applications in the advanced settings. If you connect your machine to a network, the SyncThru™ Web Service icon is enabled.
5	Contents area	Displays information about the selected machine, remaining toner level, and paper. The information will vary based on the machine selected. Some machines do not have this feature.
6	Order supplies	Click on the **Order** button from the supply ordering window. You can order replacement toner cartridge(s) from online.

Select the **Help** menu or click the button from the window and click on any option you want to know about.

Advanced settings user interface overview

The advanced user interface is intended to be used by the person responsible for managing the network and machines.

> Some menus may not appear in the display depending on options or models. If so, it is not applicable to your machine.

Device Settings

You can configure various machine settings such as machine setup, paper, layout, emulation, network, and print information.

Alert Settings (Windows only)

This menu includes settings related to error alerting.

- **Printer Alert:** Provides settings related to when alerts will be received.

- **Email Alert:** Provides options relating to receiving alerts via email.

- **Alert History:** Provides a history of device and toner related alerts.

Job Accounting

Provides querying of quota information of the specified job accounting user. This quota information can be created and applied to devices by job accounting software such as SyncThru™ or CounThru™ admin software.

Using Samsung Printer Status

Using Samsung Printer Status

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

> - The **Samsung Printer Status** window and its contents shown in this user's guide may differ depending on the machine or operating system in use.
> - Check the operating system(s) that are compatible with your machine (see "Specifications" on page 103).
> - Available for Windows OS users only (see "Software" on page 7).

Samsung Printer Status overview

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

You can also launch Samsung Printer Status manually. Go to the **Printing Preferences**, click the **Basic** tab > **Printer Status** button.

These icons appear on the Windows task bar:

Icon	Mean	Description
	Normal	The machine is in ready mode and experiencing no errors or warnings.
	Warning	The machine is in a state where an error might occur in the future. For example, it might be in toner low status, which may lead to toner empty status.
	Error	The machine has at least one error.
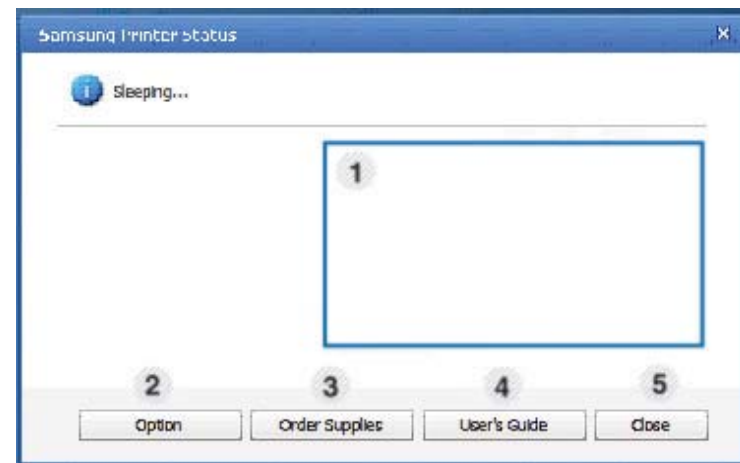
1	**Toner Level**	You can view the level of toner remaining in each toner cartridge. The machine and the number of toner cartridge(s) shown in the above window may differ depending on the machine in use. Some machines do not have this feature.

2	**Option**	You can set printing job alert related settings.

| 3	**Order Supplies**	You can order replacement toner cartridge(s) from online.
4	**User's Guide**	You can view the online User's Guide. 📝 This button opens the **Troubleshooting Guide** when an error occurs. You can directly open the troubleshooting section in the user's guide.
5	**Close**	Close the window.

Using the Linux Unified Driver Configurator

The Unified Driver Configurator is a tool primarily intended for configuring machine devices. You need to install Unified Linux Driver to use Unified Driver Configurator (see "Installation for Linux" on page 132).

After the driver is installed on your Linux system, the Unified Driver Configurator icon will automatically be created on your desktop.

Opening Unified Driver Configurator

1 Double-click the **Unified Driver Configurator** on the desktop.

You can also click the **Startup** Menu icon and select **Samsung Unified Driver** > **Unified Driver Configurator**.

