## MP C3003/C3503/C4503/ C5503/C6003 series



## **Read This First**

Manuals Provided with This Machine	
Safety Information for This Machine	2
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For information not in this manual, refer to the HTML/PDF files on the supplied CD-ROM.





Read this manual carefully before you use this machine and keep it handy for future reference. For safe and correct use, be sure to read the Safety Information in this manual before using the machine.

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## How to Read the Manuals

#### Symbols Used in the Manuals

This manual uses the following symbols:



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.



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

### Reference

This symbol is located at the end of sections. It indicates where you can find further relevant information.

[]

Indicates the names of keys on the machine's display or control panels.



Indicates instructions stored in a file on a provided CD-ROM.

Region A (mainly Europe and Asia), (mainly Europe), or (mainly Asia)

Region B (mainly North America)

Differences in the functions of Region A and Region B models are indicated by two symbols. Read the information indicated by the symbol that corresponds to the region of the model you are using. For details about which symbol corresponds to the model you are using, see "Model-Specific Information", Getting Started .

#### Disclaimer

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

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.

#### **Notes**

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.

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

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

Colors on color keys or the color circle may differ slightly from the colors of actual copies.

The color samples in this manual may differ slightly from the colors of actual copies.

#### **Machine Types**

Check the type of your machine before reading the manuals.

Type 1: MP C3003SP/MP C3003SPG

Type 2: MP C3503SP/MP C3503SPG

Type 3: MP C4503SP/MP C4503SPG

Type 4: MP C5503SP/MP C5503SPG

Type 5: MP C6003SP/MP C6003SPG

Certain types might not be available in some countries. For details, please contact your local dealer.

Certain options might not be available in some countries. For details, please contact your local dealer.

Depending on which country you are in, certain units may be optional. For details, please contact your local dealer.

## 1. Manuals Provided with This Machine

This chapter explains manuals for this machine.

## Manuals for This Machine

Read this manual carefully before you use this machine.

Refer to the manuals that are relevant to what you want to do with the machine.

### ☆ Important

- Media differ according to manual.
- Adobe<sup>®</sup> Acrobat<sup>®</sup> Reader<sup>®</sup>/Adobe Reader must be installed in order to view the manuals as PDF files.
- A Web browser must be installed in order to view the html manuals.

#### **User Guide**

Regarding the basic usage of this machine, frequently used functions, troubleshooting when an error message appears, etc., summaries are provided below for each user manual.

#### **Read This First**

Before using the machine, be sure to read the section of this manual entitled Safety Information. It also describes how to install the included CD-ROM, each regulation, and environmental conformance.

#### **Easy Search**

You can search for a description by what you want to do. Also, this machine's distinctive functions are explained.

#### **Getting Started**

Describes preparations for using the machine, operating instructions, and character input methods.

#### Paper Specifications and Adding Paper

Describes how to load originals and sheets and about their specifications.

#### **Convenient Functions**

Describes how to register frequently used settings, customize the Home Screen, and display a Web page on the control panel. It also describes how to manage a job.

#### Maintenance and Specifications

Describes how to replace supplies and how to install and clean this machine. It also describes the specifications of the main unit and options.

#### **Troubleshooting**

Provides a guide for resolving common usage-related problems.

#### Copy/ Document Server

Explains Copier and Document Server functions and operations. Also refer to this manual for explanations on how to specify the settings for originals.

#### Fax

Explains Facsimile functions and operations.

#### **Print**

Describes how to print using the printer driver. It also describes the functions available for printing.

#### Scan

Describes how to scan paper data using this machine and how to send the scanned data to a computer and store the data.

#### Connecting the Machine/ System Settings

Explains how to connect the machine to a network, and configure and operate the machine in a network environment. Also explains how to change User Tools settings and how to register information in the Address Book.

#### PostScript 3

Explains how to set up and use PostScript® 3<sup>TM</sup>.

#### **Extended Feature Settings**

Describes how to configure the extended features using the control panel or Web Image Monitor.

