



User's Guide

Guide to the Machine

1

Paper Specifications and Adding Paper

2

Printing Documents

3

Configuring the Machine Using Utilities

4

Maintaining the Machine

5

Troubleshooting

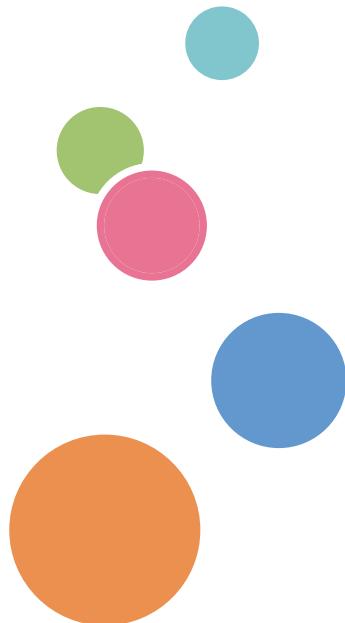
6

Configuring Network Settings Using OS X

7

Appendix

8



For safe and correct use, be sure to read Safety Information before using the machine.

TABLE OF CONTENTS

How to Find Information about Operations and Troubleshooting.....	5
Operating Manual (Printed).....	5
Operating Manual (Digital Format).....	5
Help.....	6
How to Read This Manual.....	8
Introduction.....	8
Symbols Used in This Manual.....	8
Model-Specific Information.....	8
Disclaimer.....	9
Notes.....	9
Note to Administrator.....	10
About IP Address.....	10
Differences in Performance/Functions between Different Models.....	10

1. Guide to the Machine

Guide to Components.....	11
Exterior.....	11
Interior.....	12
Control Panel.....	12
About Operation Tools.....	15

2. Paper Specifications and Adding Paper

Workflow for Loading Paper and Configuring Paper Sizes and Types.....	17
Loading Paper.....	18
Loading Paper into Tray 1.....	18
Loading Paper into the Bypass Tray.....	23
Specifying Paper Type and Paper Size Using Smart Organizing Monitor.....	25
Specifying a Custom Paper Size.....	25
Specifying Paper Type and Paper Size Using Web Image Monitor.....	27
Specifying a Custom Paper Size.....	27
Specifying Paper Type and Paper Size Using the Printer Driver.....	28
When Using Windows.....	28
When Using OS X.....	29
Supported Paper.....	30
Specifications of Paper Types.....	30

Non-Recommended Paper Types.....	33
Paper Storage.....	34
Print Area.....	34
3. Printing Documents	
What You Can Do with the Printer Function.....	37
Displaying the Printing Preferences Dialog Box.....	38
Displaying the Printing Preferences Dialog Box from the [Start] Menu.....	38
Displaying the Printing Preferences Dialog Box in an Application.....	38
Basic Operation of Printing.....	40
Canceling a Print Job.....	40
4. Configuring the Machine Using Utilities	
Available Setting Functions Using Web Image Monitor and Smart Organizing Monitor.....	43
Using Web Image Monitor.....	44
Displaying Top Page.....	44
Changing the Interface Language.....	45
Installing the Help Source File.....	46
Displaying Help.....	46
Menu.....	46
Home.....	47
System Settings.....	47
Network Settings.....	48
IPsec Settings.....	51
Print List/Report.....	54
Administrator Tools.....	54
Using Smart Organizing Monitor.....	57
Displaying the Smart Organizing Monitor Dialog.....	57
Checking the Status Information.....	58
Configuring the Machine Settings.....	59
5. Maintaining the Machine	
Replacing the Print Cartridge.....	61
Cautions When Cleaning.....	63
Cleaning the Inside of the Machine.....	64
Moving and Transporting the Machine.....	65

Disposal.....	66
Where to Inquire.....	66
6. Troubleshooting	
Error and Status Indicate on the Control Panel.....	67
Error and Status Messages Appear on Smart Organizing Monitor.....	69
Clearing Misfeeds.....	71
Removing Jammed Paper from Tray 1.....	71
Removing Jammed Paper from the Bypass Tray.....	73
Opening the Rear Cover to Remove Jammed Paper.....	74
When You Cannot Print Test Page.....	76
Paper Feed Problems.....	77
Print Quality Problems.....	79
Checking the Condition of the Machine.....	79
Checking the Printer Driver Settings.....	79
Printer Problems.....	81
Print Positions Do Not Match Display Positions.....	82
Common Problems.....	83
7. Configuring Network Settings Using OS X	
Connecting the Machine to a Wired Network.....	85
Using a USB Cable.....	85
Using an Ethernet Cable.....	86
Connecting the Machine to a Wireless Network.....	88
Installing the Printer Driver.....	88
Installing Smart Organizing Monitor.....	88
Using the WPS Button.....	89
Using a PIN Code.....	90
Manual Setup.....	91
8. Appendix	
Transmission Using IPsec.....	93
Encryption and Authentication by IPsec.....	93
Security Association.....	94
Encryption Key Exchange Settings Configuration Flow.....	95
Specifying Encryption Key Exchange Settings.....	95

Specifying IPsec Settings on the Computer.....	96
Notes About the Toner.....	99
Specifications of the Machine.....	100
General Function Specifications.....	100
Printer Function Specifications.....	102
Consumables.....	103
Print Cartridge.....	103
Information for This Machine.....	104
User Information on Electrical & Electronic Equipment  (mainly Europe and Asia).....	104
Note for the Battery and/or Accumulator Symbol (For EU countries only).....	105
Environmental Advice for Users  (mainly Europe).....	105
Notice To Wireless LAN Interface Users  (mainly Europe).....	106
Notes to users in the state of California (Notes to Users in USA).....	107
Notes to users in the United States of America.....	107
Notes to Canadian Users of Wireless Devices.....	108
ENERGY STAR Program.....	109
Saving Energy.....	109
Copyright Information about Installed Applications.....	111
Apache License.....	111
dnsmasq.....	113
GPL Version 2.....	114
iperf.....	122
libHaru.....	124
Libsasl.....	124
mDNSResponser.....	126
OpenCV.....	127
Open SSL.....	128
WPA Supplicant.....	131
Trademarks.....	133
INDEX.....	137

How to Find Information about Operations and Troubleshooting

You can find support information about operating the machine and troubleshooting in the Operating Manual (printed), Operating Manual (digital format), and Help (online).

Operating Manual (Printed)

The following manuals are provided with this machine.

Safety Information

This manual explains the safety precautions that should be followed when using the machine. Be sure to read this manual before using the machine.

Setup Guide

This manual explains how to set up the machine. It also explains how to remove the machine from the packaging and how to connect it to a computer.

Operating Manual (Digital Format)

Operating manuals can be viewed from Ricoh's website or from the provided CD-ROM.

Viewing from a web browser

Access the Internet from a web browser.

Confirm that the computer or the machine is connected to the network.

Download the operating manuals from <http://www.ricoh.com/>.

Viewing from the provided CD-ROM

Operating manuals can also be viewed from the provided CD-ROM.

- When using Windows

1. Insert the CD-ROM into the CD-ROM drive.

2. Click [Read Manual] and follow the instructions on the screen.

The PDF file manual opens.

- When using OS X

1. Insert the CD-ROM into the CD-ROM drive.

2. Double-click [Manuals.htm] file, located on the CD-ROM root directory.

3. Select the language.

4. Click [Read PDF manuals].

5. Click the manual you want to refer to.

The PDF file manual opens.

Help

Use the following procedure to open the Help files learn about the printer driver, Web Image Monitor, and Smart Organizing Monitor functions.

Depending on the model, Web Image Monitor may not be available. For details about model-specific differences, see "Differences in Performance/Functions between Different Models" in page 8 "How to Read This Manual".

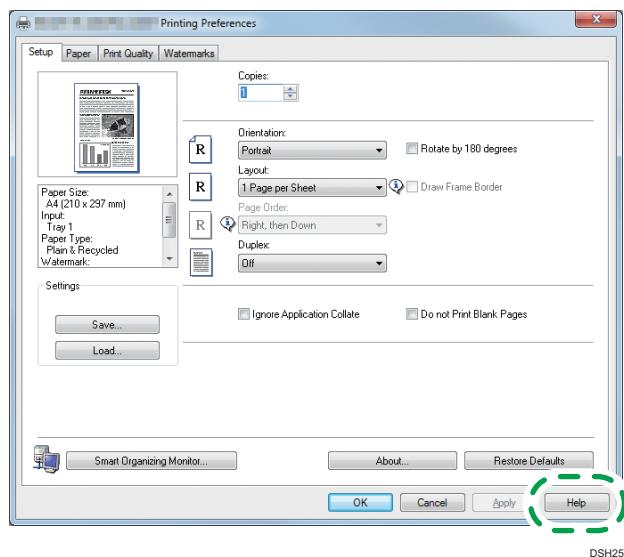
For details about using Web Image Monitor, see page 43 "Configuring the Machine Using Utilities".

For details about Smart Organizing Monitor, see page 57 "Using Smart Organizing Monitor".

Printer driver

1. Click [Help] on the printing preferences dialog box.

For the procedure on how to open the printing preferences dialog box, see page 38 "Displaying the Printing Preferences Dialog Box".



Web Image Monitor

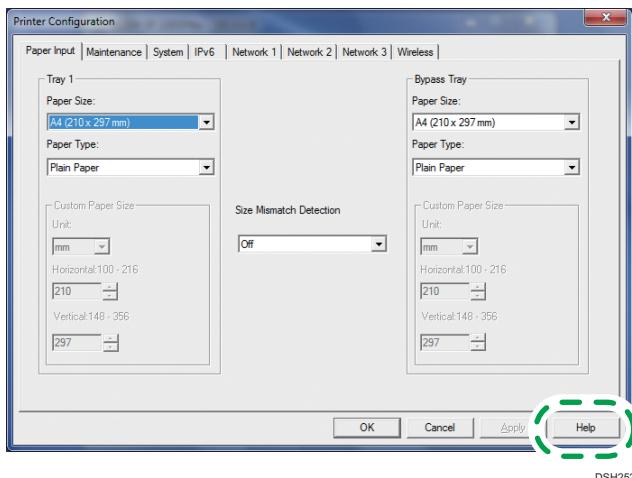
1. Click  on the top right of the screen.



To display Help, install the help source file beforehand. For details about installing the file, see page 44 "Using Web Image Monitor".

Smart Organizing Monitor

1. Click [Help] on the [Printer Configuration] screen.



How to Read This Manual

Introduction

This manual contains detailed instructions and notes on the operation and use of this machine. For your safety and benefit, read this manual carefully before using the machine. Keep this manual in a handy place for quick reference.

Symbols Used in This Manual

This manual uses the following symbols:

 **Important**

Indicates points to pay attention to when using the machine, and explanations of likely causes of paper misfeeds, damage to originals, or loss of data. Be sure to read these explanations.

 **Note**

Indicates supplementary explanations of the machine's functions, and instructions on resolving user errors.

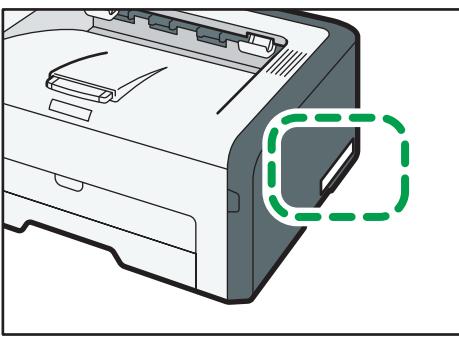
[]

Indicates the names of keys that appear on the computer screen.

Model-Specific Information

This section explains how you can identify the region your machine belongs to.

There is a label on the rear of the machine, located in the position shown below. The label contains details that identify the region your machine belongs to. Read the label.



The following information is region-specific. Read the information under the symbol that corresponds to the region of your machine.

 **Region A** (mainly Europe and Asia)

If the label contains the following, your machine is a region A model:

- CODE XXXX -27, -29, -67
- 220–240 V

 **Region B** (mainly North America)

If the label contains the following, your machine is a region B model:

- CODE XXXX -17
- 120–127 V

 **Note**

- Dimensions in this manual are given in two units of measure: metric and inch. If your machine is a Region A model, refer to the metric units. If your machine is a Region B model, refer to the inch units.

Disclaimer

To the maximum extent permitted by applicable laws, in no event will the manufacturer be liable for any damages whatsoever arising out of failures of this machine, losses of the registered data, or the use or non-use of this product and operation manuals provided with it.

Make sure that you always copy or have backups of the data registered in this machine. Documents or data might be erased due to your operational errors or malfunctions of the machine.

In no event will the manufacturer be responsible for any documents created by you using this machine or any results from the data executed by you.

For good output quality, the manufacturer recommends that you use genuine toner from the manufacturer.

Notes

Contents of this manual are subject to change without prior notice.

The manufacturer shall not be responsible for any damage or expense that might result from the use of parts other than genuine parts from the manufacturer with your office products.

Some illustrations in this manual might be slightly different from the machine.

Note to Administrator

Password

When you log in to this printer, you will be prompted to enter the password. We strongly recommend you to change the factory default password immediately to prevent information leakage and unauthorized operations by others.

You will be prompted to enter your password when you attempt to change printer settings configured using Web Image Monitor.

To use the factory default password, leave the password blank when using Web Image Monitor.

To change password for Web Image Monitor, you need to log on as an Administrator, and then make the necessary settings.

For details about setting a password, see page 44 "Using Web Image Monitor".

About IP Address

In this manual, "IP address" covers both IPv4 and IPv6 environments. Read the instructions that are relevant to the environment you are using.

Differences in Performance/Functions between Different Models

The differences in main performance/functions between different models are as follows:

	SP 221	SP 220Nw SP 221Nw
Ethernet Port (Network)	Not available	Available
Wireless LAN	Not available	Available
Web Image Monitor	Not available	Available

1. Guide to the Machine

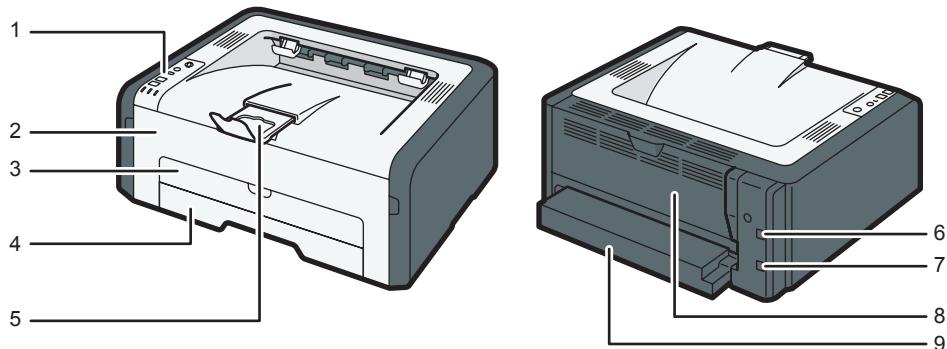
This chapter describes preparations for using the machine and its operating instructions.

1

Guide to Components

This section introduces the names of the various parts on the front and rear side of the machine and outlines their functions.

Exterior



DSH105

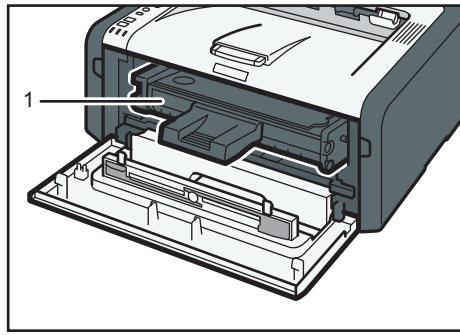
Important

- SP 221 does not come with an Ethernet port.

No.	Name	Description
1	Control Panel	The keys to operate the machine and the indicators for checking the status of the machine are on this control panel. For details, see page 12 "Control Panel".
2	Front Cover	Lift up this cover to replace consumables or clear a paper jam.
3	Bypass Tray	This tray can hold one sheet of plain paper.
4	Tray 1	This tray can hold up to 150 sheets of plain paper.
5	Stop Fence	Raise this fence to prevent paper from falling off.
6	USB Port	Use a USB cable to connect the printer to the host computer.

No.	Name	Description
7	Ethernet Port	Use a network interface cable to connect the printer to the network.
8	Rear Cover	Open this cover to deliver sheets face up or remove jammed paper.
9	Tray Cover	Attach this cover when you extend the tray.

Interior



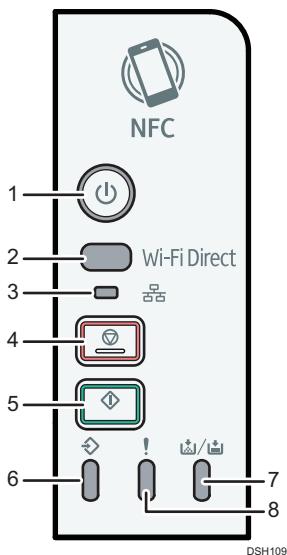
DSH187

No.	Name	Description
1	Print Cartridge	A replacement consumable that is required to make prints on paper. It needs to be replaced when the Toner/Paper End indicator flashes red. For details about replacing the cartridge, see page 61 "Replacing the Print Cartridge".

Control Panel

This section introduces the names of the parts of the control panel and explains their functions.

The illustration of the control panel is for SP 220Nw and SP 221Nw.



No.	Name	Description
1	[Power] key	This indicator lights blue when the machine is turned on.
2	[Wi-Fi Direct] key (only SP 220Nw and SP 221Nw)	Pressing this key while Wi-Fi is disabled activates Wi-Fi and reboots the machine automatically. Press this key while Wi-Fi is enabled to activate or deactivate the Wi-Fi Direct function. This indicator lights blue when the Wi-Fi Direct function is active. After a long press of this key, configure the WPS using the PIN code or in PBC mode. For details, see Setup Guide.
3	Network Indicator (only SP 220Nw and SP 221Nw)	This indicator lights blue when the network is connected.
4	[Stop] key	Press this key once to pause a job that is currently printing. To cancel a job, press it again.
5	[Start] key	Press to restart the printing job.
6	Data In Indicator	This indicator lights blue when the machine receives print data from the host device.
7	Toner/Paper End Indicator	This indicator lights red when the machine runs out of paper or toner. It flashes when the toner is nearly empty.
8	Alert Indicator	This indicator flashes red when paper jams occur, and it lights when the paper settings do not match the settings specified by the driver, and when other errors occur.

 **Note**

- For details about printing a list of the machine's configurations or about doing a test print using Smart Organizing Monitor, see page 57 "Using Smart Organizing Monitor".