2 Click each button on the left to switch to the corresponding configuration window.
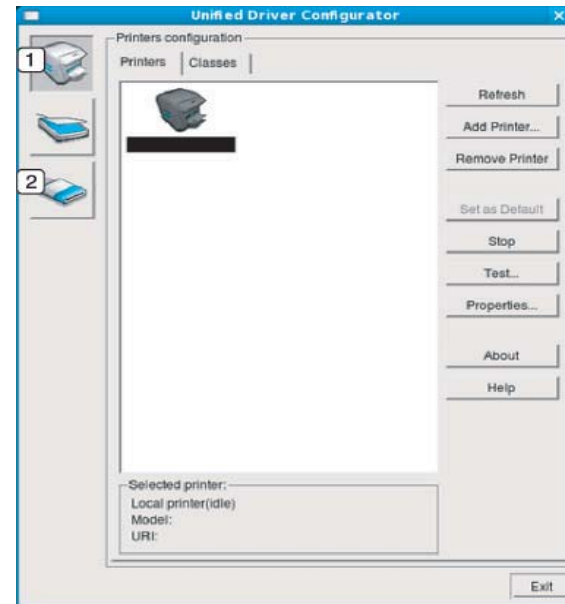
1 **Printer Configuration**
2 **Port Configuration**

Using the Linux Unified Driver Configurator

> To use the on screen help, the **Help** or button from the window.

3 After changing the configurations, click **Exit** to close the **Unified Driver Configurator**.

Printers configuration

Printers configuration has the two tabs: **Printers** and **Classes**.

Printers tab

View the current system's printer configuration by clicking on the machine icon button on the left side of the **Unified Driver Configurator** window.
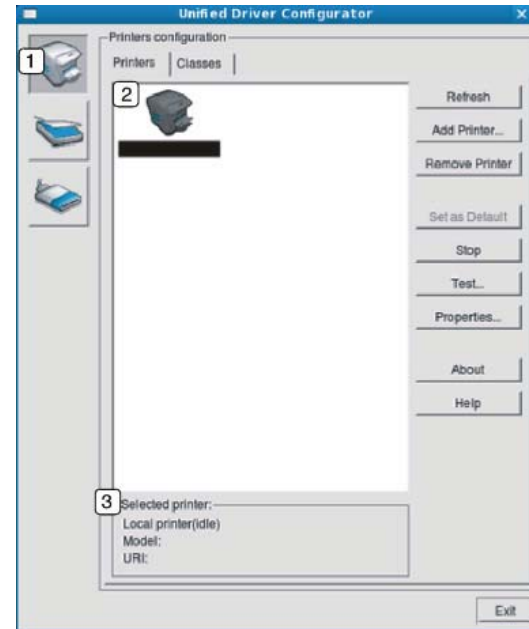
1	Switches to **Printers configuration**.
2	Shows all of the installed machines.
3	Shows the status, model name, and URI of your machine.

Using the Linux Unified Driver Configurator

The printer control buttons are, as follows:

- **Refresh:** Renews the available machines list.

- **Add Printer:** Allows you to add a new machines.

- **Remove Printer:** Removes the selected machine.

- **Set as Default:** Sets the current selected machine as a default machine.

- **Stop/Start:** Stops/starts the machine.

- **Test:** Allows you to print a test page to ensure the machine is working properly.

- **Properties:** Allows you to view and change the printer's properties.

Classes tab

The Classes tab shows a list of available machine classes.
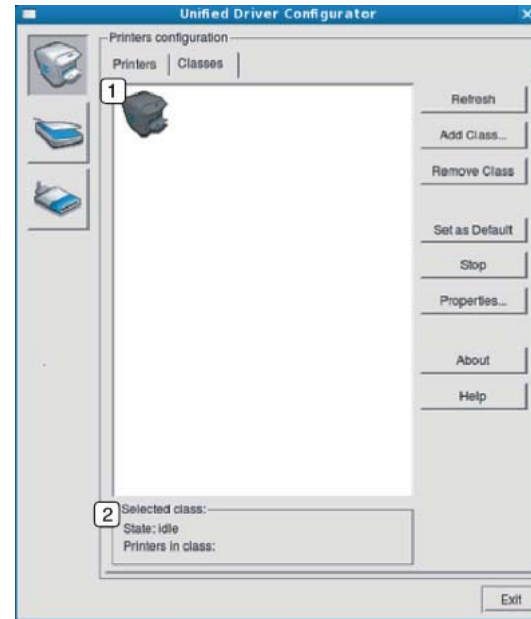
1	Shows all of the machine classes.
2	Shows the status of the class and the number of machines in the class.

- **Refresh:** Renews the classes list.