#### Security Guide

This manual is for administrators of the machine. It explains security functions that you can use to prevent unauthorized use of the machine, data tampering, or information leakage. For enhanced security, we recommend that you first make the following settings:

- Install the Device Certificate.
- Enable SSL (Secure Sockets Layer) Encryption.
- Change the user name and password of the administrator.

For details, see "Before Using This Machine", Security Guide.

Be sure to read this manual when setting the enhanced security functions, or user and administrator authentication.

#### **Driver Installation Guide**

Describes how to install and configure each driver. This manual is included in the drivers CD.



- Manuals provided are specific to machine types.
- Driver Installation Guide and HTML manuals are available in English, German, French, Italian, Spanish, Dutch, and Russian.

- You can download information about the machine's certification, which is based on an IT security
  certification system (hereafter CC Certification), from the following URLs. This information is about
  how to set up the machine. If you have purchased a CC Certified machine, be sure to read it
  before operating the machine so you can make the correct settings before using it.
  - Type 1 and 2

http://support-download.com/services/device/ccmanual/mp\_c3003\_c3503/en/download\_admin.html

http://support-download.com/services/device/ccmanual/mp\_c3003\_c3503/en/download\_user.html

• Type 3, 4, and 5

http://support-download.com/services/device/ccmanual/mp\_c4503\_c5503\_c6003/en/download\_admin.html

http://support-download.com/services/device/ccmanual/mp\_c4503\_c5503\_c6003/en/download\_user.html

• The following software products are referred to using general names:

Product name	General name	
ScanRouter EX Professional *1 and ScanRouterEX Enterprise *1	the ScanRouter delivery software	

\* 1 The ScanRouter EX Professional and ScanRouterEX Enterprise are no longer available for sale.

#### Manuals List

Manual Name	Printed Manuals Provided	HTML Manuals Provided	PDF Manuals Provided
User Guide	Yes	No	Yes
Read This First	Yes	No	No
Easy Search	No	Yes	No
Getting Started	No	Yes	No
Paper Specifications and Adding Paper	No	Yes	No
Convenient Functions	No	Yes	No
Maintenance and Specifications	No	Yes	No

Manual Name	Printed Manuals Provided	HTML Manuals Provided	PDF Manuals Provided
Troubleshooting	No	Yes	No
Copy/ Document Server	No	Yes	No
Fax	No	Yes	No
Print	No	Yes	No
Scan	No	Yes	No
Connecting the Machine/ System Settings	No	Yes	No
PostScript 3	No	Yes	No
Extended Feature Settings	No	Yes	No
Security Guide	No	No	Yes
Driver Installation Guide	No	No	Yes



• Driver Installation Guide and HTML manuals are available in English, German, French, Italian, Spanish, Dutch, and Russian.

## **On-screen Operating Instructions**

This chapter describes the on-screen operating instructions of this machine. The on-screen operating instructions are included in the supplied manual CD-ROM.

### Formats of the Operating Instructions

The operating instructions of this machine are provided in the following formats:

- Printed manuals
- HTML manuals
- PDF manuals

For details about the contents of each manual, see page 5 "Manuals for This Machine". The various manuals are available in different formats. For details about availability, see page 7 "Manuals List".

#### Reading the HTML Manuals on the CD-ROM

This section describes how to read the HTML manuals on the supplied manual CD-ROM.

- 1. Insert the CD-ROM in the CD-ROM drive of your computer.
- 2. Select a language, and then click [OK].
- 3. Click [Read HTML manuals].

The browser opens.

4. Click the title of manual you want to read.



- Recommended browsers:
  - Internet Explorer 6 or later
  - Firefox 3.5 or later
  - Safari 4.0 or later
- If you want to read the HTML manuals on a Macintosh, insert the CD-ROM in the CD-ROM drive, and then open "Manuals.htm".
- If JavaScript is disabled or unavailable in your browser, you will not be able to search or use certain buttons in the HTML documentation.
- HTML manuals are available in English, German, French, Italian, Spanish, Dutch, and Russian.

#### Installing and Opening the HTML Manuals

This section describes how to install and open the HTML manuals on your computer.

For your convenience, we recommend you install these manuals on your computer.