About Operation Tools

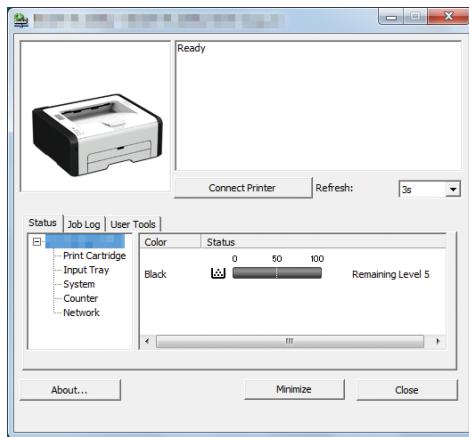
This section explains the operation tools of this machine.

Depending on the model, Web Image Monitor may not be available. For details about model-specific differences, see "Differences in Performance/Functions between Different Models" in page 8 "How to Read This Manual".

Control Panel

The control panel contains keys for controlling the machine.

Smart Organizing Monitor



Install this utility on your computer from the included CD-ROM before using it.

Using Smart Organizing Monitor, you can check the machine's status, configure its settings, and use other functions.

For details about how to use Smart Organizing Monitor, see page 57 "Using Smart Organizing Monitor".

Web Image Monitor



You can check the machine's status and configure its settings by accessing the machine directly using Web Image Monitor.

2. Paper Specifications and Adding Paper

This chapter describes how to load paper and originals and about their specifications.

2

Workflow for Loading Paper and Configuring Paper Sizes and Types

This section explains how to load paper and the operations required after loading paper.

After following the procedures below, you can print on the paper that is loaded in the machine.

1 ► **2** ► **3** Load paper into the paper tray.



1 ► **2** ► **3** Specify the paper type and size.



1 ► **2** ► **3** Specify the paper type and size on the printer driver.

DSG260

For details about the procedures, refer to the next page.

Procedure	Reference
1	<ul style="list-style-type: none">When loading paper into Tray 1 See page 18 "Loading Paper into Tray 1".When loading paper into the bypass tray See page 23 "Loading Paper into the Bypass Tray".
2	<p>There are two ways to specify the paper type and size.</p> <ul style="list-style-type: none">When using Web Image Monitor See page 27 "Specifying Paper Type and Paper Size Using Web Image Monitor".When using Smart Organizing Monitor See page 25 "Specifying Paper Type and Paper Size Using Smart Organizing Monitor".
3	See page 28 "Specifying Paper Type and Paper Size Using the Printer Driver".

For details about supported paper, see page 30 "Supported Paper".

Loading Paper

This section explains how to load paper into the paper tray and the bypass tray.

⚠ CAUTION

- When loading paper, take care not to trap or injure your fingers.

2

For information about supported paper, precautions for storing paper and print areas, see page 30 "Supported Paper".

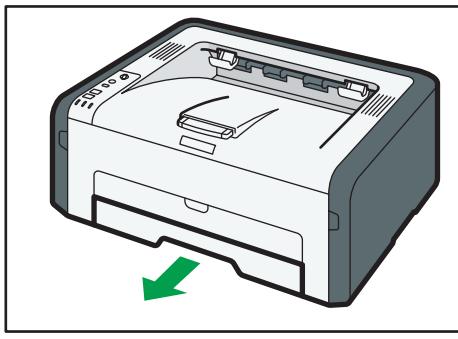
★ Important

- When loading paper, be sure to configure the paper size and paper type for the bypass tray and Tray 1. When printing a document, specify the paper size and paper type and select the paper tray in the printer driver so that the settings configured when paper is loaded can be used for printing.

Loading Paper into Tray 1

Extend this tray to load A5 paper vertically or to load paper larger than A4 (297 mm). For details, see page 21 "Extending Tray 1 to load paper".

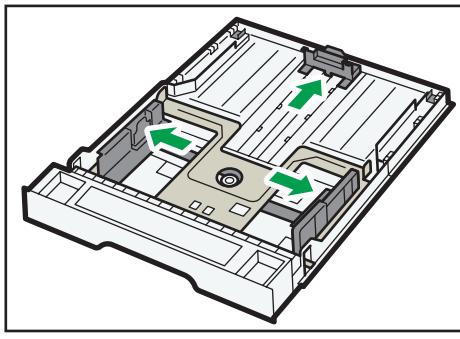
1. Pull Tray 1 out slowly, and then remove it using both hands.



DSH210

Place the tray on a flat surface.

2. Slide the side and end paper guides outward.

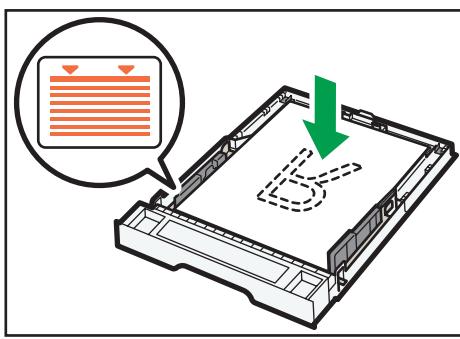


2

3. Fan the paper before loading it in the tray.

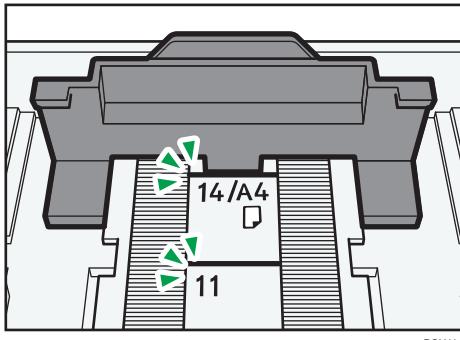
4. Load the new paper stack print side down.

Make sure paper is not stacked higher than the upper limit marked inside the side paper guide.



DSH115

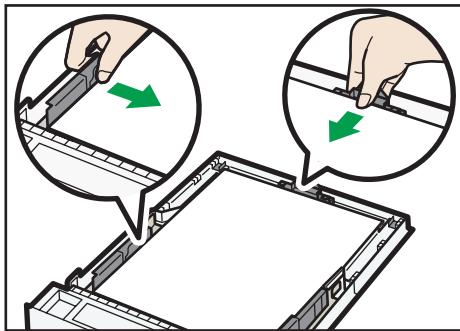
Align the end paper guide to the paper size mark in the tray.



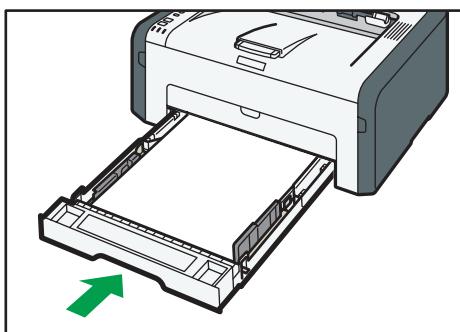
DSH114

5. Check there are no gaps between the paper and the paper guides (both side and end paper guides).

2

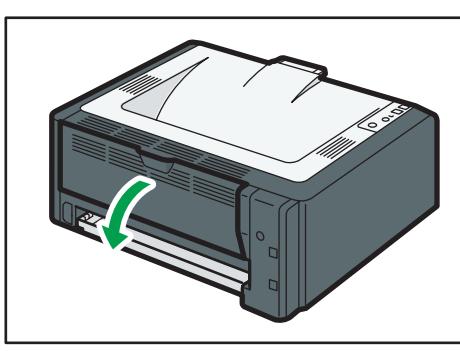


6. Carefully push Tray 1 straight into the machine.



To avoid paper jams, make sure the tray is securely inserted.

To deliver the sheets face up, open the rear cover.



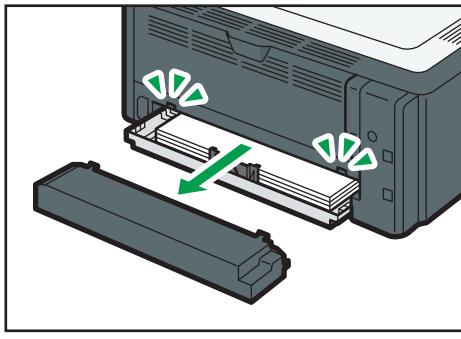
Note

- Sheets can be delivered face down from the output tray without opening the rear cover.

Extending Tray 1 to load paper

This section explains how to load paper larger than A4 (297 mm) into the machine.

1. Remove the tray cover.

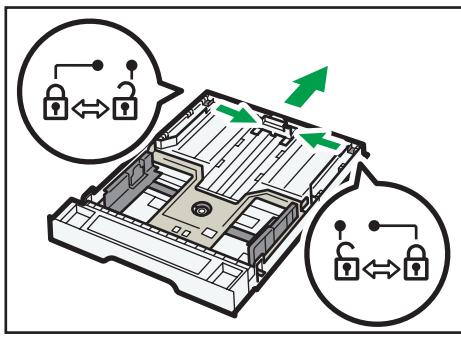


DSH213

2

2. Pull Tray 1 out slowly, and then remove it using both hands.

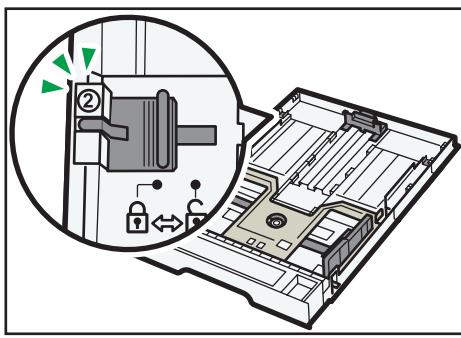
3. Release the extender locks on both sides of the tray, and then pull out the extender.



DSH120

Make sure the extender's inner surface and the scale are aligned.

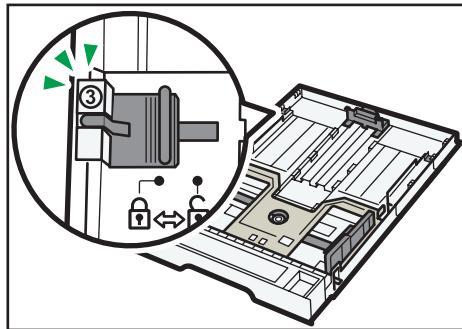
You can adjust the length of the extender in three steps. When using A5 SEF, A4 or letter size paper, adjust the length to the position indicated by the mark "②" in the tray.



DSH121

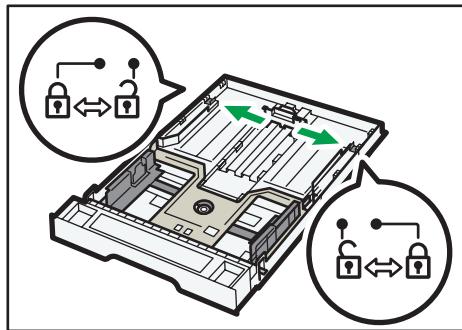
When using legal size paper, adjust the length to the position indicated by the mark "③" in the tray.

2



DSH180

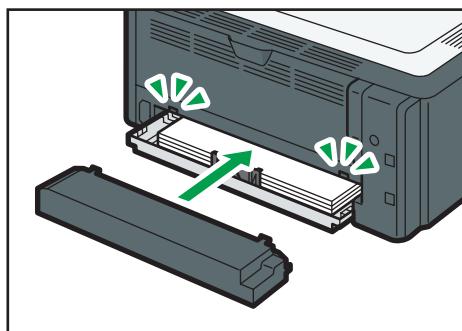
4. Lock the extender.



DSH122

5. Follow Steps 2 to 7 in "Loading Paper into Tray 1".

6. Attach the tray cover.



DSH214

Note

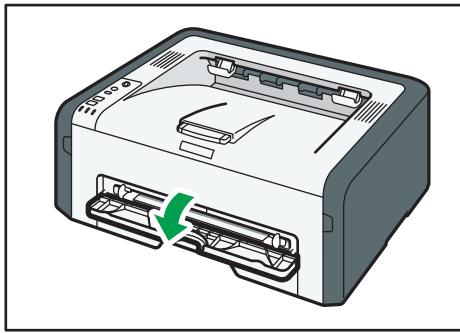
- Legal paper or custom-size paper longer than A4 must be loaded without attaching the tray cover.
(Region A only)

Loading Paper into the Bypass Tray

Important

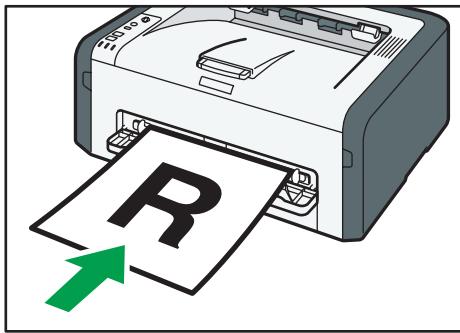
- Do not load paper in the bypass tray unless the message "Ready" appears in Smart Organizing Monitor.

1. Open the bypass tray.



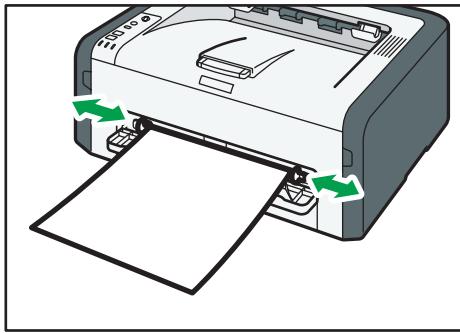
DSH215

2. Slide the side guides outward, load paper with the print side up, and then push in until it stops against the machine.



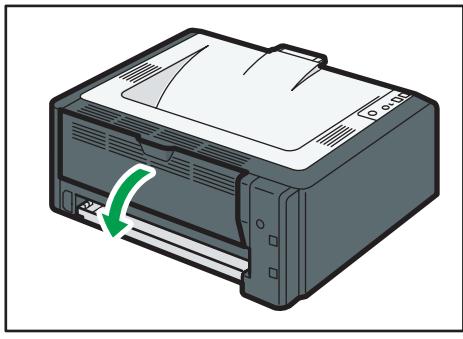
DSH216

3. Adjust the side guides to the paper width.



DSH217

To deliver the sheets face up, open the rear cover.



DSH212

2

 **Note**

- Sheets can be delivered face down from the output tray without opening the rear cover.

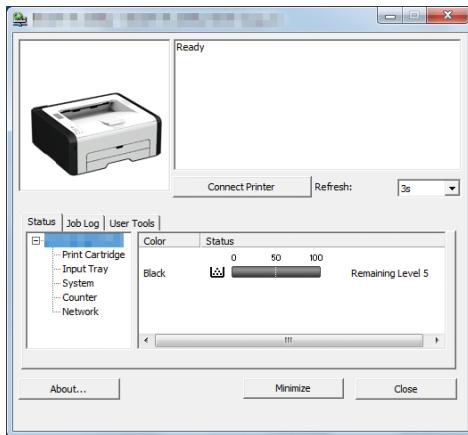
Specifying Paper Type and Paper Size Using Smart Organizing Monitor

The procedure in this section is an example based on Windows 7. The actual procedure may vary depending on the operating system you are using.

2

1. On the [Start] menu, click [All Programs].
2. Click [SP 220 Series Software Utilities].
3. Click [Smart Organizing Monitor for SP 220 Series].

Smart Organizing Monitor starts.



4. If the machine you are using is not selected, click [Connect Printer], and then do one of the following:
 - Select the machine's model.
 - Enter the IP address of the machine manually.
 - Click [Search Network Printer] to search the machine via the network.
5. Click [OK].
6. On the [User Tools] tab, click [Printer Configuration].

If you are requested to enter an access code, enter the access code and then click [OK].
The default access code is "Admin".
7. On the [Paper Input] tab, select the paper type and paper size, and then click [OK].
8. Click [Close].

Specifying a Custom Paper Size

1. On the [Start] menu, click [All Programs].

- 2.** Click [SP 220 Series Software Utilities].
- 3.** Click [Smart Organizing Monitor for SP 220 Series].
- 4.** If the machine you are using is not selected, click [Connect Printer], and then do one of the following:
 - Select the machine's model.
 - Enter the IP address of the machine manually.
 - Click [Search Network Printer] to search the machine via the network.
- 5.** Click [OK].
- 6.** On the [User Tools] tab, click [Printer Configuration].

If you are requested to enter an access code, enter the access code and then click [OK].
The default access code is "Admin".
- 7.** On the [Paper Input] tab, select [Custom Paper Size] in the [Paper Size] list.
- 8.** In the [Unit] list, select [mm] or [inch].
- 9.** In the [Horizontal] box and [Vertical] box, specify the width and length.
- 10.** Click [OK].
- 11.** Click [Close].

Specifying Paper Type and Paper Size Using Web Image Monitor

This section describes how to specify paper sizes and types using Web Image Monitor.

Depending on the model, Web Image Monitor may not be available. For details about model-specific differences, see "Differences in Performance/Functions between Different Models" in page 8 "How to Read This Manual".

1. Start the web browser and access the machine by entering its IP address.

The top page of Web Image Monitor appears.



2. Click [System Settings].
3. Click [Tray Paper Settings].
4. Select the paper type and paper size for the tray you want to use.
5. Enter the administrator password if required.
6. Click [OK].
7. Close the web browser.

Specifying a Custom Paper Size

1. Start the web browser and access the machine by entering the IP address.
2. Click [System Settings].
3. Click [Tray Paper Settings].
4. Select [Custom Size] in the [Paper Size] list.
5. Select [mm] or [inch] and specify the width and length.
6. Enter the administrator password if required.
7. Click [OK].
8. Close the web browser.

Specifying Paper Type and Paper Size Using the Printer Driver

Important

2

- Make sure that the paper type and size specified with the printer driver matches the type and size of the paper loaded in the tray. Since this machine does not detect paper sizes automatically, the type or size of the paper may be mismatched and the print job may not print correctly.

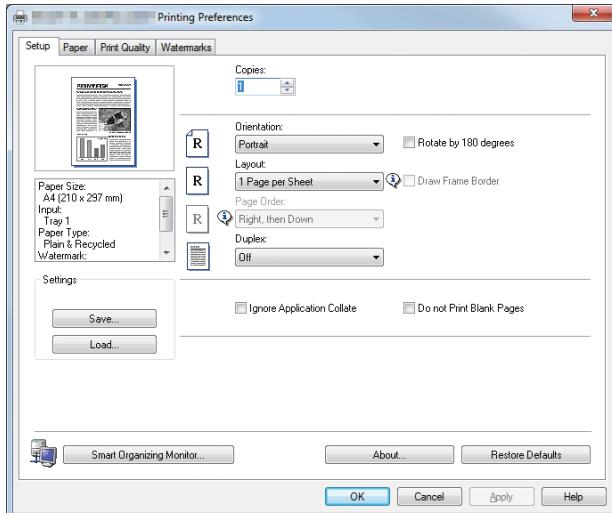
When Using Windows

The procedure in this section is an example based on Windows 7. The actual procedure may vary depending on the operating system you are using.