- **Add Class:** Allows you to add a new machine class.

- **Remove Class:** Removes the selected machine class.

Using the Linux Unified Driver Configurator

10 Ports configuration

In this window, you can view the list of available ports, check the status of each port and release a port that is stalled in a busy state when its owner has terminated the job for any reason.
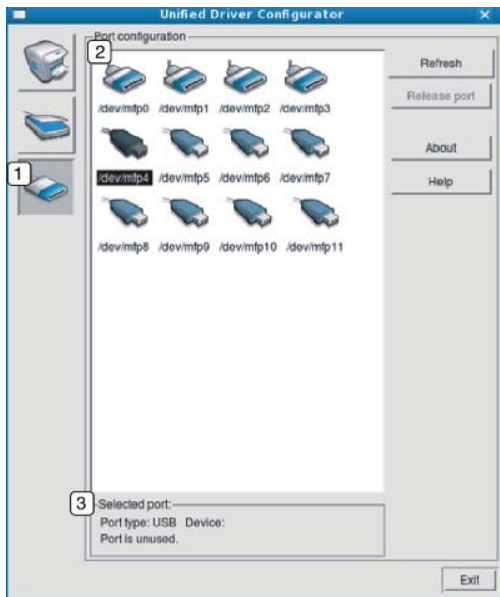
1	Switches to **Ports configuration**.
2	Shows all of the available ports.
3	Shows the port type, device connected to the port, and status.

• **Refresh:** Renews the available ports list.

• **Release port:** Releases the selected port.

6. Troubleshooting

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

> For errors that occur during the wireless software installation and settings, refer to the troubleshotting section in the wireless setting chapter (see "Troubleshooting for wireless network" on page 179).

Paper feeding problems

Condition	Suggested solutions
Paper jams during printing.	Clear the paper jam.
Paper sticks together.	• Check the maximum paper capacity of the tray. • Make sure that you are using the correct type of paper. • Remove paper from the tray and flex or fan the paper. • Humid conditions may cause some paper to stick together.
Multiple sheets of paper do not feed.	Different types of paper may be stacked in the tray. Load paper of only one type, size, and weight.
Paper does not feed into the machine.	• Remove any obstructions from inside the machine. • Paper has not been loaded correctly. Remove paper from the tray and reload it correctly. • There is too much paper in the tray. Remove excess paper from the tray. • The paper is too thick. Use only paper that meets the specifications required by the machine.
The paper keeps jamming.	• There is too much paper in the tray. Remove excess paper from the tray. If you are printing on special materials, use the manual feeding in tray. • An incorrect type of paper is being used. Use only paper that meets the specifications required by the machine. • There may be debris inside the machine. Open the front cover and remove any debris.
Envelopes skew or fail to feed correctly.	Ensure that the paper guides are against both sides of the envelopes.

Power and cable connecting problems

Click this link to open an animation about solving power problems.

Condition	Suggested solutions
The machine is not receiving power, or the connection cable between the computer and the machine is not connected properly.	• Connect the machine to the electricity supply first. If the machine has a ⏻ (**Power**) button on the control, press it. • Disconnect the machine's cable and reconnect it.

Printing problems

Condition	Possible cause	Suggested solutions
The machine does not print.	The machine is not receiving power.	Connect the machine to the electricity supply first. If the machine has a ⏻ (**Power**) button on the control, press it.
	The machine is not selected as the default machine.	Select your machine as your default machine in Windows.
	Check the machine for the following: • The cover is not closed. Close the cover. • Paper is jammed. Clear the paper jam (see "Clearing paper jams" on page 82). • No paper is loaded. Load paper (see "Loading paper in the tray" on page 33). • The toner cartridge is not installed. Install the toner cartridge (see "Replacing the toner cartridge" on page 64). • Make sure the protect cover and sheets are removed from the toner cartridge (see "Replacing the toner cartridge" on page 64). If a system error occurs, contact your service representative.	
	The connection cable between the computer and the machine is not connected properly.	Disconnect the machine cable and reconnect it (see "Rear view" on page 18).
	The connection cable between the computer and the machine is defective.	If possible, attach the cable to another computer that is working properly and print a job. You can also try using a different machine cable.
	The port setting is incorrect.	Check the Windows printer settings to make sure that the print job is sent to the correct port. If the computer has more than one port, make sure that the machine is attached to the correct one.