- 1. Insert the CD-ROM in the CD-ROM drive of your computer.
- 2. Select a language, and then click [OK].
- 3. Click [Install manuals].
- 4. Install the HTML manuals by following the on-screen instructions.
- 5. When the installation is complete, click [Finish].
- 6. Click [Exit].
- 7. Open the HTML manuals that you installed.

To open the manuals from an icon, double-click the icon on the desktop. To open the manuals from the [Start] menu, point to [All Programs], and then click [Product Name].

8. Click the title of the manual you want to read.



- You need administrator permissions to install the manuals. Log in as an Administrators group member.
- The system requirements for installing the manuals are as follows:
  - Operating system: Windows XP/Vista/7/8, Windows Server 2003/2003 R2/2008/2008 R2/2012
  - Minimum display resolution: 800 × 600 pixels
- If you cannot install a manual, copy the "MANUAL\_HTML" folder to your computer's hard drive, and then run "setup.exe".
- To delete an installed manual, on the [Start] menu, point to [All Programs], click [Product Name], and then uninstall the data.
- Depending on the settings made during installation, menu folder names may differ.
- HTML manuals are available in English, German, French, Italian, Spanish, Dutch, and Russian.

### Reading the PDF Manuals on the CD-ROM

This section describes how to read the PDF manuals on the supplied manual CD-ROM.

#### File path

The manuals are included in the following folder on the CD-ROM:

MANUAL\_PDF\(language)

- 1. Insert the CD-ROM in the CD-ROM drive of your computer.
- 2. Select a language, and then click [OK].
- 3. Click [Read PDF manuals].



- To view the PDF manuals, you need to have Adobe Acrobat Reader/Adobe Reader installed on your computer.
- If you want to read the PDF manuals on a Macintosh, insert the CD-ROM in the CD-ROM drive, and then open "Manuals.htm".
- Driver Installation Guide is available in English, German, French, Italian, Spanish, Dutch, and Russian.

# 2. Safety Information for This Machine

This chapter describes the safety precautions.

## **Safety Information**

#### Safety During Operation

In this manual, the following important symbols are used:

#### **⚠ WARNING**

Indicates a potentially hazardous situation which, if instructions are not followed, could result in death or serious injury.

#### **ACAUTION**

Indicates a potentially hazardous situation which, if instructions are not followed, may result in minor or moderate injury or damage to property.

#### Safety Precautions to Be Followed

This section explains safety precautions that should always be followed when using this machine.

#### Environments where the machine can be used

This section explains safety precautions about environments where the machine can be used.

#### **⚠ WARNING**

• Do not use flammable sprays or solvents in the vicinity of this machine. Doing so could result in fire or electric shock.

### **⚠ WARNING**

• Do not place vases, plant pots, cups, toiletries, medicines, small metal objects, or containers holding water or any other liquids, on or close to this machine. Fire or electric shock could result from spillage or if such objects or substances fall inside this machine.

### CAUTION

 Keep the machine away from humidity and dust. Otherwise a fire or an electric shock might occur.

### **ACAUTION**

 Do not place the machine on an unstable or tilted surface. If it topples over, an injury might occur.

### **ACAUTION**

 Do not place heavy objects on the machine. Doing so can cause the machine to topple over, possibly resulting in injury.

#### **ACAUTION**

• Make sure the room where you are using the machine is well ventilated and spacious. Good ventilation is especially important when the machine is used heavily.

#### **ACAUTION**

 Do not obstruct the machine's vents. Doing so risks fire caused by overheated internal components.

#### Handling power cords and power cord plugs

This section explains safety precautions about handling power cords and power cord plugs.

### **MARNING**

Do not use any power sources other than those that match the specifications shown. Doing so
could result in fire or electric shock.

### **MARNING**

• Do not use any frequencies other than those that match the specifications shown. Doing so could result in fire or electric shock.

### **MARNING**

• Do not use multi-socket adaptors. Doing so could result in fire or electric shock.

### **⚠WARNING**

• Do not use extension cords. Doing so could result in fire or electric shock.

### **MARNING**

Do not use power cords that are damaged, broken, or modified. Also, do not use power cords
that have been trapped under heavy objects, pulled hard, or bent severely. Doing so could
result in fire or electric shock.