1. Open the [Printing Preferences] dialog box from the printer driver.

For information of how to open the printer driver properties from [Devices and Printers], see page 38 "Displaying the Printing Preferences Dialog Box".

The [Printing Preferences] dialog box appears.



- Click the [Paper] tab.
- In the [Input Tray:] list, select the paper tray you want to use for printing.
- In the [Paper Type:] list, select the type of paper that is loaded in the paper tray.
- Select the [Print On] check box and select the size of the paper that is loaded in the paper tray.

Clear the [Fit to Print Size] check box as necessary.

-
6. Click [OK].

When Using OS X

The procedure in this section is an example based on OS X 10.11. The actual procedure may vary depending on the operating system you are using.

2

1. Start System Preferences.
2. Click [Printers & Scanners].
3. Select the printer you are using.
4. In the [Paper Size:] list, select the size of the document to be printed.
5. Select [Printer Features] in the pop-up menu.
6. In the [Media Type:] list, select the type of paper that is loaded in the paper tray.

Supported Paper

Important

- After loading paper in the tray, specify the paper type and size using Smart Organizing Monitor and the printer driver. This machine does not detect the paper size automatically.
- When loading custom size paper, specify the width and length using printer driver.

2

Type	Size	Weight	Capacity
Plain Paper	A4, 8 1/2 × 11, B5 JIS, B6 JIS,	• Tray 1	• Tray 1
Recycled Paper	A5 LEF, A5 SEF, A6, 8 1/2 × 14, 8 1/2 × 13, 8.5 × 13.4, 8.5 × 13.6, 16K, 8.11 × 13.3,	60 to 105 g/m ² (16 to 28 lb.)	150 sheets
Thick Paper 1	5 1/2 × 8 1/2	• Bypass tray	• Bypass tray
Thin Paper		52 to 128 g/m ² (14 to 34 lb.)	1 sheet (80 g/m ² , 20 lb.)
Letterhead			
Preprinted Paper			
Prepunched Paper			
Bond Paper			
Cardstock			
Color Paper			
Plain Paper	Custom size:	• Tray 1	• Tray 1
Recycled Paper	100 to 216 mm in width, 148 to 356 mm in length	60 to 105 g/m ² (16 to 28 lb.)	150 sheets
Thick Paper 1	(3.94 to 8.50 inches in width, 5.83 to 14.02 inches in length)	• Bypass tray	• Bypass tray
Thin Paper		52 to 128 g/m ² (14 to 34 lb.)	1 sheet (80 g/m ² , 20 lb.)
Letterhead			
Preprinted Paper			
Prepunched Paper			
Bond Paper			
Cardstock			
Color Paper			

Specifications of Paper Types

The following tables describe the types of paper that can be used with this machine.

Important

- Depending on the paper type, the toner may take a while to dry. Before handling printed sheets, make sure that they have fully dried. Otherwise, the toner may smudge.
- Print quality can be guaranteed only if recommended paper is used. For more information about the recommended paper, contact your sales or service representative.

Plain Paper

Item	Description
Paper thickness	65 to 99 g/m ² (17 to 27 lb.)
Supported paper tray	Tray 1 and bypass tray

Thick Paper 1

Item	Description
Paper thickness	100 to 130 g/m ² (27 to 35 lb.)
Supported paper tray	Tray 1 and bypass tray

Thin Paper

Item	Description
Paper thickness	52 to 64 g/m ² (14 to 16 lb.)
Supported paper tray	Tray 1 and bypass tray

Recycled Paper

Item	Description
Paper thickness	75 to 90 g/m ² (20 to 24 lb.)
Supported paper tray	Tray 1 and bypass tray
Notes	If the paper thickness is outside the specified range, select [Thin Paper], [Plain Paper], or [Thick Paper 1].

Color Paper

Item	Description
Paper thickness	75 to 90 g/m ² (20 to 24 lb.)
Supported paper tray	Tray 1 and bypass tray
Notes	If the paper thickness is outside the specified range, select [Thin Paper], [Plain Paper], or [Thick Paper 1].

Preprinted Paper

Item	Description
Paper thickness	75 to 90 g/m ² (20 to 24 lb.)
Supported paper tray	Tray 1 and bypass tray
Notes	If the paper thickness is outside the specified range, select [Thin Paper], [Plain Paper], or [Thick Paper 1].

Prepunched Paper

Item	Description
Paper thickness	75 to 90 g/m ² (20 to 24 lb.)
Supported paper tray	Tray 1 and bypass tray
Notes	If the paper thickness is outside the specified range, select [Thin Paper], [Plain Paper], or [Thick Paper 1].

Letterhead

Item	Description
Paper thickness	100 to 130 g/m ² (27 to 35 lb.)
Supported paper tray	Tray 1 and bypass tray
Notes	Paper that has a thickness outside the specified range cannot be printed onto.

Bond Paper

Item	Description
Paper thickness	100 to 130 g/m ² (28 to 43 lb.)
Supported paper tray	Tray 1 and bypass tray
Notes	If the paper thickness is outside the specified range, select [Thin Paper], [Plain Paper], or [Thick Paper 1].

Cardstock

Item	Description
Paper thickness	100 to 130 g/m ² (27 to 35 lb.)
Supported paper tray	Tray 1 and bypass tray
Notes	If the paper thickness is outside the specified range, select [Thin Paper], [Plain Paper], or [Thick Paper 1].

Non-Recommended Paper Types

Do not use the following types of paper:

- Ink-jet printer paper
- Bent, folded, or creased paper
- Curled or twisted paper
- Torn paper
- Wrinkled paper
- Damp paper
- Dirty or damaged paper
- Paper that is dry enough to emit static electricity
- Paper that has already been printed onto, except a preprinted letterhead paper.

Malfunctions are especially likely when using paper printed on by other than a laser printer (e.g. monochrome and color copiers, ink-jet printers, etc.)

- Special paper, such as thermal paper and carbon paper
- Paper weighing heavier or lighter than the limit

- Paper with windows, holes, perforations, cutouts, or embossing
- Adhesive label paper on which glue or base paper is exposed
- Paper with clips or staples

 **Note**

- 2
- When loading paper, take care not to touch the surface of the paper.
 - Even if paper is adequate for the machine, poorly stored paper can cause paper misfeeds, print quality degradation, or malfunctions.

Paper Storage

 **Important**

- Store paper appropriately. If the paper is stored incorrectly, misfeeds, lower printing quality, or malfunctions may result.

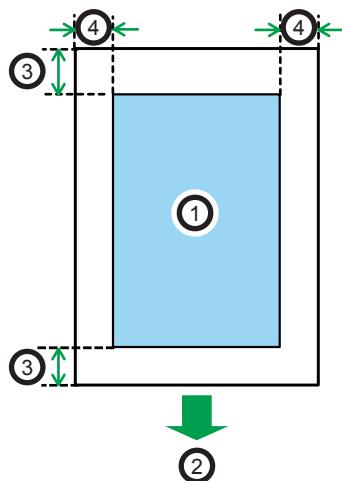
When storing paper:

- Do not store paper in a humid place.
- Do not store paper in direct sunlight.
- Do not stand paper on its edge.
- Store any leftover paper in a wrapping or box supplied with the paper.

Print Area

The diagram below shows the area of the paper that the machine can print on.

From the printer driver



CHZ904

1. Print area
2. Feed direction
3. Approx. 4.2 mm (0.2 inches)
4. Approx. 4.2 mm (0.2 inches)

 **Note**

- The print area may vary depending on the paper size, printer language and printer driver settings.

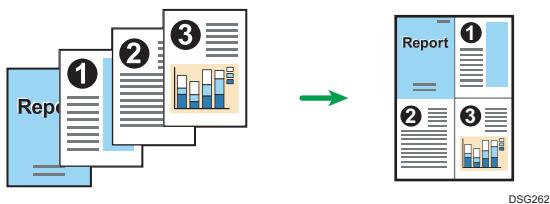
3. Printing Documents

This chapter describes how to configure settings on the printer driver and print documents.

What You Can Do with the Printer Function

Combined printing

You can combine multiple pages and print them on a single sheet of paper. For details, see the printer driver Help.



3

Displaying the Printing Preferences Dialog Box

To change the default settings of the printer driver, configure settings in the [Printing Preferences] dialog box.

To change the default settings of all applications, open the [Printing Preferences] dialog box from the OS. For details, see page 38 "Displaying the Printing Preferences Dialog Box from the [Start] Menu".

To change the default settings of a specific application, open the [Printing Preferences] dialog box from that application. For details, see page 38 "Displaying the Printing Preferences Dialog Box in an Application".

3

Displaying the Printing Preferences Dialog Box from the [Start] Menu

This section explains how to open the [Printing Preferences] dialog box from [Devices and Printers].

Important

- When the printer driver is distributed from the print server, the setting values specified by the server are displayed as the default for [Printing Defaults...].
- You cannot configure different print settings for each user. The settings configured in this dialog box are used as the default.

1. On the [Start] menu, click [Devices and Printers].
2. Right-click the icon of the printer you want to use.
3. Click [Printing Preferences].

Displaying the Printing Preferences Dialog Box in an Application

You can make printer settings for a specific application. To make printer settings for a specific application, open the [Printing Preferences] dialog box from that application.

The settings displayed in the [Printing Preferences] dialog box opened from the [Devices and Printers] window are applied as the default in the [Printing Preferences] dialog box opened in an application. When printing from an application, modify the settings as required.

The screens displayed may differ depending on the application. The following procedure explains how to print documents from an application using WordPad in Windows 7 as an example.

Displaying the Printing Preferences Dialog Box in an Application When Using Windows

1. Click the WordPad menu button in the upper left corner of the window, and then click [Print].

2. In the [Select Printer] list, select the printer you want to use.

3. Click [Preferences].

 Note

- Procedures for opening the [Printing Preferences] dialog box vary depending on the application. For details, see the printer driver Help or the manuals provided with the application.

Displaying the Printing Preferences Dialog Box in an Application When Using OS X

The following procedure is explained using OS X 10.11 as an example.

3

1. Open the document to print.

2. Select [Print...] on the [File] menu.

3. Check that the machine name or IP address you are using is selected in the [Printer:] popup menu.

If the machine name or IP address you are using is not selected in the [Printer:] list, click the list, and then select the machine.

Basic Operation of Printing

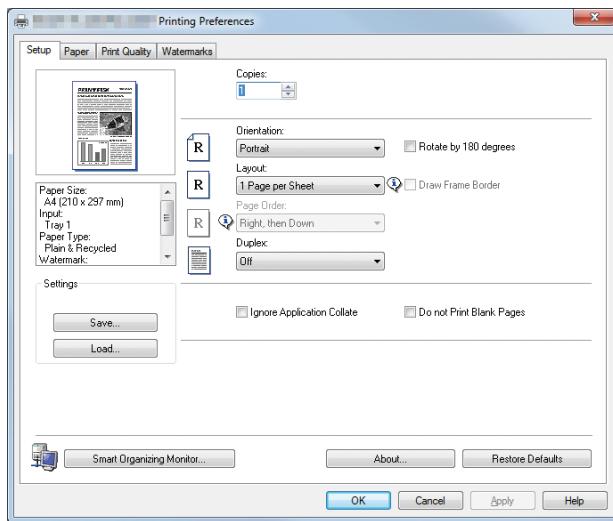
The following procedure explains how to perform basic printing.

For details of printing options, see the printer driver Help.

The procedure in this section is an example based on Windows 7. The actual procedure may vary depending on the operating system you are using.

- 1. Open the printer properties dialog box in your document's application.**

3



For details about each setting, click [Help]. You can also click the information icons to show configuration information.

- 2. Set printing options as necessary, and then click [OK].**

The printer properties dialog box closes.

- 3. Click [Print].**

Note

- If a paper jam occurs, printing stops after the current page has been printed out. After the jammed paper is removed, printing restarts from the jammed page automatically. For details about how to remove the jammed paper, see page 71 "Clearing Misfeeds".

Cancelling a Print Job

You can cancel print jobs using either the machine's control panel or your computer, depending on the status of the job.

Cancelling a print job before printing has started

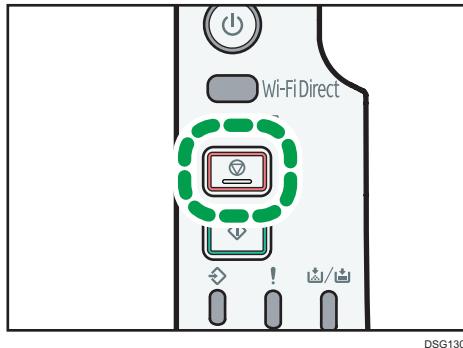
1. Double-click the printer icon on the task tray of your computer.
2. Select the print job you want to cancel, click the [Document] menu, and then click [Cancel].
3. Click [Yes].

Note

- If you cancel a print job that has already been processed, printing may continue for a few pages before being canceled.
- It may take a while to cancel a large print job.

Cancelling a print job while printing

1. Press the [Stop] key.



4. Configuring the Machine Using Utilities

This chapter describes how to configure the machine using utilities.

Available Setting Functions Using Web Image Monitor and Smart Organizing Monitor

Use Web Image Monitor or Smart Organizing Monitor to change the configuration of the machine from a computer.

Available operations for Web Image Monitor and Smart Organizing Monitor are as follows:

4

Available operations	Web Image Monitor	Smart Organizing Monitor
Checking the system settings	Available	Available
Configuring paper settings	Available	Available
Adjusting the sound volume	Available	Unavailable
Configuring toner saving	Available	Unavailable
Configuring interface settings	Available	Available
Checking the network settings	Available	Available
Configuring IPsec settings	Available	Available
Configuring Energy Saver Mode	Available	Available
Configuring administrator settings	Available	Unavailable
Printing lists/reports	Available	Available

Using Web Image Monitor

Important

- Some items might not appear, depending on the model type you are using.

Available operations

The following operations can be remotely performed using Web Image Monitor on a computer:

- Displaying the printer's status or settings
- Configuring the printer's settings
- Configuring the network settings
- Configuring the IPsec settings
- Printing reports
- Setting the administrator password
- Resetting the printer's configuration to the factory default
- Creating backup files of the printer's configuration
- Restoring the printer's configuration from backup files

4

Recommended web browsers

- Internet Explorer 6 or later
- Firefox 3.0 or later
- Safari 3.0 or later

Displaying Top Page

When you access the machine using Web Image Monitor, the top page appears in your browser's window.

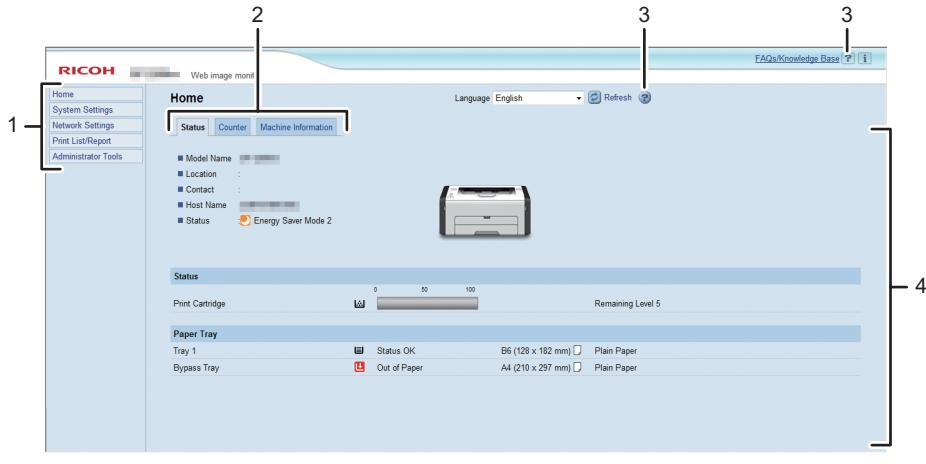
1. Launch the web browser.
2. In the web browser's address bar, enter "http://(machine's IP address)://" to access the machine.

If a DNS or WINS server is used and the machine's host name has been specified, you can enter the host name instead of the IP address.

The top page of Web Image Monitor appears.

Top page

Every Web Image Monitor page is divided into the following areas:



4

DSH134

1. Menu area

If you select menu, its content will be shown on main area.

2. Tab area

Contains tabs for switching between information and settings you want to see or configure.

3. Help

If you click this icon, help index page opens.

4. Main area

Displays the contents of the item selected in the menu area.

Printer information in the main area is not automatically updated. Click [Refresh] at the upper right in the main area to update the printer information. Click the refresh button of the web browser to refresh the entire browser screen.

Note

- If you use an older version of a supported web browser or the web browser has JavaScript and cookies disabled, display and operation problems may occur.
- If you are using a proxy server, configure the web browser settings as necessary. For details about the settings, contact your administrator.
- The previous page may not appear even if the back button of the web browser is clicked. If this happens, click the refresh button of the web browser.

Changing the Interface Language

Select the desired interface language from the [Language] list.

Installing the Help Source File

Follow the procedure below to install the help.

1. Copy the [WIMHELP] folder on the CD-ROM to your computer's hard drive.

The example procedures explain how to copy the [WIMHELP] folder to the C:\tmp\WIMHELP directory.

2. Access Web Image Monitor, and then click [Help Source File Setting] on the [Administrator Tools] page.

3. In the text box, enter "C:\tmp\WIMHELP\".

4. Enter the administrator password if required.

5. Click OK.

4

Displaying Help

SUMMARY: To use Help for the first time, you need to install its source file from the CD-ROM provided with this printer.

Note

- By clicking , the Help icon in the header area, the contents of Help appear.
- By clicking , the Help icon in the main area, Help for the setting items in the main area appears.

Menu

This section explains the items in the web browser menu.



DSH135

Home

Check the current system information.

System Settings

Configure machine settings.

Network Settings

Configure network settings.

IPsec Settings

Configure IPsec settings.

Print List/Report

Print a list/report related to the printer.

Administrator Tools

Configure administrator settings.

Home

[Status] tab

Click the [Status] tab on the main page to display system information, paper tray status and toner levels.

[Counter] tab

Click the [Counter] tab on the main page to check the counter information.

- [Print Counter]

Displays the total number of pages printed.

[Machine Information] tab

Displays information about the machine such as the version of the firmware and the total amount of memory.