Printing problems

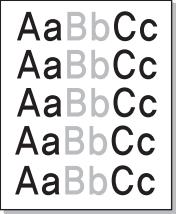| Condition	Possible cause	Suggested solutions
The machine does not print.	The machine may be configured incorrectly.	Check the **Printing Preferences** to ensure that all of the print settings are correct.
	The printer driver may be incorrectly installed.	Uninstall and reinstall the machine's driver.
	The machine is malfunctioning.	Check the display message on the control panel to see if the machine is indicating a system error. Contact a service representative.
	The document size is so big that the hard disk space of the computer is insufficient to access the print job.	Get more hard disk space and print the document again.
	The output tray is full.	Once the paper is removed from the output tray, the machine resumes printing.
The machine selects print materials from the wrong paper source.	The paper option that was selected in the **Printing Preferences** may be incorrect.	For many software applications, the paper source selection is found under the **Paper** tab within the **Printing Preferences** (see "Opening printing preferences" on page 46). Select the correct paper source. See the printer driver help screen (see "Using help" on page 47).
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 "Opening printing preferences" on page 46). See the printer driver help screen (see "Using help" on page 47).
	The paper size and the paper size settings do not match.	Ensure that the paper size in the printer driver settings matches the paper in the tray. Or, ensure that the paper size in the printer driver settings matches the paper selection in the software application settings you use (see "Opening printing preferences" on page 46).
The machine prints, but the text is wrong, garbled, or incomplete.	The machine cable is loose or defective.	Disconnect the machine cable and reconnect. Try a print job that you have already printed successfully. If possible, attach the cable and the machine to another computer that you know works and try a print job. Finally, try a new machine cable.

Printing problems

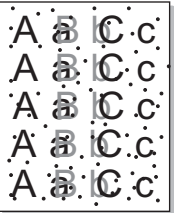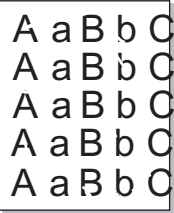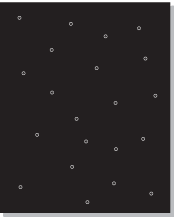| Condition	Possible cause	Suggested solutions
	The wrong printer driver was selected.	Check the application's printer selection menu to ensure that your machine is selected.
	The software application is malfunctioning.	Try printing a job from another application.
	The operating system is malfunctioning.	Exit Windows and reboot the computer. Turn the machine off and back on again.
Pages print, but they are blank.	The toner cartridge is defective or out of toner.	Redistribute the toner, if necessary. If necessary, replace the toner cartridge. • See "Redistributing toner" on page 62. • See "Replacing the toner cartridge" on page 64.
	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 files 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 enable the file to print. 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.
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 problems

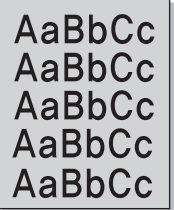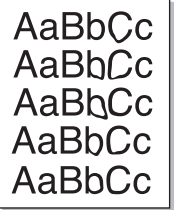| Condition	Possible cause	Suggested solutions
The machine does not print special-sized paper, such as billing paper.	Paper size and paper size setting do not match.	Set the correct paper size in the **Custom** in **Paper** tab in **Printing Preferences** (see "Opening printing preferences" on page 46).
The printed billing paper is curled.	The paper type setting does not match.	Change the printer option and try again. Go to **Printing Preferences**, click **Paper** tab, and set type to **Thick** (see "Opening printing preferences" on page 46).

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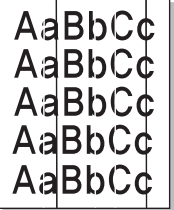
If the inside of the machine is dirty or paper has been loaded improperly, there might be a reduction in print quality. See the table below to clear the problem.