### **MARNING**

• Touching the prongs of the power cable's plug with anything metallic constitutes a fire and electric shock hazard.

### **WARNING**

• The supplied power cord is for use with this machine only. Do not use it with other appliances. Doing so could result in fire or electric shock.

### **MARNING**

• It is dangerous to handle the power cord plug with wet hands. Doing so could result in electric shock

### **MARNING**

 If the power cord is damaged and its inner wires are exposed or broken, contact your service representative for a replacement. Use of damaged power cords could result in fire or electric shock.

### **MARNING**

- Be sure to disconnect the plug from the wall outlet at least once a year and check for the following:
  - There are burn marks on the plug.
  - The prongs on the plug are deformed.
- If any of the above conditions exist, do not use the plug and consult your dealer or service representative. Use of the plug could result in fire or electric shock.

### **MARNING**

- Be sure to disconnect the power cord from the wall outlet at least once a year and check for the following:
  - The power cord's inner wires are exposed, broken, etc.
  - The power cord's coating has a crack or dent.
  - When bending the power cord, the power turns off and on.
  - Part of the power cord becomes hot.
  - The power cord is damaged.
- If any of the above conditions exist, do not use the power cord and consult your dealer or service representative. Use of the power cord could result in fire or electric shock.

### **ACAUTION**

• Be sure to push the plug of the power cord fully into the wall outlet. Partially inserted plugs create an unstable connection that can result in unsafe buildup of heat.

### **ACAUTION**

• If this machine is not going to be used for several days or longer at a time, disconnect its power cord from the wall outlet.

### **ACAUTION**

When disconnecting the power cord from the wall outlet, always pull the plug, not the cord.
 Pulling the cord can damage the power cord. Use of damaged power cords could result in fire or electric shock.

### **ACAUTION**

• Be sure to disconnect the plug from the wall outlet and clean the prongs and the area around the prongs at least once a year. Allowing dust to build up on the plug constitutes a fire hazard.

### **ACAUTION**

 When performing maintenance on the machine, always disconnect the power cord from the wall outlet.

#### Handling the main machine

This section explains safety precautions about handling the main machine.

### **WARNING**

Be sure to locate the machine as close as possible to a wall outlet. This will allow easy
disconnection of the power cord in the event of an emergency.

### **MARNING**

If the machine emits smoke or odours, or if it behaves unusually, you must turn off its power
immediately. After turning off the power, be sure to disconnect the power cord plug from the
wall outlet. Then contact your service representative and report the problem. Do not use the
machine. Doing so could result in fire or electric shock.

#### **WARNING**

If metal objects, or water or other fluids fall inside this machine, you must turn off its power
immediately. After turning off the power, be sure to disconnect the power cord plug from the
wall outlet. Then contact your service representative and report the problem. Do not use the
machine. Doing so could result in fire or electric shock.

### **MARNING**

• Do not touch this machine if a lightning strike occurs in the immediate vicinity. Doing so could result in electric shock.

### **MARNING**

- The following explains the warning messages on the plastic bag used in this product's packaging.
  - Keep the polythene materials (bags, etc.) supplied with this machine away from babies
    and small children at all times. Suffocation can result if polythene materials are brought into
    contact with the mouth or nose.

### **ACAUTION**

Unplug the power cord from the wall outlet before you move the machine. While moving the
machine, take care that the power cord is not damaged under the machine. Failing to take these
precautions could result in fire or electric shock.

### **ACAUTION**

If you have to move the machine when the optional paper tray unit is attached, do not push on
the main unit's top section. Doing so can cause the optional paper tray unit to detach, possibly
resulting in injury.

### **ACAUTION**

After you move the machine, use the caster fixture to fix it in place. Otherwise the machine might
move or come down to cause an injury.

### **CAUTION**

 If the lower paper tray is installed, do not pull out more than one tray at a time when you are changing or replenishing paper or resolving paper jams. Pressing down forcefully on the machine's upper surfaces can result in malfunctions and/or user injury.