System Settings

[Tray Paper Settings] tab

You can configure tray paper settings.

- [Tray 1]

Select the paper size and paper type for Tray 1.

- [Bypass Tray]

Select the paper size and paper type for the bypass tray.

- [Size mismatch detection]

Select whether to set the machine to report an error if the paper size does not match the print job's settings.

[Interface] tab

- [Fixed USB Port]

Specifies whether the same printer driver can be used for multiple machines or not under USB connection.

Network Settings

[Network Status] tab

- [General Status]

You can check [Ethernet Speed], [IPP Printer Name], [Network Version], [Ethernet MAC Address], [Active Interface], and [Wi-Fi Direct IP Address] (only SP 220Nw and SP 221Nw).

- [TCP/IP Status]

You can specify [DHCP], [IP Address], [Subnet Mask], and [Gateway] for IPv4.

4

[IPv6 Configuration] tab

- [IPv6]

Select whether to enable or disable IPv6.

- [IPv6 Address]

You can specify or check [DHCP], [Stateless Address], [Link-local Address], [Manual Configuration Address] for IPv6.

[Network Application] tab

- [Network Print Setting]

Specify whether or not to print using [IPP], [FTP], [RAW], or [LPR].

- [mDNS Setting]

Specify whether to enable Multicast DNS.

[DNS] tab

- [DNS]

You can specify [DNS Method], [Primary DNS Server], [Secondary DNS Server], [Domain Name], [IPv6 DNS Method], [Primary IPv6 DNS Server], [Secondary IPv6 DNS Server], [IPv6 Domain Name], [DNS Resolve Priority], [DNS Timeout (seconds)], and [Host Name].

[Auto E-mail Notification] tab

The settings on this tab are for sending a notification e-mail when the machine's status changes.

You can specify up to two recipients.

- [Display Name]

Enter a sender name for notification e-mail.

- [E-mail Address]

Enter the address of the recipient of the alert email.

- [Paper Misfeed]/[Out of Paper]/[Replace Print Cartridge Soon]/[Call Service]/[Replace Print Cartridge]/[Cover Open]

Select which items to send notifications about.

[SNMP] tab

- [SNMP]

Select whether to enable the machine to use SNMP services.

- [Trap]

You can specify [Target Trap], [SNMP Management Host 1], and [SNMP Management Host 2].

- [Community]

You can specify [Get Community] and [Trap Community].

- [System]

Enter [Location] and [Contact] that are displayed on the top page.

4

[SMTP] tab

You can specify [Primary SMTP Server], [Port No.], [Authentication Method], [User Name], [Password], [Device E-mail Address], and [Server Timeout (seconds)].

[POP3] tab

You can specify [POP3 Server], [User Account], [User Password], and [Authentication].

[Wireless] tab

This function is available for only SP 220Nw and SP 221Nw.

- [Wireless LAN Status]

The status of the following items is displayed:

[Wireless LAN Status], [MAC Address], [Communication Mode], [SSID], [Wireless Signal Status], and [Wireless].

- [Wireless LAN Settings]

- [SSID]

Enter the SSID name. Can contain 32 characters.

When you click [Scan List], a list of access points that is currently available is displayed.

You can select the SSID name from the list.

- [Communication Mode]

[Infrastructure] is selected by default. Therefore, connect the machine to a wireless router or access point.

- [Authentication]

Select an authentication method.

- [WPA2-PSK]

When this is selected, communication will be encrypted with CCMP (AES). Enter a value in [WPA Passphrase] that contains from 8 to 64 characters.

- [Mixed Mode WPA/WPA2]

When this is selected, communication will be encrypted with TKIP/AES. Enter a value in [WPA Passphrase] that contains from 8 to 64 characters.

- [Encryption]

Select an encryption method.

- [None]

When it is selected, communication will not be secured by encryption.

- [WEP]

When it is selected, communication will be encrypted in WEP (Wired Equivalent Privacy).

Specify [WEP Key Length], [WEP Transmit Key ID], and [WEP Key Format] and enter [WEP Key]. The following table shows the number and types of characters you can enter, depending on the key settings.

	WEP key length is 64 bits		WEP key length is 128 bits	
	WEP format is Hex	WEP format is ASCII	WEP format is Hex	WEP format is ASCII
WEP key max length	10 characters	5 characters	26 characters	13 characters
WEP key valid characters	0–9, A–F, a–f	0x20–0x7e	0–9, A–F, a–f	0x20–0x7e

- [Wi-Fi Direct Settings]

- [SSID]

Enter the SSID name. Can contain 32 characters.

[Google Cloud] tab

This function is available for only SP 220Nw and SP 221Nw.

- [Google Cloud Print]

Select whether to enable [Google Cloud Print]. When disabled, [Local Discovery] and [Timeout (Seconds)] below cannot be configured.

- [Registration Status]

Displays the status of Google Cloud Print registration.

- [Registration Account]

Displays the Account (email address) of Google Cloud Print registration.

- [Local Discovery]

Select whether to enable local discovery.

- [Timeout (seconds)]

Enter the number of seconds the machine waits before considering an XMPP operation to have timed out.

IPsec Settings

Important

- This function is available only when an administrator password is specified.

4

[IPsec Global Settings] tab

- [IPsec Function]

Select whether to enable or disable IPsec.

- [Default Policy]

Select whether to allow for the default IPsec policy.

- [Broadcast and Multicast Bypass]

Select the services that you do not want to apply IPsec from the following:

[DHCPv4], [DHCPv6], [SNMP], [mDNS], [NetBIOS], [UDP Port 53550]

- [All ICMP Bypass]

Select whether to apply IPsec to ICMP packets (IPv4 and IPv6).

[IPsec Policy List] tab

Click the [IPsec Policy List] tab on the IP security settings page to display the list of registered IPsec policies.

IPsec Settings				
[IPsec Global Settings] [IPsec Policy List] [Refresh]				
No.	Name	Address Settings	Action	Status
01				
02				
03				
04				
05				
06				
07				
08				
09				
10				

To configure IPsec policies, select the desired IPsec policy, and then click [Change] to open the "IPsec Policy Settings" page. The following settings can be made on the "IPsec Policy Settings" page.

IP Policy Settings

- [No.]

Specify a number between 1 and 10 for the IPsec policy. The number you specify will determine the position of the policy in the IPsec Policy List.

- [Activity]

Select whether to enable or disable the policy.

- [Name]

Enter the name of the policy. Can contain up to 16 characters.

- [Address Type]

Select IPv4 or IPv6 as the type of IP address to be used in IPsec communication.

- [Local Address]

Displays the IP address of this printer.

- [Remote Address]

Enter the IPv4 or IPv6 address of the device with which to communicate.

Can contain up to 39 characters.

- [Prefix Length]

Enter the prefix length of the Remote Address, using a value between 1 and 128. If this setting is left blank, "32" (IPv4) or "128" (IPv6) will be automatically selected.

- [Action]

Specify how the IP packets are processed from the following:

- [Allow]

IP packets are both sent and received without IPsec applied to them.

- [Drop]

IP packets are discarded.

- [Require Security]

IPsec is applied to IP packets that are both sent and received.

If you have selected [Require Security], you must configure [IPsec Settings] and [IKE Settings].

IPsec Settings

- [Encapsulation Type]

Specify the encapsulation type from the following:

- [Transport]

Select this mode to secure only the payload section of each IP packet when communicating with IPsec compliant devices.

- [Tunnel]

Select this mode to secure every section of each IP packet. We recommend this type for communication between security gateways (such as VPN devices).

- [Security Protocol]

Select the security protocol from the following:

- [AH]

Establishes secure communication that supports authentication only.

- [ESP]

Establishes secure communication that supports both authentication and data encryption.

- [ESP&AH]

Establishes secure communication that supports both data encryption and authentication of packets, including packet headers.

Note that you cannot specify this protocol when [Tunnel] is selected for [Encapsulation Type].

- [Authentication Algorithm for AH]

Specify the authentication algorithm to be applied when [AH] or [ESP&AH] is selected for [Security Protocol] from the following:

[MD5], [SHA1]

- [Encryption Algorithm for ESP]

Specify the encryption algorithm to be applied when [ESP] or [ESP&AH] is selected for [Security Protocol] from the following:

[None], [DES], [3DES], [AES-128], [AES-192], [AES-256]

- [Authentication Algorithm for ESP]

Specify the authentication algorithm to be applied when [ESP] is selected for [Security Protocol] from the following:

[MD5], [SHA1]

- [Life Time]

Specify the life time of the IPsec SA (Security Association) as a time period or data volume. The SA will expire when the time period you specify elapses or the volume of data you specify reaches the volume carried.

- [Key Perfect Forward Secrecy]

Select whether to enable or disable PFS (Perfect Forward Secrecy).

IKE Settings

- [IKE Version]

Displays the IKE version.

- [Encryption Algorithm]

Specify the encryption algorithm from the following:

[DES], [3DES], [AES-128], [AES-192], [AES-256]

- [Authentication Algorithm]

Specify the authentication algorithm from the following:

[MD5], [SHA1]

- [IKE Life Time]

Specify the life time of the ISAKMP SA as a time period. Enter a number of seconds.

- [IKE Diffie-Hellman Group]

Select the IKE Diffie-Hellman Group to be used in the generation of the IKE encryption key from the following:

[DH1], [DH2]

- [Pre-Shared Key]

Specify the PSK (Pre-Shared Key) to be used for authentication of a communicating device.

Can contain up to 32 characters.

- [Key Perfect Forward Secrecy]

Select whether to enable or disable PFS (Perfect Forward Secrecy).

Print List/Report

Print List/Report

- [Test Page]

Prints a test page for checking the printing condition.

- [Maintenance Page]

Prints the maintenance page.

Administrator Tools

Administrator

- [New Password]

Enter the new administrator password. Can contain up to 16 characters.

- [Confirm New Password]

Enter the same password again, to confirm.

Reset Settings

- [Reset Network Settings]

- Select to restore network settings to their defaults.
- [Reset Menu Settings]
Select to restore settings that are not related to the network.
- [Reset IPsec Settings]
Select to clear the IP security settings.

 **Note**

- [Reset IPsec Settings] appears only when a password is specified in [Administrator].

Backup Setting

Create backup files containing the printer's configuration settings. If necessary, these backup files can be used to restore previous configurations.

- [Back up Network Settings]
Backs up the network settings.
- [Back up Menu Settings]
Backs up settings that are not related to the network.
- [Back up IPsec Settings]
Backs up the IP security settings to a file.

 **Note**

- [Back up IPsec Settings] appears only when a password is specified in [Administrator].

Follow the procedure below to create configuration backup files.

1. Select the option button for the type of data you wish to back up.
2. Enter the administrator password if required.
3. Click [OK].
4. Click [Save] in the confirmation dialog box.
5. Navigate to the location to save the backup file.
6. Specify a name for the file, and click [Save].

Restore Setting

Restore the printer's settings from a previously created backup file.

- [File to Restore]
Enter the path and name of the file to restore, or click [Browse...] to select the file.

Follow the procedure below to restore configuration backup files.

1. Click [Browse...].
2. Navigate to the directory containing the backup file to restore.
3. Select the backup file, and click [Open].

4. Enter the administrator password if required.
5. Click [OK].

Help Source File Setting

- [Help Source File]

Enter the help source file path.

Using Smart Organizing Monitor

The state and status information of the machine can be checked using Smart Organizing Monitor.

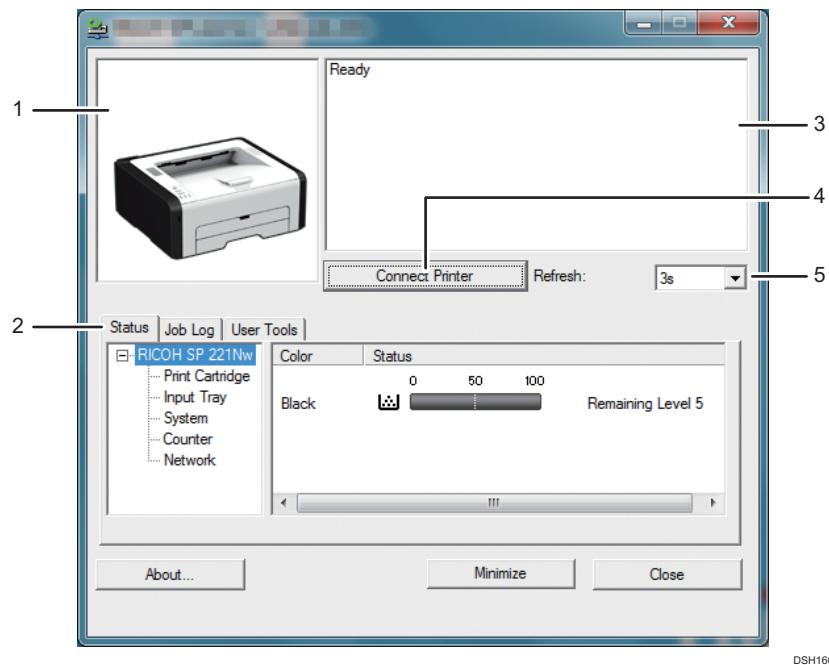
★ Important

- Some items might not appear, depending on the model type you are using.

Displaying the Smart Organizing Monitor Dialog

1. On the [Start] menu, click [All Programs].
2. Click [SP 220 Series Software Utilities].
3. Click [Smart Organizing Monitor for SP 220 Series].
4. If the machine you are using is not selected, click [Connect Printer], and then do one of the following:
 - Select the machine's model.
 - Enter the IP address of the machine manually.
 - Click [Search Network Printer] to search the machine via the network.
5. Click [OK].

Checking the Status Information



DSH160

1. Image area

Displays the status of this machine with an icon.

2. Tab area

- Status tab
 - Printer Name
 - Print Cartridge

Displays the following messages to indicate remaining toner levels: Remaining Level 1 to 5, "Almost Empty" and "Empty".
 - Input Tray

You can check the following information about the input trays.
[Input Tray], [Status], [Paper Size], [Paper Type]
 - System

Displays the system information about the printer, such as the model name, system version, and memory size.
 - Counter

Displays information about the counters.
 - Network

Displays network details such as the printer's IP address and network-related information.
- Job Log tab

- Displays the job log information.
- User Tools tab
- Click to print test pages or maintenance pages, or to configure settings of the machine.

3. Message area

Displays the status of this machine with a message.

For details about error messages, see page 69 "Error and Status Messages Appear on Smart Organizing Monitor".

4. [Connect Printer] button

Click to select a printer driver.

5. [Refresh:]

Specify the automatic update of the display.

4

Configuring the Machine Settings

Smart Organizing Monitor is used to modify the machine's settings.

1. On the [Start] menu, click [All Programs].
2. Click [SP 220 Series Software Utilities].
3. Click [Smart Organizing Monitor for SP 220 Series].
4. If the machine you are using is not selected, click [Connect Printer], and then do one of the following:
 - Select the machine's model.
 - Enter the IP address of the machine manually.
 - Click [Search Network Printer] to search the machine via the network.
5. Click [OK].
6. On the [User Tools] tab, click [Printer Configuration].
7. Enter the access code, and then click [OK].

The default access code is "Admin".
8. Change the settings if necessary.
9. Click [OK].
10. Click [Close].

Access Code

The configurable functions depend on the authority of the access code you enter.

- Administrator

All tabs in the [Printer Configuration] dialog box are available.

- General users

Only the [Paper Input] tab is available.

Tab Settings

This section provides a tab-by-tab overview of the machine settings that can be modified using Smart Organizing Monitor. For more information on each setting item, see the Smart Organizing Monitor Help.

Paper Input tab

- You can change paper size and other paper settings.

Maintenance tab

- You can adjust print starting positions.

4

System tab

- You can set basic functions required to use the printer. The printer can be used on factory-set defaults, but the configuration can be changed depending on the condition of the user.
- The changed condition holds even if the printer is turned off.
- The access code can be changed on this tab.

IPv6, Network 1, Network 2 and Network 3 tabs

- You can set configurations about network connection and communication.
- The following operations are possible on these tabs:
 - Checking the printer name, active protocol, and other printer information
 - Making interface settings, including the timeout setting and protocol settings
 - Checking or making TCP/IP settings
 - Checking or making SMTP, SNMP, and IPsec settings
 - Checking or making Alert settings

Wireless tab

- You can set configurations about wireless LAN network connection and communication.
- The following operations are possible on the tab:
 - Checking the wireless LAN status
 - Connecting wireless LAN manually
 - Connecting with one touch using WPS (only SP 220Nw and SP 221Nw)

5. Maintaining the Machine

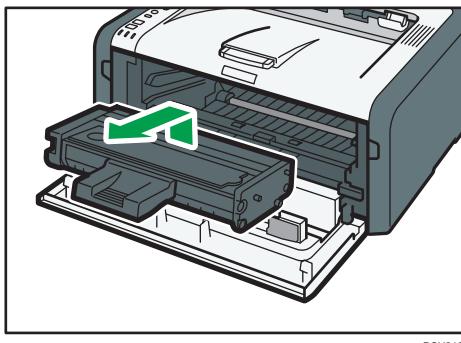
This chapter describes how to replace supplies and how to clean the machine.

Replacing the Print Cartridge

Important

- Replace the print cartridge if the printed image suddenly becomes pale or blurred.
- Store print cartridges in a cool dark place.
- Actual printable numbers vary depending on image volume and density, number of pages printed at a time, paper type and size, and environmental conditions such as temperature and humidity. Toner quality degrades over time.
- For good print quality, the manufacturer recommends that you use genuine toner from the manufacturer.
- The manufacturer shall not be responsible for any damage or expense that might result from the use of parts other than genuine parts from the manufacturer with your office products.

1. Open the front cover, and then carefully lower it.
2. Hold the center of the print cartridge and carefully raise it slightly and then pull it out horizontally.

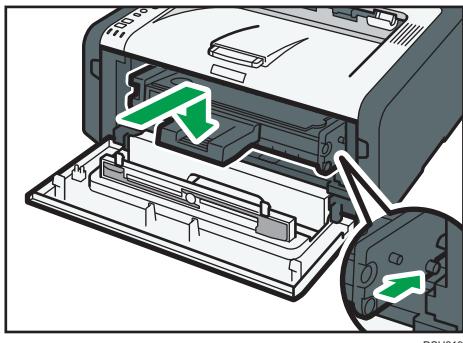


DSH218

3. Take the new print cartridge out of the box, and then take it out of the plastic bag.
4. Hold the print cartridge and shake it from side to side five or six times.