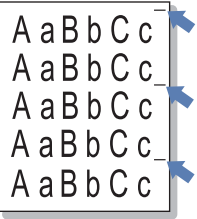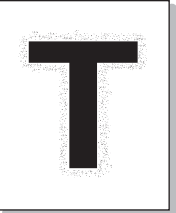| Condition	Suggested solutions
Light or faded print AaBbCc AaBbCc AaBbCc AaBbCc AaBbCc	• If a vertical white streak or faded area appears on the page, the toner supply is low. Install a new toner cartridge (see "Replacing the toner cartridge" on page 64). • The paper may not meet paper specifications; for example, the paper may be too moist or rough. • If the entire page is light, the print resolution setting is too low or the toner save mode is on. Adjust the print resolution and turn the toner save mode off. See the help screen of the printer driver. • A combination of faded or smeared defects may indicate that the toner cartridge needs cleaning. Clean the inside of your machine (see "Cleaning the machine" on page 75). • The surface of the LSU part inside the machine may be dirty. Clean the inside of your machine (see "Cleaning the machine" on page 75). If these steps do not correct the problem, contact a service representative.
The top half of the paper is printed lighter than the rest of the paper AaBbCc AaBbCc AaBbCc AaBbCc AaBbCc	**The toner might not adhere properly to this type of paper.** • Change the printer option and try again. Go to **Printing Preferences**, click the **Paper** tab, and set the paper type to **Recycled** (see "Opening printing preferences" on page 46).

Printing quality problems

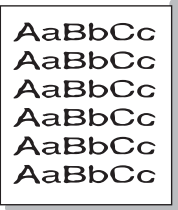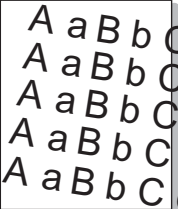| Condition	Suggested solutions
Toner specks	• The paper may not meet specifications; for example, the paper may be too moist or rough. • The transfer roller may be dirty. Clean the inside of your machine (see "Cleaning the machine" on page 75). • The paper path may need cleaning. Contact a service representative (see "Cleaning the machine" on page 75).
Dropouts	If faded areas, generally rounded, occur randomly on the page: • A single sheet of paper may be defective. Try reprinting the job. • The moisture content of the paper is uneven or the paper has moist spots on its surface. Try a different brand of paper. • The paper lot is bad. The manufacturing processes can cause some areas to reject toner. Try a different kind or brand of paper. • Change the printer option and try again. Go to **Printing Preferences**, click the **Paper** tab, and set type to **Thick** (see "Opening printing preferences" on page 46). If these steps do not correct the problem, contact a service representative.
White Spots	If white spots appear on the page: • The paper is too rough and a lot of dirt from paper falls to the inner components within the machine, so the transfer roller may be dirty. Clean the inside of your machine (see "Cleaning the machine" on page 75). • The paper path may need cleaning. Clean the inside of your machine (see "Cleaning the machine" on page 75). If these steps do not correct the problem, contact a service representative.

Printing quality problems

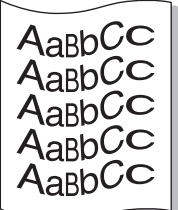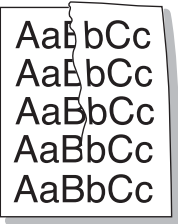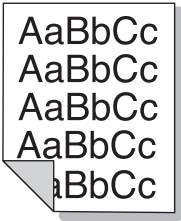| Condition	Suggested solutions
Vertical lines AaBbCc AaBbCc AaBbCc AaBbCc AaBbCc	If black vertical streaks appear on the page: • The surface (drum part) of the toner cartridge inside the machine has probably been scratched. Remove the toner cartridge and install a new one (see "Replacing the toner cartridge" on page 64). If white vertical streaks appear on the page: • The surface of the LSU part inside the machine may be dirty. Clean the inside of your machine (see "Cleaning the machine" on page 75). If these steps do not correct the problem, contact a service representative.
Black or color background AaBbCc AaBbCc AaBbCc AaBbCc AaBbCc	If the amount of background shading becomes unacceptable: • Change to a lighter weight paper. • Check the environmental conditions: very dry conditions or a high level of humidity (higher than 80% RH) can increase the amount of background shading. • Remove the old toner cartridge and install a new one (see "Replacing the toner cartridge" on page 64). • Thoroughly redistribute the toner (see "Redistributing toner" on page 62).
Toner smear AaBbCc AaBbCc AaBbCc AaBbCc AaBbCc	• Clean the inside of the machine (see "Cleaning the machine" on page 75). • Check the paper type and quality. • Remove the toner cartridge and install a new one (see "Replacing the toner cartridge" on page 64).