### **ACAUTION**

 Contact your service representative if you need to lift the machine (such as when relocating it to another floor). Do not attempt to lift the machine without the assistance of your service representative. The machine will be damaged if it topples or is dropped, resulting in malfunction and risk of injury to users.

#### **CAUTION**

• Do not look into the lamp. It can damage your eyes.

### **ACAUTION**

• Do not hold the control panel while moving the machine. Doing so may damage the control panel, cause a malfunction, or result in injury.

### **ACAUTION**

• Keep your hands away from the hinges and exposure glass when lowering the ADF. Not doing so result in an injury if your hands or fingers are pinched.

### Handling the machine's interior

This section explains safety precautions about handling the machine's interior.

### **MARNING**

- Do not remove any covers or screws other than those explicitly mentioned in this manual. Inside
  this machine are high voltage components that are an electric shock hazard and laser
  components that could cause blindness. Contact your sales or service representative if any of the
  machine's internal components require maintenance, adjustment, or repair.
- Do not attempt to disassemble or modify this machine. Doing so risks burns and electric shock. Note again that exposure to the laser components inside this machine risks blindness.

#### **CAUTION**

 Some of this machine's internal components get very hot. For this reason, take care when removing misfed paper. Not doing so could result in burns.

#### **ACAUTION**

• The inside of the machine could be very hot. Do not touch the parts with a label indicating the "hot surface". Otherwise, an injury might occur.

#### **CAUTION**

· When removing jammed paper, make sure not to trap or injure your fingers.

#### **ACAUTION**

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

#### **ACAUTION**

Keep your hands clear of the booklet finisher tray when removing misfed paper, pulling out or
pushing in the finisher's staple unit. You can trap and injure your fingers if you do not.

### **ACAUTION**

 During operation, rollers for transporting the paper and originals revolve. A safety device has been installed so that the machine can be operated safely. But take care not to touch the machine during operation. Otherwise, an injury might occur.

### **ACAUTION**

If the machine's interior is not cleaned regularly, dust will accumulate. Fire and breakdown can
result from heavy accumulation of dust inside this machine. Contact your sales or service
representative for details about and charges for cleaning the machine's interior.

#### Handling the machine's supplies

This section explains safety precautions about handling the machine's supplies.

### **WARNING**

Do not incinerate toner (new or used) or toner containers. Doing so risks burns. Toner will ignite
on contact with naked flame.

### **MARNING**

Do not store toner (new or used) or toner containers anywhere near naked flames. Doing so
risks fire and burns. Toner will ignite on contact with naked flame.

### **MARNING**

Do not use a vacuum cleaner to remove spilled toner (including used toner). Absorbed toner
may cause a fire or explosion due to electrical contact flickering inside the vacuum cleaner.
However, it is possible to use a vacuum cleaner that is explosion-proof and dust ignition-proof. If
toner is spilled on the floor, remove the spilled toner slowly using a wet cloth, so that the toner is
not scattered.

#### **WARNING**

- The following explains the warning messages on the plastic bag used in this product's packaging.
  - Keep the polythene materials (bags, etc.) supplied with this machine away from babies
    and small children at all times. Suffocation can result if polythene materials are brought into
    contact with the mouth or nose.

### **CAUTION**

• Do not crush or squeeze toner containers. Doing so can cause toner spillage, possibly resulting in dirtying of skin, clothing, and floor, and accidental ingestion.

### **ACAUTION**

 Store toner (new or used), toner containers, and components that have been in contact with toner out of reach of children.

### **ACAUTION**

• If toner or used toner is inhaled, gargle with plenty of water and move into a fresh air environment. Consult a doctor if necessary.

### **ACAUTION**

• If toner or used toner gets into your eyes, flush immediately with large amounts of water. Consult a doctor if necessary.

### **ACAUTION**

• If toner or used toner is swallowed, dilute by drinking a large amount of water. Consult a doctor if necessary.

#### **CAUTION**

When replacing a toner or waste toner container or consumables with toner, make sure that the
toner does not splatter. Put the waste consumables in a bag after they are removed. For
consumables with a lid, make sure that the lid is shut.