Shake the print cartridge horizontally in the direction. The first few printed pages may appear blurred or smeared if the cartridge has not been shaken properly.

5. Slide the print cartridge in horizontally, and then slowly push it in all the way. Finally, push the cartridge down until it clicks into place.



DSH219

6. Carefully push up the front cover until it closes.

Cautions When Cleaning

Clean the machine periodically to maintain high print quality.

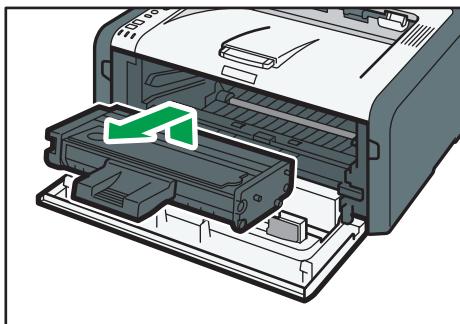
Dry wipe the exterior with a soft cloth. If dry wiping is not sufficient, wipe with a soft, damp cloth that has been wrung out thoroughly. If you still cannot remove the stain or grime, use a neutral detergent, wipe over the area with a thoroughly-wrung damp cloth, and then dry wipe the area and allow it to dry.

★ Important

- To avoid deformation, discoloration, or cracking, do not use volatile chemicals, such as benzine and thinner, or spray insecticide on the machine.
- If there is dust or grime inside the machine, wipe with a clean, dry cloth.
- You must disconnect the plug from the wall outlet at least once a year. Clean away any dust and grime from the plug and outlet before reconnecting. Accumulated dust and grime pose a fire hazard.
- Do not allow paper clips, staples, or other small objects to fall inside the machine.

Cleaning the Inside of the Machine

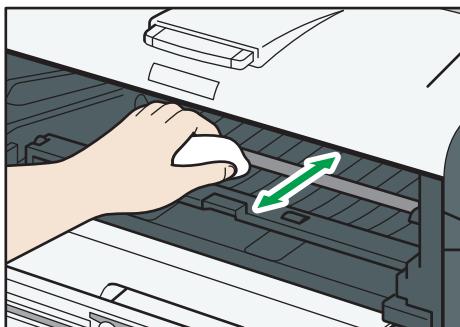
1. Open the front cover, and then carefully lower it.
2. Hold the center of the print cartridge and carefully raise it slightly and then pull it out horizontally.



DSH218

5

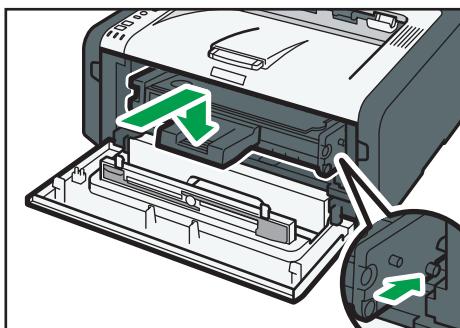
3. Use a cloth to wipe the inside of the machine toward and away from yourself.



DSH220

Wipe carefully so as not to touch any protrusions inside the machine.

4. Slide the print cartridge in horizontally, and then slowly push it in all the way. Finally, push the cartridge down until it clicks into place.



DSH219

5. Carefully push up the front cover until it closes.

Moving and Transporting the Machine

This section provides cautions that you must follow when moving the machine both short and long distances.

Rearrange the machine in its original packing materials when moving it over a long distance.

★ Important

- Be sure to disconnect all cables from the machine before transporting it.
- The machine is a precision piece of machinery. Be sure to handle it carefully when moving it.
- Make sure to move the machine horizontally. Take extra caution when carrying the machine up or down stairs.
- Do not remove the print cartridge when moving the machine.
- Be sure to hold the machine level while carrying it. To prevent toner from spilling, move the machine carefully.
- Keep the machine away from salt-bearing air and corrosive gases. Also, do not install the machine in places where chemical reactions are likely (laboratories, etc.), as doing so will cause the machine to malfunction.

Ventilation

When you use this machine in a confined space without good ventilation for a long time or print large quantities, you might detect an odd smell.

This might cause the output paper to also have an odd smell.

When you detect an odd smell, regularly ventilate in order to keep the workplace comfortable.

- Set up the machine so that it does not directly ventilate towards people.
- Ventilation should be more than $30 \text{ m}^3/\text{hr}/\text{person}$.

New machine smell

When a machine is new, it might have a unique smell. This smell will subside in about one week.

When you detect an odd smell, sufficiently ventilate and circulate the air in the room.

1. Be sure to check the following points:

- The power switch is turned off.
- The power cord is unplugged from the wall outlet.
- All other cables are unplugged from the machine.

2. Lift the machine using the inset grips on both sides of the machine, and then move it horizontally to the place where you want to use it.

↓ Note

- To move the machine over a long distance, pack it well and empty all the paper trays. Take care not to tip or tilt the machine during transit.

- Toner might spill inside the machine if the machine is not kept level during transit.
- For more information about moving the machine, contact your sales or service representative.

Disposal

Ask your sales or service representative for information about correct disposal of this machine.

Where to Inquire

Contact your sales or service representative for further information about the topics included in this manual or to inquire about other topics not included in this manual.

6. Troubleshooting

This chapter provides solutions for error messages and other problems.

Error and Status Indicate on the Control Panel

The LED on the operation panel indicates the machine status, including any errors.

LED			Status	Solution
Power	Alert	Toner/ Paper End		
On	-	-	The power is on.	The status is normal.
On	-	Flashing	The print cartridge is almost empty.	Replace the print cartridge before it becomes empty.
On	-	On	<ul style="list-style-type: none">The print cartridge is empty.The print cartridge is not set correctly.The tray has run out of paper during a print job.	<ul style="list-style-type: none">Replace the print cartridge.Set the print cartridge again correctly.Load paper into the tray.
On	Flashing	-	A paper jam has occurred in the machine.	Use Web Image Monitor or Smart Organizing Monitor to determine where the paper jam is, and then remove the jammed paper. See page 71 "Clearing Misfeeds" and page 77 "Paper Feed Problems".
On	On	-	A cover is open.	Confirm that all the covers are closed completely.

LED			Status	Solution
Power	Alert	Toner/ Paper End		
On	On	-	Another type of error has occurred.	Use Web Image Monitor or Smart Organizing Monitor to check the error, and then take appropriate measures. See page 44 "Using Web Image Monitor" or page 57 "Using Smart Organizing Monitor".
On	On	On	A malfunction has occurred.	Contact your sales or service representative.

Error and Status Messages Appear on Smart Organizing Monitor

"X" represents a displayed message that varies according to the situation.

Message	Causes	Solutions
No Response from I/O Device Check the cable, power cord, and main switch.	<ul style="list-style-type: none"> The power cable of the machine is not plugged in. The power of the machine is not turned ON. The USB cable is not connected. 	<ul style="list-style-type: none"> Check the printer power cord. Check the printer power switch is on. Check the USB cable is properly connected.
Tray Not Detected or No Paper The indicated paper source tray is not set properly, or no paper loaded. Check the indicated tray.	<ul style="list-style-type: none"> Tray 1 has run out of paper. The bypass tray has run out of paper. 	<ul style="list-style-type: none"> Load paper into Tray 1. See page 18 "Loading Paper". Load paper into the bypass tray. See page 18 "Loading Paper".
Paper Misfeed X	A paper jam has occurred in the machine.	Remove the jammed paper. See page 71 "Clearing Misfeeds" and page 77 "Paper Feed Problems".
Print Cartridge is near empty.	The print cartridge is almost empty.	Prepare a new print cartridge.
No Toner Toner has almost run out. Shortly printing becomes not available. Please keep Print Cartridge handy.	The machine has run out of the toner.	Replace the print cartridge. See page 61 "Replacing the Print Cartridge".

Message	Causes	Solutions
Printing has been interrupted because of the memory overflow.	The data is too large or complex to print.	Select [600 x 600 dpi] in [Resolution] to reduce the size of data. For details, see the printer driver Help.
Waste Toner full No printing is available. Open the indicated cover, and then replace Print Cartridge.	The waste toner bottle is full.	Replace the print cartridge.
Unit Not Detected Open the indicated cover, and then replace Print Cartridge.	The print cartridge has not been installed.	Reinstall the print cartridge. See page 61 "Replacing the Print Cartridge".

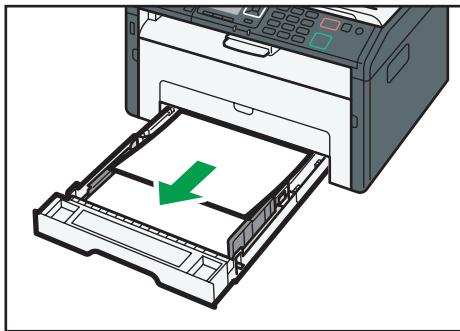
Clearing Misfeeds

Important

- Jammed paper may be covered in toner. Be careful not to get toner on your hands or clothes.
- Toner on prints made immediately after clearing a paper jam may be insufficiently fused and can smudge. Make test prints until smudges no longer appear.
- Do not forcefully remove jammed paper, as it may tear. Torn pieces remaining inside the machine will cause further jams and possibly damage the machine.
- Paper jams can cause pages to be lost. Check your print job for missing pages and reprint any pages that did not print out.
- The jammed paper may be ejected automatically when opening and then closing the front cover or when turning the power off and then back on.

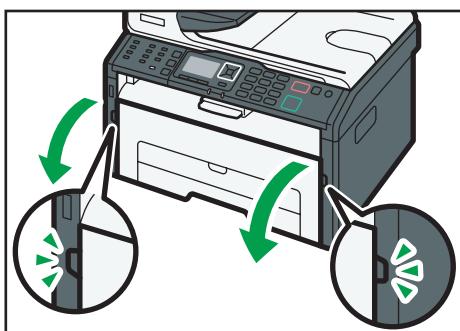
Removing Jammed Paper from Tray 1

1. Pull Tray 1 halfway out, and check for jammed paper. If there is jammed paper, remove it carefully.



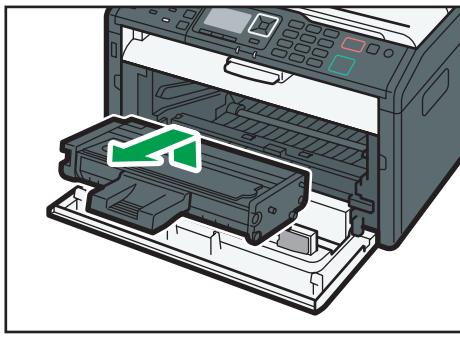
DSH163

2. Carefully slide Tray 1 back in until it stops.
3. Open the front cover, and then carefully lower it.



DSH164

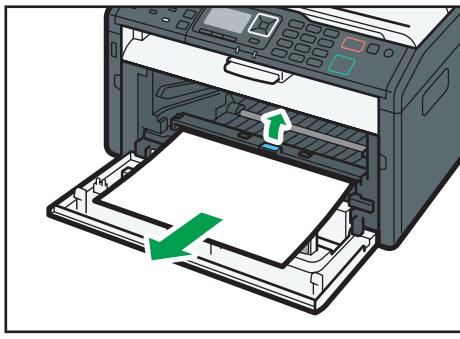
4. Hold the center of the print cartridge and carefully raise it slightly and then pull it out horizontally.



DSH161

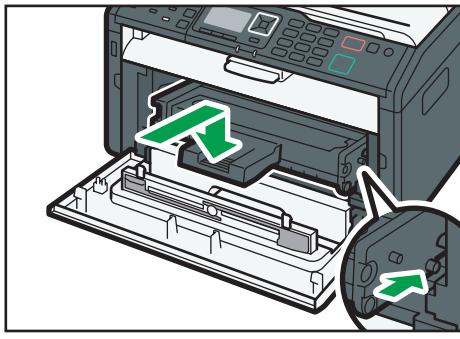
- Do not shake the removed print cartridge. Doing so can cause remaining toner to leak.
- Place the print cartridge on paper or similar material to avoid dirtying your workspace.

5. Lifting the guide plate, remove the jammed paper carefully.



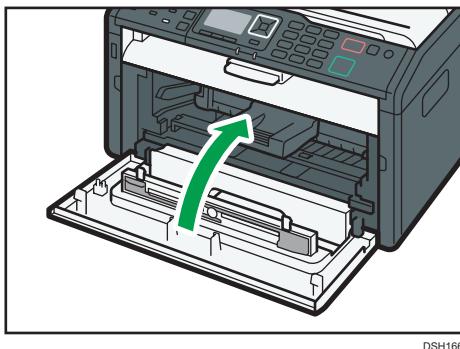
DSH165

6. Slide the print cartridge in horizontally, and then slowly push it in all the way. Finally, push the cartridge down until it clicks into place.



DSH162

7. Carefully push up the front cover until it closes.



If the error display continues to appear, perform the procedure described in page 74 "Opening the Rear Cover to Remove Jammed Paper".

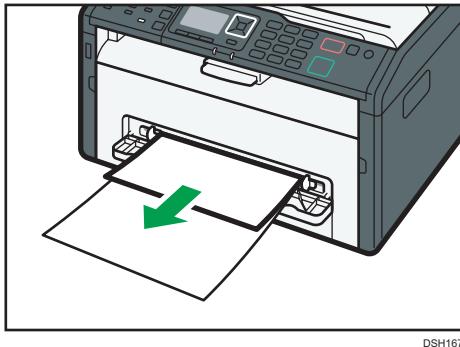
Removing Jammed Paper from the Bypass Tray

Important

6

- Since the temperature around the guide is high, wait for it to cool before checking for jammed paper.

1. If paper is jammed in the bypass tray input area, remove the jammed paper carefully.



2. Close the bypass tray.

3. Follow Steps 3 to 7 in "Removing Jammed Paper from Tray 1".

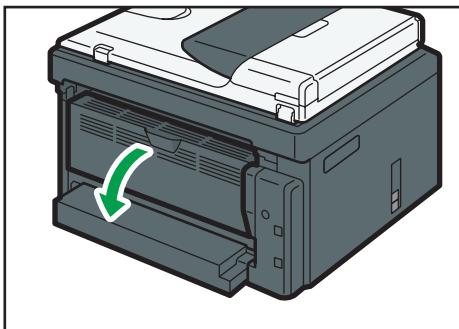
If the error display continues to appear, perform the procedure described in page 74 "Opening the Rear Cover to Remove Jammed Paper".

Opening the Rear Cover to Remove Jammed Paper

Important

- Since the temperature around the guide is high, wait for it to cool before checking for jammed paper.

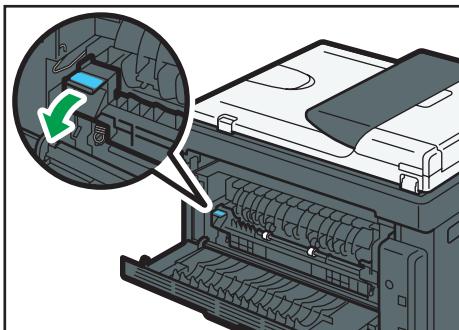
1. Open the rear cover.



DSH168

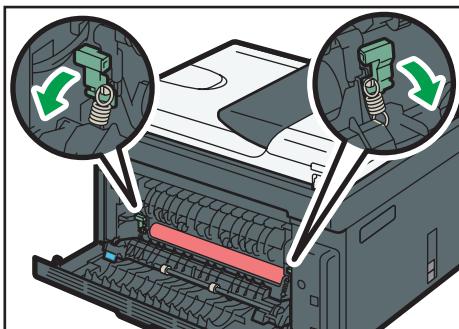
6

2. Open the fusing cover.



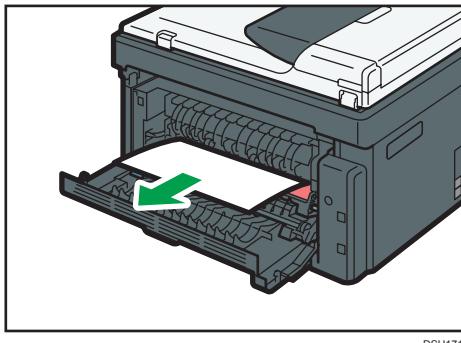
DSH169

1. Push the levers on the sides down with your thumbs.



DSH170

2. Remove the jammed paper carefully.

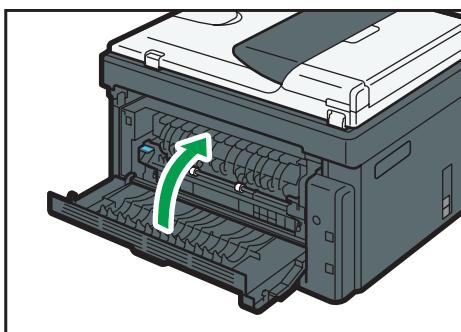


DSH171

3. Push the levers on the sides up with your thumbs.

4. Close the fusing cover.

5. Close the rear cover.



DSH172

6

When You Cannot Print Test Page

Possible cause	Solution
The power cord, a USB cable, or a network cable is not connected correctly.	Make sure that the power cord, USB cable, and network cable are connected correctly. Also confirm that they are not damaged.
The port connection is not established correctly.	<ol style="list-style-type: none">1. On the [Start] menu, click [Devices and Printers].2. Right-click the icon of the machine, and then click [Printer properties].3. Click the [Ports] tab, and then make sure that the port is set as a USB or network printer.

Paper Feed Problems

If the machine is operating but paper will not feed or paper jams occur frequently, check the condition of the machine and paper.

Problem	Solution
Paper does not feed smoothly.	<ul style="list-style-type: none"> • Use supported types of paper. See page 30 "Supported Paper". • Load paper correctly, making sure that the paper guides are properly adjusted. See page 18 "Loading Paper". • If the paper is curled, straighten the paper. • Take out the paper from tray and fan it well. Then, reverse the top and bottom of the paper, and put it back in the tray.
Paper jams occur frequently.	<ul style="list-style-type: none"> • If there are gaps between the paper and the paper guides, adjust the paper guides to remove the gaps. • Avoid printing on both sides of paper when printing images that contain large solid areas, which consume a lot of toner. • Use supported types of paper. See page 30 "Supported Paper". • Load paper only as high as the upper limit markings on the paper guide.
Multiple sheets of paper are fed at one time.	<ul style="list-style-type: none"> • Fan the paper well before loading. Also make sure that the edges are even by tapping the stack on a flat surface such as a desk. • Make sure that the paper guides are in the right position. • Use supported types of paper. See page 30 "Supported Paper". • Load paper only as high as the upper limit markings on the paper guide. • Check that paper was not added while there was still some left in the tray. Only add paper when there is none left in the tray.