Printing quality problems

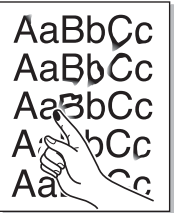| Condition	Suggested solutions
Vertical repetitive defects A a B b C c A a B b C c A a B b C c A a B b C c A a B b C c	If marks repeatedly appear on the printed side of the page at even intervals: • The toner cartridge may be damaged. If you still have the same problem, remove the toner cartridge and, install a new one (see "Replacing the toner cartridge" on page 64). • Parts of the machine may have toner on them. If the defects occur on the back of the page, the problem will likely correct itself after a few more pages. • The fusing assembly may be damaged. Contact a service representative.
Background scatter A	Background scatter results from bits of toner randomly distributed on the printed page. • The paper may be too damp. Try printing with a different batch of paper. Do not open packages of paper until necessary so that the paper does not absorb too much moisture. • If background scatter occurs on an envelope, change the printing layout to avoid printing over areas that have overlapping seams on the reverse side. Printing on seams can cause problems. Or select **Thick** from the **Printing Preferences** window (see "Opening printing preferences" on page 46). • If background scatter covers the entire surface area of a printed page, adjust the print resolution through your software application or in **Printing Preferences** (see "Opening printing preferences" on page 46). Ensure the correct paper type is selected. For example: If Thicker Paper is selected, but Plain Paper actually used, an overcharging can occur causing this copy quality problem. • If you are using a new toner cartridge, redistribute the toner first (see "Redistributing toner" on page 62).
Toner particles are around bold characters or pictures T	The toner might not adhere properly to this type of paper. • Change the printer option and try again. Go to **Printing Preferences**, click the **Paper** tab, and set the paper type to **Recycled** (see "Opening printing preferences" on page 46). • Ensure the correct paper type is selected. For example: If Thicker Paper is selected, but Plain Paper actually used, an overcharging can occur causing this copy quality problem.
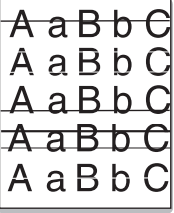
Printing quality problems

Condition	Suggested solutions
Misformed characters AaBbCc AaBbCc AaBbCc AaBbCc AaBbCc AaBbCc	• If characters are improperly formed and producing hollow images, the paper stock may be too slick. Try different paper.
Page skew A a B b C A a B b C A a B b C A a B b C A a B b C	• Ensure that the paper is loaded properly. • Check the paper type and quality. • Ensure that the guides are not too tight or too loose against the paper stack.
Curl or wave AaBbCC AaBbCC AaBbCC AaBbCC AaBbCC	• Ensure that the paper is loaded properly. • Check the paper type and quality. Both high temperature and humidity can cause paper curl. • Turn the stack of paper over in the tray. Also try rotating the paper 180° in the tray.
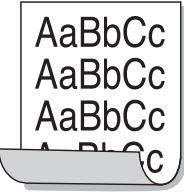
Printing quality problems

Condition	Suggested solutions
Wrinkles or creases AaBbCc AaBbCc AaBbCc AaBbCc AaBbCc	• Ensure that the paper is loaded properly. • Check the paper type and quality. • Turn the stack of paper over in the tray. Also try rotating the paper 180° in the tray.
Back of printouts are dirty AaBbCc AaBbCc AaBbCc AaBbCc aBbCc	• Check for leaking toner. Clean the inside of the machine (see "Cleaning the machine" on page 75).
Solid color or black pages	• The toner cartridge may not be installed properly. Remove the cartridge and reinsert it. • The toner cartridge may be defective. Remove the toner cartridge and install a new one (see "Replacing the toner cartridge" on page 64). • The machine may require repairing. Contact a service representative.

Printing quality problems

Condition	Suggested solutions
Loose toner AaBbCc AaBbCc AaBbCc AaBbCc Aa Cc	• Clean the inside of the machine (see "Cleaning the machine" on page 75). • Check the paper type and quality. • Remove the toner cartridge and then, install a new one (see "Replacing the toner cartridge" on page 64). If the problem persists, the machine may require repair. Contact a service representative.
Character voids A	Character voids are white areas within parts of characters that should be solid black: • You may be printing on the wrong surface of the paper. Remove the paper and turn it around. • The paper may not meet paper specifications.
Horizontal stripes A a B b C A a B b C A a B b C A a B b C A a B b C	If horizontally aligned black streaks or smears appear: • 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 "Replacing the toner cartridge" on page 64). If the problem persists, the machine may require repairing. Contact a service representative.