Problem	Solution
Paper gets wrinkles.	<ul style="list-style-type: none">• Paper is damp. Use paper that has been stored properly. See page 30 "Supported Paper".• Paper is too thin. See page 30 "Supported Paper".• If there are gaps between the paper and the paper guides, adjust the paper guides to remove the gaps.
The printed paper is curled.	<ul style="list-style-type: none">• Load the paper upside down in the paper tray.• If the paper curl is severe, take prints from the output tray more frequently.• Paper is damp. Use paper that has been stored properly. See page 30 "Supported Paper".
Images are printed diagonally to the pages.  CER091	If there are gaps between the paper and the paper guides, adjust the paper guides to remove the gaps.

Print Quality Problems

Checking the Condition of the Machine

If there is a problem with the quality of printing, first check the condition of the machine.

Possible Cause	Solution
There is a problem with the machine's location.	Make sure that the machine is on a level surface. Place the machine where it will not be subject to vibration or shock.
An unsupported types of paper is used.	Make sure that the paper being used is supported by the machine. See page 30 "Supported Paper".
The paper type setting is incorrect.	Make sure that the paper type setting of the printer driver matches the type of paper loaded. See page 28 "Specifying Paper Type and Paper Size Using the Printer Driver".
A non-genuine print cartridge is being used.	Refilled or non-genuine print cartridge reduces print quality and can cause malfunctions. Use genuine print cartridge only.
An old print cartridge is being used.	Print cartridge should be opened before their expiration date and used within six months of being opened.
The machine is dirty.	See page 61 "Maintaining the Machine", and clean the machine as required.
Humidity level surrounding the machine may be too low.	Using the machine in a room where humidity level is too low may cause black lines of a few millimeters thick to appear on printouts with 75-millimeter spaces in between. In this case, set [Low Humidity Mode] to [On]. For details about how to configure the settings, see page 57 "Using Smart Organizing Monitor" and the Smart Organizing Monitor Help.

Checking the Printer Driver Settings

Problem	Solution
The printed image is smudged.	On the printer driver's [Paper] tab, select [Bypass Tray] in the [Input Tray:] list. In the [Paper Type:] list, select a proper paper type.

Problem	Solution
Images smudge when rubbed. (Toner is not fixed.)	On the printer driver's [Paper] tab, select a proper paper type in the [Paper Type:] list.
When printing graphics, the output and the screen are different.	To print accurately, specify the printer driver setting to print without using the graphics command. For details about specifying the printer driver setting, see the printer driver Help.
Images are cut off, or excess is printed.	Use the same size paper selected in the application. If you cannot load paper of the correct size, use the reduction function to reduce the image, and then print. For details about the reduction function, see the printer driver Help.
Photo images are coarse.	Use the application's or printer driver's settings to specify a higher resolution. For details about the printer driver's settings, see the printer driver Help.
A solid line is printed as a dashed line or appears blurred.	Change the dithering settings on the printer driver. For details about the dithering settings, see the printer driver Help.
Fine lines are fuzzy, of inconsistent thickness, or do not appear.	Change the dithering settings on the printer driver. For details about the dithering settings, see the printer driver Help. If the problem persists, specify the settings of the application in which the image was created to change the thickness of the lines.

Printer Problems

This section describes printing problems and possible solutions.

Problem	Solution
An error occurs.	<p>If an error occurs when printing, change the computer or printer driver settings.</p> <ul style="list-style-type: none"> Check the printer icon name does not exceed 32 alphanumeric characters. If it does, shorten it. Check whether other applications are operating. Close any other applications, as they may be interfering with printing. If the problem is not resolved, close unneeded processes too. Check that the latest printer driver is being used.
A print job is canceled.	Set I/O Timeout to a larger value than the current settings.
There is a considerable delay between the print start command and actual printing.	<ul style="list-style-type: none"> Processing time depends on data volume. High volume data, such as graphics-heavy documents, take longer to be processed. Wait for a while. To speed up printing, reduce the printing resolution using the printer driver. For details, see the printer driver Help.
The whole printout is blurred.	<ul style="list-style-type: none"> Paper is damp. Use paper that has been stored properly. See page 30 "Supported Paper". If you enable [Toner Saving], printing is generally less dense. Condensation may have collected. If rapid change in temperature or humidity occurs, use this machine only after it has acclimatized.
Cannot print properly when using a certain application, or cannot print image data properly. Some characters are printed faintly or not printed.	Change the print quality settings.
The print position is misaligned.	Adjust the print position by specifying [Registration: Tray 1] or [Registration: Bypass Tray] on the [Maintenance] tab in Smart Organizing Monitor.

Print Positions Do Not Match Display Positions

If the position of items on the printed page differs from the position displayed on the computer screen, the cause may be one of the following.

Problem	Solution
Page layout settings are not configured properly.	Check that the page layout settings are properly configured in the application.

Common Problems

This section describes how to troubleshoot common problems that may occur while operating the machine.

Problem	Possible cause	Solution
The machine does not turn on.	The power cord is not connected properly.	<ul style="list-style-type: none"> Make sure that the power plug is firmly inserted into the wall outlet. Make sure that the wall outlet is not defective by connecting another working device.
The red indicator is lit or flashing.	An error has occurred.	See page 67 "Error and Status Indicate on the Control Panel".
Pages do not print.	The machine is receiving data.	If the Data In indicator is flashing, the machine is receiving data. Wait for a while.
Pages are not printed.	The interface cable is not connected correctly.	<ul style="list-style-type: none"> Reconnect the cable. Check that the interface cable is the correct type.
Strange noise is heard.	The supplies are not properly installed.	Confirm that the supplies are properly installed.

Note

- If any of these problems persist, turn off the power, pull out the power cord, and contact your sales or service representative.

7. Configuring Network Settings Using OS X

This chapter describes how to connect the machine to the network and specify the network settings using OS X.

Configurations differ according to the communication environment of your system.

Connecting the Machine to a Wired Network

The following procedure is explained using OS X 10.11 as an example.

Using a USB Cable

1. Turn on your computer.
2. Insert the provided CD-ROM into the CD-ROM drive of the computer.
If your computer does not have a CD-ROM drive, download a setup file from our website (<http://www.ricoh.com/printers/sp200/support/gateway/>).
3. Double-click the CD-ROM drive icon.
4. Double-click the [Mac OS X] folder.
5. Double-click the folder of driver you want to install.
6. Follow the instructions in the setup wizard.
7. Click [Close] in the [Summary] dialog box.
8. Start System Preferences.
9. Click [Printers & Scanners].
Check that the machine automatically recognized by plug-and-play appears in the printers list.
10. Click the [+] button.
If [Add Printer or Scanner...] appears, click it.
11. Click [Default].
12. Select the printer that has "USB" indicated in the [Kind] column.
13. Select the printer you are using from the [Use:] pop-up menu.
14. Click [Add].
15. Click [Duplexer] on the [Setting up] screen, and then click [OK].
16. Quit System Preferences.
Setup is completed.

Note

- If you want to install Smart Organizing Monitor, see page 88 "Installing Smart Organizing Monitor".

Using an Ethernet Cable

1. Turn on your computer.
2. Insert the provided CD-ROM into the CD-ROM drive of the computer.
If your computer does not have a CD-ROM drive, download a setup file from our website (<http://www.ricoh.com/printers/sp200/support/gateway/>).
3. Double-click the CD-ROM drive icon.
4. Double-click the [Mac OS X] folder.
5. Double-click the folder of driver you want to install.
6. Follow the instructions in the setup wizard.
7. Click [Close] in the [Summary] dialog box.
8. Start System Preferences.
9. Click [Printers & Scanners].
10. Click the [+] button.
If [Add Printer or Scanner...] appears, click it.
11. Click [Default].
12. Select the printer that has "Bonjour" indicated in the [Kind] column.
If the printer name is not displayed, select the icon that corresponds to your network environment (TCP/IP, etc.).
13. Select the printer you are using from the [Use:] pop-up menu.
14. Click [Add].
15. Quit System Preferences.
16. On the [Application] menu, double-click [Smart Organizing Monitor].
For details about how to install Smart Organizing Monitor, see page 88 "Installing Smart Organizing Monitor".
17. Click [User Tools] tab.
18. Click [Printer Configuration].
19. Enter the access code, and then click [OK].
The default access code is "Admin".

20. On the [Network 1] tab, select [On] for [DHCP] to automatically obtain the IP address or [Off] to specify the IP address manually.

If you have selected [On], proceed to Step 25.

21. Enter the machine's IPv4 address in [IP Address].

22. Enter the subnet mask in [Subnet Mask].

23. Enter the gateway address in [Default Gateway Address].

24. Click [OK].

25. Wait until the machine restarts.

Setup is completed.

Connecting the Machine to a Wireless Network

You can use this function on SP 220Nw and SP 221Nw only.

There are four methods for connecting the machine to a wireless network:

- Using the WPS button
See page 89 "Using the WPS Button".
- Using a PIN code
See page 90 "Using a PIN Code".
- Manual setup
See page 91 "Manual Setup".

Note

- It is necessary to install Smart Organizing Monitor to the computer before configuring the settings.
For details about how to install Smart Organizing Monitor, see page 88 "Installing Smart Organizing Monitor".

Installing the Printer Driver

7

The following procedure is explained using OS X 10.11 as an example.

- 1. Turn on your computer.**
- 2. Insert the provided CD-ROM into the CD-ROM drive of the computer.**
If your computer does not have a CD-ROM drive, download a setup file from our website (<http://www.ricoh.com/printers/sp200/support/gateway/>).
- 3. Double-click the CD-ROM drive icon.**
- 4. Double-click the [Mac OS X] folder.**
- 5. Double-click the folder of driver you want to install.**
- 6. Follow the instructions in the setup wizard.**
- 7. Click [Close] in the [Summary] dialog box.**

Installing Smart Organizing Monitor

The following procedure is explained using OS X 10.11 as an example.

- 1. Turn on your computer.**

2. Insert the provided CD-ROM into the CD-ROM drive of the computer.

If your computer does not have a CD-ROM drive, download a setup file from our website (<http://www.ricoh.com/printers/sp200/support/gateway/>).

3. Double-click the CD-ROM drive icon.**4. Double-click the [Mac OS X] folder.****5. Double-click the [Utility] folder.****6. Double-click the package file icon.****7. Follow the instructions in the setup wizard.****8. If the [Printer Driver Selection] dialog box appears, do one of the following:**

- Select the machine's model.
- Enter the IP address of the machine manually.
- Click [Search Network Printer] to search the machine via the network.

9. Click [OK].**10. Click [Close] in the [Summary] dialog box.**

Using the WPS Button

7

A router (access point) is needed to set up a connection.

Before doing the following procedure, install the printer driver according to the procedure on page 88 "Installing the Printer Driver".

Make sure the Ethernet cable is not connected to the machine.

1. Turn on your computer.**2. On the [Application] menu, double-click [Smart Organizing Monitor].****3. Click [User Tools] tab.****4. Click [Printer Configuration].****5. Enter the access code, and then click [OK].**

The default access code is "Admin".

6. On the [Network 1] tab, make sure [Wireless Function:] is set to [Active].

When [Inactive] is set, follow the steps below:

1. Select [Active], and then click [OK].**2. "The settings will become effective after restart of the printer" is displayed on the screen, and then click [OK].****3. Wait until the machine restarts. Go back to the step to continue the setting process after Smart Organizing Monitor has displayed "Ready".**

7. Click [OK].
8. Wait until the machine restarts.
9. Click [User Tools] tab.
10. Click [Printer Configuration].
11. Enter the access code, and then click [OK].

The default access code is "Admin".

12. On the [Wireless] tab, select [Setup with WPS] for [Configuration Method].

13. Click [Connect].

14. Press the WPS button on the router (access point) within two minutes.

For details about how to use the WPS button, refer to the manuals for the router (access point).

15. Check the result.

- Connection has succeeded:

The Power indicator lights up.

Configuring the Wi-Fi settings is complete.

- Connection has failed:

All the indicators start to flash simultaneously, and after 30 seconds, only the Power indicator lights up. Check the configuration for the router (access point), then try the connection again.

7

Using a PIN Code

A router (access point) is needed to set up a connection. To establish a connection using the PIN code, use a computer that is connected to the router (access point).

Before doing the following procedure, install the printer driver according to the procedure on page 88 "Installing the Printer Driver".

Make sure the Ethernet cable is not connected to the machine.

The following procedure is explained using OS X 10.11 as an example.

1. Check that the router (access point) is working correctly.
2. Open the PIN code configuration window (web page) for the router (access point) on your computer.
3. Turn on your computer.
4. On the [Application] menu, double-click [Smart Organizing Monitor].
5. Click [User Tools] tab.
6. Click [Printer Configuration].

7. Enter the access code, and then click [OK].

The default access code is "Admin".

8. On the [Wireless] tab, select [Setup with WPS] for [Configuration Method].

9. Select [Wi-Fi Protected Setup with PIN Code] for [One-Touch Connection Setting (WPS)].

10. Click [Get PIN Code] and check the PIN code.

Write down the PIN code in case you might forget it.

11. Enter the machine's PIN code (8 digits) on the router (access point)'s web page.(The web page accessed in Step 2)

12. Execute WPS (PIN system) from the router (access point)'s web page.

13. Check the result.

- Connection has succeeded:

The Power indicator lights up.

Configuring the Wi-Fi settings is complete.

- Connection has failed:

All the indicators start to flash simultaneously, and after 30 seconds, only the Power indicator lights up. Check the configuration for the router (access point), then try the connection again.

Manual Setup

A router (access point) is needed to set up a connection. You need to select the same authentication method and encryption method that the router (access point) is using. You can check them on the settings screen of the router (access point).

Before doing the following procedure, install the printer driver according to the procedure on page 88 "Installing the Printer Driver".

Make sure the Ethernet cable is not connected to the machine.

Checking the SSID and encryption key

The SSID and Encryption key for the router (access point) may be printed on a label affixed to the router (access point). For details about the SSID and Encryption key, refer to the router (access point) manual.

Configuring settings using Smart Organizing Monitor

1. Check that the router (access point) is working correctly.
2. Turn on your computer.
3. On the [Application] menu, double-click [Smart Organizing Monitor].
4. Click [User Tools] tab.
5. Click [Printer Configuration].

6. Enter the access code, and then click [OK].

The default access code is "Admin".

7. On the [Wireless] tab, select [Manual Setup] for [Configuration Method].**8. Select the authentication method in [Authentication]. Configurations differ according to the authentication method.**

- WPA2-PSK or Mix Mode WPA/WPA2
 - Enter the SSID of the router (access point) in [SSID].
 - Enter the WPA passphrase of the access point (router) in [WPA Passphrase].
- Open System or Shared Key
 - Enter the SSID of the router (access point) in [SSID].
 - Select [WEP] in [Encryption].
Do not select [None] except in special circumstances. If you select [None], the security system may not work.
 - Select [64 bit] or [128 bit] in [WEP Key Length].
 - When you register multiple encryption keys, select a registration number between [#1] and [#4] in [WEP Transmit Key ID].
 - Select [Hexadecimal] or [ASCII] in [WEP Key Format].
 - Enter the WEP key in [WEP Key].

7

9. Click [Apply], and then click [OK].**10. When "Connected" is displayed in [Wireless Status] on the [Wireless] tab, the connection has been established.****11. Click [OK].**

8. Appendix

This chapter describes the machine specifications and consumables.

Transmission Using IPsec

For secure communications, this machine supports the IPsec protocol. When applied, IPsec encrypts data packets at the network layer using shared key encryption. The machine uses encryption key exchange to create a shared key for both sender and receiver. To achieve even higher security, you can also renew the shared key on a validity period basis.

Important

- IPsec is not applied to data obtained through DHCP, DNS, or WINS.
- IPsec compatible operating systems are Windows Vista or later, Windows Server 2003 or later, OS X 10.7 or later, Red Hat Enterprise Linux 6 or later. However, some setting items are not supported depending on the operating system. Make sure the IPsec settings you specify are consistent with the operating system's IPsec settings.
- If you cannot access Web Image Monitor due to IPsec configuration problems, disable IPsec on the [Network 2] tab under [Printer Configuration] using Smart Organizing Monitor, and then access Web Image Monitor.
- For details about specifying the IPsec settings using Web Image Monitor, see page 44 "Using Web Image Monitor".
- For details about enabling and disabling IPsec using Smart Organizing Monitor, see the Smart Organizing Monitor Help.

8

Encryption and Authentication by IPsec

IPsec consists of two main functions: the encryption function, which ensures the confidentiality of data, and the authentication function, which verifies the sender of the data and the data's integrity. This machine's IPsec function supports two security protocols: the ESP protocol, which enables both of the IPsec functions at the same time, and the AH protocol, which enables only the authentication function.

ESP Protocol

The ESP protocol provides secure transmission through both encryption and authentication. This protocol does not provide header authentication.

- For successful encryption, both the sender and receiver must specify the same encryption algorithm and encryption key. The encryption algorithm and encryption key are specified automatically.

- For successful authentication, the sender and receiver must specify the same authentication algorithm and authentication key. The authentication algorithm and authentication key are specified automatically.

AH Protocol

The AH protocol provides secure transmission through authentication of packets only, including headers.

- For successful authentication, the sender and receiver must specify the same authentication algorithm and authentication key. The authentication algorithm and authentication key are specified automatically.

AH Protocol + ESP Protocol

When combined, the ESP and AH protocols provide secure transmission through both encryption and authentication. These protocols provide header authentication.

- For successful encryption, both the sender and receiver must specify the same encryption algorithm and encryption key. The encryption algorithm and encryption key are specified automatically.
- For successful authentication, the sender and receiver must specify the same authentication algorithm and authentication key. The authentication algorithm and authentication key are specified automatically.

Note

- Some operating systems use the term "Compliance" in place of "Authentication".

Security Association

This machine uses encryption key exchange as the key setting method. With this method, agreements such as the IPsec algorithm and key must be specified for both sender and receiver. Such agreements form what is known as an SA (Security Association). IPsec communication is possible only if the receiver's and sender's SA settings are identical.

The SA settings are auto configured on both parties' machines. However, before the IPsec SA can be established, the ISAKMP SA (Phase 1) settings must be auto configured. When this is done, the IPsec SA (Phase 2) settings, which allow actual IPsec transmission, will be auto configured.

Also, for further security, the SA can be periodically auto updated by applying a validity period (time limit) for its settings. This machine only supports IKEv1 for encryption key exchange.

Multiple settings can be configured in the SA.

Settings 1-10

You can configure ten separate sets of SA details (such as different shared keys and IPsec algorithms).

IPsec policies are searched through one by one, starting at [No.1].

Encryption Key Exchange Settings Configuration Flow

This section explains the procedure for specifying encryption key exchange settings.

Machine	PC
1. Set the IPsec settings on Web Image Monitor.	1. Set the same IPsec settings as the machine on PC.
2. Enable IPsec settings.	2. Enable IPsec settings.
3. Confirm IPsec transmission.	

Note

- After configuring IPsec, you can use "ping" command to check if the connection is established correctly. Because the response is slow during initial key exchange, it may take some time to confirm that transmission has been established.
- If you cannot access Web Image Monitor due to IPsec configuration problems, disable IPsec on the [Network 2] tab under [Printer Configuration] using Smart Organizing Monitor, and then access Web Image Monitor.
- For details about enabling and disabling IPsec using Smart Organizing Monitor, see the Smart Organizing Monitor Help.

Specifying Encryption Key Exchange Settings

Important

- This function is available only when an administrator password is specified.
- Start the web browser and access the machine by entering its IP address.
 - Click [IPsec Settings].
 - Click the [IPsec Policy List] tab.
 - Select the number of the setting you want to modify in the list, and then click [Change].
 - Modify the IPsec related settings as necessary.
 - Enter the administrator password, and then click [Apply].
 - Click the [IPsec Global Settings] tab, and then select [Active] in [IPsec Function].
 - If necessary, specify [Default Policy], [Broadcast and Multicast Bypass], and [All ICMP Bypass] also.
 - Enter the administrator password, and then click [Apply].

 **Note**

- An administrator password can be specified in the [Administrator] tab.

Specifying IPsec Settings on the Computer

Specify exactly the same settings for IPsec SA settings on your computer as are specified for the IPsec Settings on the machine. Setting methods differ according to the computer's operating system. The following procedure is based on Windows 7 in an IPv4 environment as an example.

1. On the [Start] menu, click [Control Panel], [System and Security], and then click [Administrative Tools].
2. Double-click [Local Security Policy], and then click [IP Security Policies on Local Computer].
3. In the "Action" menu, click [Create IP Security Policy...].
The IP Security Policy Wizard appears.
4. Click [Next].
5. Enter a security policy name in "Name", and then click [Next].
6. Clear the "Activate the default response rule." check box, and then click [Next].
7. Select "Edit properties", and then click [Finish].
8. In the "General" tab, click [Settings...].
9. In "Authenticate and generate a new key after every", enter the same validity period (in minutes) that is specified on the machine in [IKE Life Time], and then click [Methods...].
10. Confirm that the Encryption Algorithm ("Encryption"), Hash Algorithm ("Integrity"), and IKE Diffie-Hellman Group ("Diffie-Hellman Group") settings in "Security method preference order" all match those specified on the machine in [IKE Settings].
If the settings are not displayed, click [Add...].
11. Click [OK] twice.
12. Click [Add...] in the "Rules" tab.
The Security Rule Wizard appears.
13. Click [Next].
14. Select "This rule does not specify a tunnel", and then click [Next].
15. Select the type of network for IPsec, and then click [Next].
16. Click [Add...] in the IP Filter List.
17. In [Name], enter an IP Filter name, and then click [Add...].
The IP Filter Wizard appears.
18. Click [Next].

19. In [Description:], enter a name or a detailed explanation of the IP filter, and then click [Next].

You may click [Next] and proceed to the next step without entering any information in this field.

20. Select "My IP Address" in "Source address", and then click [Next].
21. Select "A specific IP Address or Subnet" in "Destination address", enter the machine's IP address, and then click [Next].
22. For the IPsec protocol type, select "Any", and then click [Next].
23. Click [Finish], and then click [OK].
24. Select the IP filter that you have just created, and then click [Next].
25. Click [Add...] in the Filter Action.

The Filter Action Wizard appears.

26. Click [Next].
27. In [Name], enter a Filter Action name, and then click [Next].
28. Select "Negotiate security", and then click [Next].
29. Select one of options for computers allowed to communicate with, and then click [Next].
30. Select "Custom" and click [Settings...].

31. When [ESP] is selected for the machine in [Security Protocol] under [IPsec Settings], select [Data integrity and encryption (ESP)], and configure the following settings:

Set the value of [Integrity algorithm] to the same value as the [Authentication Algorithm for ESP] specified on the machine.

Set the value of [Encryption algorithm] to the same value as the [Encryption Algorithm for ESP] specified on the machine.

32. When [AH] is selected for the machine in [Security Protocol] under [IPsec Settings], select [Data and address integrity without encryption (AH)], and configure the following settings:

Set the value of [Integrity algorithm] to the same value as the [Authentication Algorithm for AH] specified on the machine.

Clear the [Data integrity and encryption (ESP)] check box.

33. When [ESP&AH] is selected for the machine in [Security Protocol] under [IPsec Settings], select [Data and address integrity without encryption (AH)], and configure the following settings:

Set the value of [Integrity algorithm] under [Data and address integrity without encryption (AH)] to the same value as [Authentication Algorithm for AH] specified on the machine.

Set the value of [Encryption algorithm] under [Data integrity and encryption (ESP)] to the same value as [Encryption Algorithm for ESP] specified on the machine.

34. In the Session key settings, select "Generate a new key every", and enter the same validity period (in [Seconds] or [Kbytes]) as that specified for [Life Time] on the machine.

35. Click [OK], and then click [Next].

36. Click [Finish].

If you are using IPv6, you must repeat this procedure from Step 12 and specify ICMPv6 as an exception. When you reach Step 22, select [58] as the protocol number for the "Other" target protocol type, and then set [Negotiate security] to [Permit].

37. Select the filter action that you have just created, and then click [Next].

38. Select one of options for an authentication method, and then click [Next].

39. Click [Finish], and then click [OK] twice.

The new IP security policy (IPsec settings) is specified.

40. Select the security policy that you have just created, right click on it, and then click [Assign].

IPsec settings on the computer are enabled.

 **Note**

- To disable the computer's IPsec settings, select the security policy, right click, and then click [Unassign].

Notes About the Toner

- Proper operation cannot be guaranteed if any third-party toner is used.
- Depending on printing conditions, there are cases where the printer cannot print the number of sheets indicated in the specifications.
- Replace the print cartridge if the printed image suddenly becomes pale or blurred.
- When operating the machine for the first time, use the print cartridge supplied with this machine. If this cartridge is not initially used, the following problems may occur:
 - Toner/Paper End indicator will flash before the toner runs out.
 - Toner/Paper End indicator will light up when the toner runs out, but instead the printed image suddenly becomes pale or blurred.
- The lifetime of the photo conductor, which is built into the print cartridge, is taken into account when Toner/Paper End indicator flashes. If the photo conductor stops working before the toner runs out, Toner/Paper End indicator may flash.

Specifications of the Machine

This section lists the machine's specifications.

General Function Specifications

Item	Description
Configuration	Desktop
Print process	Laser electrostatic transfer
Maximum paper size for printing	216 mm × 356 mm (8.5 × 14 inches)
Warm-up time (23 °C, 71.6 °F)	25 seconds
Paper sizes	For details, see page 30 "Supported Paper".
Paper type	For details, see page 30 "Supported Paper".
Paper output capacity (80 g/m ² , 20 lb)	50 sheets
Paper input capacity (80 g/m ² , 20 lb)	<ul style="list-style-type: none"> • Tray 1 150 sheets • Bypass tray 1 sheet
Memory	128 MB
Power requirements	 Region A 220-240 V, 5 A, 50/60 Hz  Region B 120-127 V, 8 A, 60 Hz If the voltage supplied to the machine is outside the guaranteed operating range, "SC560" appears on the screen. If this happens, turn the power off and then back on. If the message does not disappear, contact your service representative.

Item	Description
Power consumption  Region A	<ul style="list-style-type: none"> Ready 50.2 W During printing 358 W Maximum 784 W <p>The power level when the main switch is turned off and the power cord is plugged into an outlet: 1 W or less</p>
Power consumption  Region B	<ul style="list-style-type: none"> Ready 48.8 W During printing 364 W Maximum 714 W <p>The power level when the main switch is turned off and the power cord is plugged into an outlet: 1 W or less</p>
	<ul style="list-style-type: none"> Sound power level Stand-by: 27.2 dB (A) During printing: 63.2 dB (A) Sound pressure level Stand-by: 18.5 dB (A) During printing: 53.0 dB (A)
Noise emission	<ul style="list-style-type: none"> Sound power level Stand-by: 27.0 dB (A) During printing: 61.8 dB (A) Sound pressure level Stand-by: 18.5 dB (A) During printing: 50.9 dB (A)
Machine dimensions (Width × Depth × Height)	402 × 360 × 165 mm (15.8 × 14.2 × 6.5 inches)

Item	Description
Weight (machine body with consumables)	7.0 kg (15.4 lb.) or less

 **Note**

- Sound power level and sound pressure level are actual values measured in accordance with ISO 7779.
- Sound pressure level is measured from the position of the bystander.

Printer Function Specifications

Item	Description
Printing speed	23 pages per minute (A4)
Resolution	600 × 600 dpi (maximum: 1200 × 1200 dpi)
First print speed	10 seconds or less
Interface	<ul style="list-style-type: none"> • Ethernet (10BASE-T, 100BASE-TX) (only SP 220Nw and SP 221Nw) • USB 2.0 • Wi-Fi (only SP 220Nw and SP 221Nw)
Printer language	GDI

Consumables

⚠ CAUTION

- Our products are engineered to meet high standards of quality and functionality, and we recommend that you use only the expendable supplies available at an authorized dealer.

Print Cartridge

Print cartridge	Average printable number of pages per cartridge *1
Black	1,000 pages, 2,600 pages

*1 The printable number of pages is based on pages that are compliant with ISO/IEC 19752 and the image density set as the factory default. ISO/IEC 19752 is an international standard on measurement of printable pages, set by the International Organization for Standardization.

>Note

- For information about consumables, see our website (<http://www.ricoh.com/printers/sp200/support/gateway/>).
- If print cartridges are not changed when necessary, printing will become impossible. For easy replacement, we recommend you purchase and store extra print cartridges.
- The actual number of printable pages varies depending on the image volume and density, number of pages printed at a time, paper type and paper size used, and environmental conditions such as temperature and humidity.
- Print cartridges may need to be changed sooner than indicated above due to deterioration over the period of use.
- Print cartridges (consumables) are not covered by warranty. However, if there is a problem, contact the store where they were purchased.
- When you first use this machine, use the print cartridges packaged with the machine.
- The supplied print cartridges are good for approximately 700 pages.
- This machine routinely performs cleaning and uses toner during this operation to maintain quality.
- To prevent a cleaning malfunction, you may need to replace a print cartridge even if it is not empty.

Information for This Machine

User Information on Electrical & Electronic Equipment Region A (mainly Europe and Asia)

Users in the countries where this symbol shown in this section has been specified in national law on collection and treatment of E-waste

Our Products contain high quality components and are designed to facilitate recycling.

Our products or product packaging are marked with the symbol below.



The symbol indicates that the product must not be treated as municipal waste. It must be disposed of separately via the appropriate return and collection systems available. By following these instructions you ensure that this product is treated correctly and help to reduce potential impacts on the environment and human health, which could otherwise result from inappropriate handling. Recycling of products helps to conserve natural resources and protect the environment.

8

For more detailed information on collection and recycling systems for this product, please contact the shop where you purchased it, your local dealer or sales/service representatives.

All Other Users

If you wish to discard this product, please contact your local authorities, the shop where you bought this product, your local dealer or sales/service representatives.

For Users in India

This product complies with the "India E-waste Rule 2011" and prohibits use of lead, mercury, hexavalent chromium, polybrominated biphenyls or polybrominated diphenyl ethers in concentrations exceeding 0.1 weight % and 0.01 weight % for cadmium, except for the exemptions set in Schedule 2 of the Rule.

For Turkey only

EEE Yönetmeliğine Uygundur.

Bu sistem sarf malzemeleri ve yedek parçaları da dahil olmak üzere EEE Yönetmeliğine Uygundur.

Üretici:

Ricoh Company, Ltd.

8-13-1 Ginza,

Chuo-ku, Tokyo 104-8222 Japan

+81-36278-2111(English only/Sadece İngilizce)

Note for the Battery and/or Accumulator Symbol (For EU countries only)



In accordance with the Battery Directive 2006/66/EC Article 20 Information for end-users Annex II, the above symbol is printed on batteries and accumulators.

This symbol means that in the European Union, used batteries and accumulators should be disposed of separately from your household waste.

In the EU, there are separate collection systems for not only used electrical and electronic products but also batteries and accumulators.

Please dispose of them correctly at your local community waste collection/recycling centre.

8

Environmental Advice for Users (mainly Europe)

Users in the EU, Switzerland and Norway

Consumables yield

Please refer to either the User's Manual for this information or the packaging of the consumable.

Recycled paper

The machine can use recycled paper which is produced in accordance with European standard EN 12281:2002 or DIN 19309. For products using EP printing technology, the machine can print on 64 g/m² paper, which contains less raw materials and represents a significant resource reduction.

Duplex printing (if applicable)

Duplex printing enables both sides of a sheet of paper to be used. This saves paper and reduces the size of printed documents so that fewer sheets are used. We recommend that this feature is enabled whenever you print.

Toner and ink cartridge return program

Toner and ink cartridge for recycling will be accepted free of charge from users in accordance with local regulations.

For details about the return program, please refer to the Web page below or consult your service person.

<https://www.ricoh-return.com/>

Energy efficiency

The amount of electricity a machine consumes depends as much on its specifications as it does on the way you use it. The machine is designed to allow you to reduce electricity costs by switching to Ready mode after it prints the last page. If required, it can immediately print again from this mode. If no additional prints are required and a specified period of time passes, the device switches to an energy saving mode.

In these modes, the machine consumes less power (watts). If the machine is to print again, it needs a little longer to return from an energy saving mode than from Ready mode.

For maximum energy savings, we recommend that the default setting for power management is used.

Products that comply with the Energy Star requirement are always energy efficient.

Notice To Wireless LAN Interface Users Region A (mainly Europe)



Declaration of Conformity

Notice to Users in EEA Countries

This product complies with the essential requirements and provisions of Directive 2014/53/EU.

The CE Declaration of Conformity is available by accessing the URL: http://www.ricoh.com/products/ce_doc/

and selecting the product applicable.

Operating frequency band: 2400 - 2483.5 MHz

maximum radio-frequency power: less than 20.0 dBm

As this equipment with the radiating part is not intended to be used in close proximity to the human body, it is recommended to use at least 20cm apart from the user.

Model Number: SP 220Nw/SP 221Nw

Notes to users in the state of California (Notes to Users in USA)

Perchlorate Material - special handling may apply. See: www.dtsc.ca.gov/hazardouswaste/perchlorate

Notes to users in the United States of America

Part 15 of the FCC Rules

Note:

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

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

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

Caution:

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

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines. This equipment has very low levels of RF energy that it deemed to comply without maximum permissive exposure evaluation (MPE). But it is desirable that it should be installed and operated keeping the radiator at least 20cm or more away from person's body (excluding extremities: hands, wrists, feet and ankles).

Certification

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Model Number: SP 220Nw

Notes to Canadian Users of Wireless Devices

This device complies with Industry Canada's licence-exempt RSSs.

Operation is subject to the following two conditions:

- (1) This device may not cause interference; and
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment and meets RSS-102 of the IC radio frequency (RF) Exposure rules. This equipment should be installed and operated keeping the radiator at least 20cm or more away from person's body (excluding extremities: hands, wrists, feet and ankles).

Model Number: SP 220Nw

Remarques à l'attention des utilisateurs canadiens d'appareils sans fil

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence.

L'exploitation est autorisée aux deux conditions suivantes :

- (1) l'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage

radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Cet équipement est conforme aux limites d'exposition aux rayonnements énoncées pour un environnement non contrôlé et respecte les règles d'exposition aux fréquences radioélectriques (RF) CNR-102 de l'IC. Cet équipement doit être installé et utilisé en gardant une distance de 20 cm ou plus entre le radiateur et le corps humain.(à l'exception des extrémités : mains, poignets, pieds et chevilles)

Model Number: SP 220Nw

ENERGY STAR Program

ENERGY STAR® Program Requirements for Imaging Equipment



The ENERGY STAR® Program Requirements for Imaging Equipment encourage energy conservation by promoting energy efficient computers and other office equipment.

The program backs the development and dissemination of products that feature energy saving functions.

It is an open program in which manufacturers participate voluntarily.

Targeted products are computers, monitors, printers, facsimiles, copiers, scanners, and multifunction devices. Energy Star standards and logos are internationally uniform.

Saving Energy

8

This machine is equipped with the following Energy Saver modes: Energy Saver mode 1 and Energy Saver mode 2. If the machine has been idle for a certain period of time, the machine automatically enters Energy Saver mode.

The machine recovers from Energy Saver mode when it receives a print job or when any key is pressed.

Energy Saver mode 1

The machine enters Energy Saver mode 1 if the machine has been idle for about 30 seconds. It takes less time to recover from Energy Saver mode 1 than from power-off state or Energy Saver mode 2, but power consumption is higher in Energy Saver mode 1 than in Energy Saver mode 2.

Energy Saver mode 2

The machine enters Energy Saver mode 2 after the period of time specified for this setting is passed. Power consumption is lower in Energy Saver mode 2 than in Energy Saver mode 1, but it takes longer to recover from Energy Saver mode 2 than from Energy Saver mode 1.

Specifications

Energy Saver mode 1	Power Consumption ^{*1}	 Region A 28.7 W  Region B 29.3 W
	Recovery Time ^{*1}	10 seconds
Energy Saver mode 2	Power Consumption ^{*1}	 Region A 0.94 W  Region B 0.87 W
	Default Interval	30 seconds
	Recovery Time ^{*1}	 Region A 18 seconds  Region B 19 seconds

*1 Recovery time and power consumption may differ depending on the conditions and environment of the machine.

8

For details about Energy Saver modes, see the Smart Organizing Monitor Help.

Note

- Even if Energy Saver mode 2 is enabled, the machine will not enter Energy Saver mode 2 for two hours if Low Humidity Mode is enabled. However, the machine will enter Energy Saver mode 1 as normal (even when Energy Saver mode 1 is not enabled).
- For details about Energy Saver modes, see the Smart Organizing Monitor Help.