Printing quality problems

Condition	Suggested solutions
Curl AaBbCc AaBbCc AaBbCc AaBbCc	If the printed paper is curled or paper does not feed into the machine: • Turn the stack of paper over in the tray. Also try rotating the paper 180° in the tray. • Change the printer's paper option and try again. Go to **Printing Preferences**, click the **Paper** tab, and set type to **Thin** (see "Opening printing preferences" on page 46).
• An unknown image repetitively appears on a few sheets • Loose toner • Light print or contamination occurs	Your machine is probably being used at an altitude of 1,000 m (3,281 ft) or above. The high altitude may affect the print quality, such as loose toner or light imaging. Change the altitude setting for your machine (see "Altitude adjustment" on page 204).

Operating system problems

Common Windows problems

Condition	Suggested solutions
"File in Use" message appears during installation.	Exit all software applications. Remove all software from the startup group, then restart Windows. Reinstall the printer driver.
"General Protection Fault", "Exception OE", "Spool 32", or "Illegal Operation" messages appear.	Close all other applications, reboot Windows and try printing again.
"Fail To Print", "A printer timeout error occurred" message appear.	These messages may appear during printing. Just keep waiting until the machine finishes printing. If the message appears in ready mode or after printing has completed, check the connection and/or whether an error has occurred.

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

Operating system problems

Common Macintosh problems

Condition	Suggested solutions
The machine does not print PDF files correctly. Some parts of graphics, text, or illustrations are missing.	Printing the PDF file as an image may enable the file to print. 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.
Some letters are not displayed normally during cover page printing.	Mac OS cannot create the font while printing the cover page. The English alphabet and numbers are displayed normally on the cover page.
When printing a document in Macintosh with Acrobat Reader 6.0 or higher, colors print incorrectly.	Make sure that the resolution setting in your machine driver matches the one in Acrobat Reader.

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

Operating system problems

Common Linux problems

condition	Suggested solutions
The machine does not print.	• 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 machines. Make sure that your machine is displayed on the list. If not, open **Add new printer wizard** to set up your device. • Check if the machine 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, press the **Start** button. After that normal operation of the machine 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.
Some color images come out all black.	This is a known bug in Ghostscript (until GNU Ghostscript version 7.05) when the base color space of the document is indexed color space and is converted through CIE color space. Because Postscript uses CIE color space for Color Matching System, you should upgrade Ghostscript on your system to at least GNU Ghostscript version 7.06 or later. You can find recent Ghostscript versions at www.ghostscript.com.
Some color images come out in unexpected colors.	This is a known bug in Ghostscript (until GNU Ghostscript version 7.xx) when the base color space of the document is indexed RGB color space and it is converted through CIE color space. Because Postscript uses CIE color space for Color Matching System, you should upgrade Ghostscript on your system to at least GNU Ghostscript version 8.xx or later. You can find recent Ghostscript versions at www.ghostscript.com.
The machine does not print whole pages, and output is printed on half the page.	It is a known problem that occurs when a color machine is used on version 8.51 or earlier of Ghostscript, 64-bit Linux OS, and has been reported to bugs.ghostscript.com as Ghostscript Bug 688252.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.

Operating system problems

condition	Suggested solutions
I encounter error "Cannot open port device file" when printing a document.	Avoid changing print job parameters (via LPR GUI, for example) while a print job is in progress. Known versions of CUPS (Common UNIX Printing System) 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 the port while printing, the abrupt termination of the driver keeps the port locked and unavailable for subsequent print jobs. If this situation occurs, try to release the port by selecting **Release port** in **Port configuration** window.
When printing a document over the network in SuSE 9.2, the printer does not print.	The CUPS (Common UNIX Printing System) version distributed with SuSE Linux 9.2 (cups-1.1.21) has a problem with ipp (Internet Printing Protocol) printing. Use the socket printing instead of ipp or install later version of CUPS (Common UNIX Printing System) (cups-1.1.22 or higher).

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

Operating system problems

Common PostScript problems

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

Problem	Possible cause	Solution
The PostScript file cannot be printed	The PostScript driver may not be installed correctly.	• Install the PostScript driver (see "Software Installation" on page 129). • Print a configuration page and verify that the PS version is available for printing. • If the problem persists, contact a service representative.
Limit Check Error report prints	The print job was too complex.	You might need to reduce the complexity of the page or install more memory.
A PostScript error page prints	The print job may not be PostScript.	Make sure that the print job is a PostScript job. Check to see whether the software application expected a setup or PostScript header file to be sent to the machine.
The optional tray is not selected in the driver	The printer driver has not been configured to recognize the optional tray.	Open the driver properties, select the **Device Options** tab, and set the tray option (see "Setting Device Options" on page 69).
When printing a document in Macintosh with Acrobat Reader 6.0 or higher, colors print incorrectly	The resolution setting in the printer driver may not be matched with the one in Acrobat Reader.	Make sure that the resolution setting in your printer driver matches the one in Acrobat Reader.