Copyright Information about Installed Applications

Apache License

Apache License

Version 2.0, January 2004

<http://www.apache.org/licenses/>

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any

form of electronic, verbal, or written communication sent to the Licenser or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licenser for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

You must give any other recipients of the Work or Derivative Works a copy of this License; and
You must cause any modified files to carry prominent notices stating that You changed the files; and
You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

dnsmasq

```
/* dnsmasq is Copyright (c) 2000-2006 Simon Kelley
This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
```

the Free Software Foundation; version 2 dated June, 1991.
This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

*/

GPL Version 2

GNU GENERAL PUBLIC LICENSE

Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Lesser General Public License instead.) You can apply it to
your programs, too.

When we speak of free software, we are referring to freedom, not
price. Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid
anyone to deny you these rights or to ask you to surrender the rights.
These restrictions translate to certain responsibilities for you if you

distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all. The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE

TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

- a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.
- b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.
- c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but

does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it. Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this license.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:
- a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,
 - b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,
 - c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is

allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein.

You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF

MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>

Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along

with this program; if not, write to the Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author

Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.

This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program
'Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989

Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs. If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library. If this is what you want to do, use the GNU Lesser General
Public License instead of this License.

iperf

Iperf Copyright

Copyright (c) The Board of Trustees of the University of Illinois
All Rights Reserved.

Iperf performance test

Mark Gates

Ajay Tirumala

Jim Ferguson

Jon Dugan

Feng Qin

Kevin Gibbs

John Estabrook

National Laboratory for Applied Network Research

National Center for Supercomputing Applications

University of Illinois at Urbana-Champaign

<http://www.ncsa.uiuc.edu>

Permission is hereby granted, free of charge, to any person obtaining a copy of this software (Iperf) and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimers.

Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimers in the documentation and/or other materials provided with the distribution.

Neither the names of the University of Illinois, NCSA, nor the names of its contributors may be used to endorse or promote products derived from this Software without specific prior written permission.

8

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE CONTRIBUTORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Iperf User Docs

Mark Gates

Ajay Tirumala

Jon Dugan

Kevin Gibbs

Acknowledgements

Thanks to Mark Gates (NLANR), Alex Warshavsky (NLANR) and Justin Pietsch (University of Washington) who were responsible for the 1.1.x releases of Iperf. For this release, we would like to thank Bill Cerveny (Internet2), Micheal Lambert (PSC), Dale Finkelson (UNL) and Matthew Zekauskas (Internet2) for help in getting access to IPv6 networks / machines. Special thanks to Matthew Zekauskas (Internet2) for helping out in the FreeBSD implementation. Also, thanks to Kraemer Oliver (Sony) for providing an independent implementation of IPv6 version of Iperf, which provided a useful comparison for testing our features.

libHaru

Copyright (C) 1999-2006 Takeshi Kanno

Copyright (C) 2007-2009 Antony Dovgal

This software is provided 'as-is', without any express or implied warranty.

In no event will the authors be held liable for any damages arising from the use of this software.

Permission is granted to anyone to use this software for any purpose, including commercial applications, and to alter it and redistribute it freely, subject to the following restrictions:

1. The origin of this software must not be misrepresented; you must not claim that you wrote the original software. If you use this software in a product, an acknowledgment in the product documentation would be appreciated but is not required.
2. Altered source versions must be plainly marked as such, and must not be misrepresented as being the original software.
3. This notice may not be removed or altered from any source distribution.

8

Libsasl

* Copyright (c) 2001 Carnegie Mellon University. All rights reserved.

*

* Redistribution and use in source and binary forms, with or without

* modification, are permitted provided that the following conditions

* are met:

*

* 1. Redistributions of source code must retain the above copyright

- * notice, this list of conditions and the following disclaimer.
- *
- * 2. Redistributions in binary form must reproduce the above copyright
- * notice, this list of conditions and the following disclaimer in
- * the documentation and/or other materials provided with the
- * distribution.
- *
- * 3. The name "Carnegie Mellon University" must not be used to
- * endorse or promote products derived from this software without
- * prior written permission. For permission or any other legal
- * details, please contact
- * Office of Technology Transfer
- * Carnegie Mellon University
- * 5000 Forbes Avenue
- * Pittsburgh, PA 15213-3890
- * (412) 268-4387, fax: (412) 268-7395
- * tech-transfer@andrew.cmu.edu
- *
- * 4. Redistributions of any form whatsoever must retain the following
- * acknowledgment:
- * "This product includes software developed by Computing Services
- * at Carnegie Mellon University (<http://www.cmu.edu/computing/>)."
- *
- * CARNEGIE MELLON UNIVERSITY DISCLAIMS ALL WARRANTIES WITH REGARD TO
- * THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY
- * AND FITNESS, IN NO EVENT SHALL CARNEGIE MELLON UNIVERSITY BE LIABLE
- * FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES
- * WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN
- * AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING
- * OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.
- *

mDNSResponder

- * Copyright (c) 2002-2006 Apple Computer, Inc. All rights reserved.
- *
- * Licensed under the Apache License, Version 2.0 (the "License");
- * you may not use this file except in compliance with the License.
- * You may obtain a copy of the License at
- *
- * <http://www.apache.org/licenses/LICENSE-2.0>
- *
- * Unless required by applicable law or agreed to in writing, software
- * distributed under the License is distributed on an "AS IS" BASIS,
- * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
- * See the License for the specific language governing permissions and
- * limitations under the License.
- *
- * This code is completely 100% portable C. It does not depend on any external header files
- * from outside the mDNS project -- all the types it expects to find are defined right here.
- *
- * The previous point is very important: This file does not depend on any external
- * header files. It should compile on *any* platform that has a C compiler, without
- * making *any* assumptions about availability of so-called "standard" C functions,
- * routines, or types (which may or may not be present on any given platform).
- * Formatting notes:
- * This code follows the "Whitesmiths style" C indentation rules. Plenty of discussion
- * on C indentation can be found on the web, such as <<http://www.kafejo.com/komp/1tbs.htm>>,
- * but for the sake of brevity here I will say just this: Curly braces are not syntactically
- * part of an "if" statement; they are the beginning and ending markers of a compound statement;
- * therefore common sense dictates that if they are part of a compound statement then they
- * should be indented to the same level as everything else in that compound statement.
- * Indenting curly braces at the same level as the "if" implies that curly braces are
- * part of the "if", which is false. (This is as misleading as people who write "char* x,y;"
- * thinking that variables x and y are both of type "char*" -- and anyone who doesn't

- * understand why variable y is not of type "char*" just proves the point that poor code
- * layout leads people to unfortunate misunderstandings about how the C language really works.)

OpenCV

By downloading, copying, installing or using the software you agree to this license.

If you do not agree to this license, do not download, install,
copy or use the software.

License Agreement

For Open Source Computer Vision Library

(3-clause BSD License)

Redistribution and use in source and binary forms, with or without modification,
are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice,
this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.

* Neither the names of the copyright holders nor the names of the contributors
may be used to endorse or promote products derived from this software
without specific prior written permission.

This software is provided by the copyright holders and contributors "as is" and
any express or implied warranties, including, but not limited to, the implied
warranties of merchantability and fitness for a particular purpose are disclaimed.

In no event shall copyright holders or contributors be liable for any direct,
indirect, incidental, special, exemplary, or consequential damages
(including, but not limited to, procurement of substitute goods or services;
loss of use, data, or profits; or business interruption) however caused
and on any theory of liability, whether in contract, strict liability,
or tort (including negligence or otherwise) arising in any way out of
the use of this software, even if advised of the possibility of such damage.

Open SSL

LICENSE ISSUES

The OpenSSL toolkit stays under a dual license, i.e. both the conditions of the OpenSSL License and the original SSLeay license apply to the toolkit.

See below for the actual license texts. Actually both licenses are BSD-style Open Source licenses. In case of any license issues related to OpenSSL please contact openssl-core@openssl.org.

OpenSSL License

```
/* =====
 * Copyright (c) 1998-2016 The OpenSSL Project. All rights reserved.
 *
 * Redistribution and use in source and binary forms, with or without
 * modification, are permitted provided that the following conditions
 * are met:
 *
 * 1. Redistributions of source code must retain the above copyright
 * notice, this list of conditions and the following disclaimer.
 *
 * 2. Redistributions in binary form must reproduce the above copyright
 * notice, this list of conditions and the following disclaimer in
 * the documentation and/or other materials provided with the
 * distribution.
 *
 * 3. All advertising materials mentioning features or use of this
 * software must display the following acknowledgment:
 *   "This product includes software developed by the OpenSSL Project
 *   for use in the OpenSSL Toolkit. (http://www.openssl.org/)"
 *
 * 4. The names "OpenSSL Toolkit" and "OpenSSL Project" must not be used to
 * endorse or promote products derived from this software without
```

- * prior written permission. For written permission, please contact
- * openssl-core@openssl.org.
- *
- * 5. Products derived from this software may not be called "OpenSSL"
- * nor may "OpenSSL" appear in their names without prior written
- * permission of the OpenSSL Project.
- *
- * 6. Redistributions of any form whatsoever must retain the following
- * acknowledgment:
- * "This product includes software developed by the OpenSSL Project
- * for use in the OpenSSL Toolkit (<http://www.openssl.org/>)"
- *
- * THIS SOFTWARE IS PROVIDED BY THE OpenSSL PROJECT ``AS IS'' AND ANY
- * EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
- * IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
- * PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE OpenSSL PROJECT OR
- * ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
- * SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT
- * NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
- * LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
- * HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
- * STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
- * ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
- * OF THE POSSIBILITY OF SUCH DAMAGE.
- * =====
- *
- * This product includes cryptographic software written by Eric Young
- * (eay@cryptsoft.com). This product includes software written by Tim
- * Hudson (tjh@cryptsoft.com).
- *
- /

Original SSLeay License

```
/* Copyright (C) 1995-1998 Eric Young (eay@cryptsoft.com)
 * All rights reserved.
 *
 * This package is an SSL implementation written
 * by Eric Young (eay@cryptsoft.com).
 * The implementation was written so as to conform with Netscapes SSL.
 *
 * This library is free for commercial and non-commercial use as long as
 * the following conditions are aheared to. The following conditions
 * apply to all code found in this distribution, be it the RC4, RSA,
 * Ihash, DES, etc., code; not just the SSL code. The SSL documentation
 * included with this distribution is covered by the same copyright terms
 * except that the holder is Tim Hudson (tjh@cryptsoft.com).
 *
 * Copyright remains Eric Young's, and as such any Copyright notices in
 * the code are not to be removed.
 * If this package is used in a product, Eric Young should be given attribution
 * as the author of the parts of the library used.
 * This can be in the form of a textual message at program startup or
 * in documentation (online or textual) provided with the package.
 *
 * Redistribution and use in source and binary forms, with or without
 * modification, are permitted provided that the following conditions
 * are met:
 * 1. Redistributions of source code must retain the copyright
 * notice, this list of conditions and the following disclaimer.
 * 2. Redistributions in binary form must reproduce the above copyright
 * notice, this list of conditions and the following disclaimer in the
 * documentation and/or other materials provided with the distribution.
 * 3. All advertising materials mentioning features or use of this software
 * must display the following acknowledgement:
 * "This product includes cryptographic software written by
 * Eric Young (eay@cryptsoft.com)"
```

- * The word 'cryptographic' can be left out if the routines from the library being used are not cryptographic related :-).
- * 4. If you include any Windows specific code (or a derivative thereof) from the apps directory (application code) you must include an acknowledgement:
- * "This product includes software written by Tim Hudson (tjh@cryptsoft.com)"
- *
- * THIS SOFTWARE IS PROVIDED BY ERIC YOUNG ``AS IS'' AND
- * ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
- * IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
- * ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE
- * FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
- * DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
- * OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
- * HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
- * LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
- * OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
- * SUCH DAMAGE.
- *
- * The licence and distribution terms for any publically available version or
- * derivative of this code cannot be changed. i.e. this code cannot simply be
- * copied and put under another distribution licence
- * [including the GNU Public Licence.]
- */

8

WPA Suplicant

WPA Suplicant

Copyright (c) 2003-2016, Jouni Malinen <j@w1.fi> and contributors

All Rights Reserved.

This program is licensed under the BSD license (the one with advertisement clause removed).

If you are submitting changes to the project, please see CONTRIBUTIONS file for more instructions.

License

This software may be distributed, used, and modified under the terms of
BSD license:

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

1. Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
3. Neither the name(s) of the above-listed copyright holder(s) nor the
names of its contributors may be used to endorse or promote products
derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Trademarks

Adobe and Acrobat are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States and/or other countries.

OS X, TrueType, and Safari are trademarks of Apple Inc., registered in the U.S. and other countries.

Firefox® is a registered trademark of the Mozilla Foundation.

Java is a registered trademark of Oracle and/or its affiliates.

LINUX® is the registered trademark of Linus Torvalds in the U.S. and other countries.

Microsoft®, Windows®, Windows Server®, Windows Vista®, and Internet Explorer® are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

Red Hat is a registered trademark of Red Hat, Inc.

Wi-Fi® and Wi-Fi Direct® are registered trademarks of Wi-Fi Alliance.

The proper name of Internet Explorer 6 is Microsoft® Internet Explorer® 6.

The proper names of the Windows operating systems are as follows:

- The product names of Windows Vista are as follows:

Microsoft® Windows Vista® Ultimate

Microsoft® Windows Vista® Business

Microsoft® Windows Vista® Home Premium

Microsoft® Windows Vista® Home Basic

Microsoft® Windows Vista® Enterprise

- The product names of Windows 7 are as follows:

Microsoft® Windows® 7 Starter

Microsoft® Windows® 7 Home Premium

Microsoft® Windows® 7 Professional

Microsoft® Windows® 7 Ultimate

Microsoft® Windows® 7 Enterprise

- The product names of Windows 8 are as follows:

Microsoft® Windows® 8

Microsoft® Windows® 8 Pro

Microsoft® Windows® 8 Enterprise

- The product names of Windows 8.1 are as follows:

Microsoft® Windows® 8.1

Microsoft® Windows® 8.1 Pro

Microsoft® Windows® 8.1 Enterprise

- The product names of Windows 10 are as follows:

Microsoft® Windows® 10 Home Premium

Microsoft® Windows® 10 Pro

Microsoft® Windows® 10 Enterprise

Microsoft® Windows® 10 Education

- The product names of Windows Server 2003 are as follows:

Microsoft® Windows Server® 2003 Standard Edition

Microsoft® Windows Server® 2003 Enterprise Edition

Microsoft® Windows Server® 2003 Web Edition

Microsoft® Windows Server® 2003 Datacenter Edition

- The product names of Windows Server 2003 R2 are as follows:

Microsoft® Windows Server® 2003 R2 Standard Edition

Microsoft® Windows Server® 2003 R2 Enterprise Edition

Microsoft® Windows Server® 2003 R2 Datacenter Edition

- The product names of Windows Server 2008 are as follows:

Microsoft® Windows Server® 2008 Foundation

Microsoft® Windows Server® 2008 Standard

Microsoft® Windows Server® 2008 Enterprise

Microsoft® Windows Server® 2008 Datacenter

Microsoft® Windows Server® 2008 for Itanium-based Systems

Microsoft® Windows® Web Server 2008

Microsoft® Windows® HPC Server 2008

- The product names of Windows Server 2008 R2 are as follows:

Microsoft® Windows Server® 2008 R2 Foundation

Microsoft® Windows Server® 2008 R2 Standard

Microsoft® Windows Server® 2008 R2 Enterprise

Microsoft® Windows Server® 2008 R2 Datacenter

Microsoft® Windows Server® 2008 R2 for Itanium-based Systems

Microsoft® Windows® Web Server R2 2008

Microsoft® Windows® HPC Server R2 2008

- The product names of Windows Server 2012 are as follows:

Microsoft® Windows Server® 2012 Foundation

Microsoft® Windows Server® 2012 Essentials

Microsoft® Windows Server® 2012 Standard

Microsoft® Windows Server® 2012 Datacenter

- The product names of Windows Server 2012 R2 are as follows:

Microsoft® Windows Server® 2012 R2 Foundation

Microsoft® Windows Server® 2012 R2 Essentials

Microsoft® Windows Server® 2012 R2 Standard

Microsoft® Windows Server® 2012 R2 Datacenter

Other product names used herein are for identification purposes only and might be trademarks of their respective companies. We disclaim any and all rights to those marks.

Microsoft product screen shots reprinted with permission from Microsoft Corporation.

INDEX

A

Authentication.....93

B

Bypass tray.....23

C

Configuring Network Settings Using OS X

- Ethernet.....86
- Installing Smart Organizing Monitor.....88
- Installing the driver.....88
- USB.....85
- Wireless LAN.....88

Configuring the machine

- Using Smart Organizing Monitor.....57
- Using Web Image Monitor.....44

Confirming the information

- Printer driver settings.....38
- Status information.....58

Consumables.....103

D

Differences in Performance/Functions between Different Models.....10

E

Encryption.....93

Encryption key exchange.....95

Energy saver mode.....109

Exterior.....11

I

Interior.....12

Introduction.....8

IPsec transmission.....93

J

Job cancel.....40

L

Language.....45

Loading paper.....18

M

Machine settings.....59

Maintaining the machine

Cleaning the machine.....63, 64

Replacing the print cartridge.....61

Model-specific information.....8

Moving.....65

N

Non-recommended paper.....33

Notes.....99

O

Operation tools.....15

P

Paper jam.....71, 73

Paper Storage.....34

Paper types

- Bond Paper.....30
- Cardstock.....30
- Color Paper.....30
- Letterhead.....30
- Plain Paper.....30
- Preprinted Paper.....30
- Prepunched Paper.....30
- Recycled Paper.....30
- Thick Paper 1.....30
- Thin Paper.....30

Print

- Basic operation.....40
- Combine.....37
- Specifications.....102

Print area.....34

Print cartridge.....61, 103

R

Registering information

Administrator e-mail address.....44

Replace.....61

S

SA (Security Association).....94

Smart Organizing Monitor.....15, 57

Specifications.....100, 102

Specifying a custom paper size.....25

Specifying the paper type and paper size.. 25, 27,
28

Status indicate.....67

Status messages.....69

Supported paper.....	30
System information.....	57

T

Trademarks.....	133
Tray 1.....	18
Tray paper settings.....	47
Troubleshooting	
Clearing misfeeds.....	71
Error and status indicate on the control panel.....	67
Error and status messages appear on Smart Organizing Monitor.....	69
Other problems.....	76, 77, 79, 81, 83

W

Web Image Monitor.....	44
What you can do with this machine	
Printer function.....	37
Wireless LAN settings.....	48, 60

MEMO

MEMO