Contact SAMSUNG worldwide

If you have any comments or questions regarding Samsung products, contact the Samsung customer care center.

Country/Region	Customer Care Center	Web Site
ALBANIA	42 27 5755	www.samsung.com
ARGENTINE	0800-333-3733	www.samsung.com
ARMENIA	0-800-05-555	www.samsung.com
AUSTRALIA	1300 362 603	www.samsung.com
AUSTRIA	0810-SAMSUNG (7267864, € 0.07/min)	www.samsung.com
AZERBAIJAN	088-55-55-555	www.samsung.com
BAHRAIN	8000-4726	www.samsung.com
BELARUS	810-800-500-55-500	www.samsung.com
BELGIUM	02-201-24-18	www.samsung.com/be (Dutch) www.samsung.com/be_fr (French)
BOLIVIA	800-10-7260	www.samsung.com
BOSNIA	05 133 1999	www.samsung.com
BRAZIL	0800-124-421 4004-0000	www.samsung.com
BULGARIA	07001 33 11	www.samsung.com

Country/Region	Customer Care Center	Web Site
CAMEROON	7095-0077	www.samsung.com
CANADA	1-800-SAMSUNG (726-7864)	www.samsung.com/ca www.samsung.com/ca_fr (French)
CHILE	800-SAMSUNG (726-7864) From mobile 02-482 82 00	www.samsung.com
CHINA	400-810-5858	www.samsung.com
COLOMBIA	01-8000112112	www.samsung.com
COSTA RICA	0-800-507-7267	www.samsung.com
COTE D'LVOIRE	8000 0077	www.samsung.com
CROATIA	062 SAMSUNG (062 726 7864)	www.samsung.com
CYPRUS	8009 4000 only from landline	www.samsung.com
CZECH REPUBLIC	800-SAMSUNG (800-726786) Samsung Electronics Czech and Slovak, s.r.o., Oasis Florenc, Sokolovská 394/17, 180 00, Praha 8	www.samsung.com
DENMARK	70 70 19 70	www.samsung.com
DOMINICA	1-800-751-2676	www.samsung.com
ECUADOR	1-800-10-7267	www.samsung.com
EGYPT	08000-726786	www.samsung.com

Contact SAMSUNG worldwide

Country/Region	Customer Care Center	Web Site
EIRE	0818 717100	www.samsung.com
EL SALVADOR	800-6225	www.samsung.com
ESTONIA	800-7267	www.samsung.com
FINLAND	030-6227 515	www.samsung.com
FRANCE	01 48 63 00 00	www.samsung.com
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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.

802.11

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

802.11b/g/n

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

Access point

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

ADF

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

AppleTalk

AppleTalk is a proprietary suite of protocols developed by Apple, Inc for computer networking. It was included in the original 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.

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BOOTP

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

CCD

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

Collation

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

Control Panel

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

Coverage

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

CSV

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

DADF

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

Default

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

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DHCP

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

DIMM

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

DLNA

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

DNS

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

Dot Matrix Printer

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

DPI

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

DRPD

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

Duplex

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

Duty Cycle

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

Glossary

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

Glossary

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.

Mass storage device (HDD)

Mass storage device (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.

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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.

Glossary

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.

Glossary

NetWare

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

OPC

Organic Photo Conductor (OPC) is a mechanism that makes a virtual image for print using a laser beam emitted from a laser printer, and it is usually green or rust colored and has a cylinder shape.

An imaging unit containing a drum slowly wears the drum surface by its usage in the printer, and it should be replaced appropriately since it gets worn from contact with the cartridge development brush, cleaning mechanism, and paper.

Originals

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

OSI

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

PABX

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

PCL

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

PDF

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

Glossary

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 in 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.

RADIUS

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

Resolution

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

Glossary

SMB

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

SMTP

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

SSID

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

Subnet Mask

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

TCP/IP

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

TCR

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

TIFF

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

Toner Cartridge

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

Glossary

TWAIN

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

WEP

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

WIA

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

WPA

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

Glossary

WPA-PSK

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

WPS

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

XPS

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

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