### **ACAUTION**

 When removing jammed paper or replacing toner, avoid getting toner (new or used) on your clothing. If toner comes into contact with your clothing, wash the stained area with cold water. Hot water will set the toner into the fabric and make removing the stain impossible.

#### **ACAUTION**

 When removing jammed paper or replacing toner, avoid getting toner (new or used) on your skin. If toner comes into contact with your skin, wash the affected area thoroughly with soap and water.

#### **ACAUTION**

 Do not attempt to print on stapled sheets, aluminum foil, carbon paper, or any kind of conductive paper. Doing so risks fire.

### **ACAUTION**

• Keep SD cards or USB flash memory devices out of reach of children. If a child accidentally swallows an SD card or USB flash memory device, consult a doctor immediately.

# **Safety Labels of This Machine**

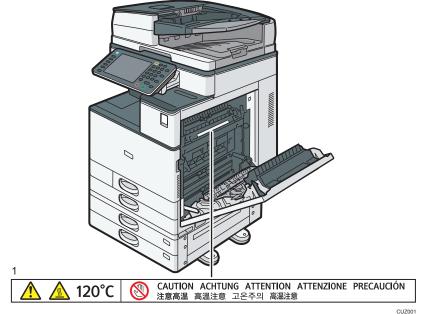
This section explains the machine's safety information labels.

#### Positions of WARNING and CAUTION labels

This machine has labels for  $\triangle$ WARNING and  $\triangle$ CAUTION at the positions shown below. For safety, please follow the instructions and handle the machine as indicated.

#### Main unit

2



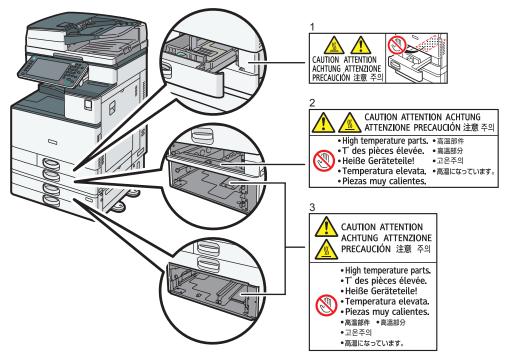
CUZU

1.

Do not touch the parts a label indicates. The inside of the machine could be very hot. Caution should be taken when removing misfed paper.

22

#### Paper trays



CUZ002

1.

The inside of the machine could be very hot. Do not touch the parts which a label is put on. Otherwise, an injury might occur.

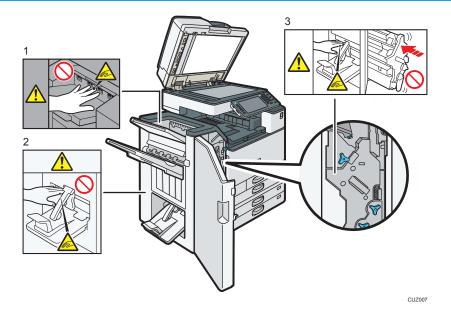
2.

The inside of the machine could be very hot. Do not touch the parts which a label is put on. Otherwise, an injury might occur.

3.

The inside of the machine could be very hot. Do not touch the parts which a label is put on. Otherwise, an injury might occur.

#### Finisher SR3140 or Booklet Finisher SR3150



1.

During operation, rollers for transporting the paper revolve. Take care not to touch rollers during operation. Otherwise, an injury might occur.

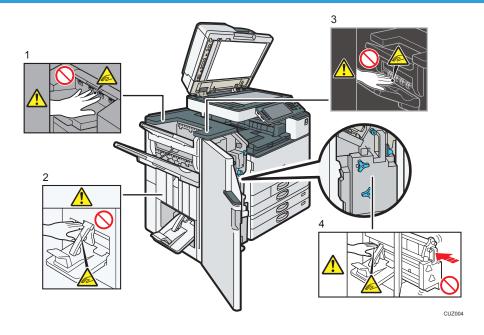
2.

Keep your hands clear of the booklet finisher tray when pulling out or pushing in the finisher's staple unit, or removing paper jam. You might trap your fingers if you do not. Take care not to touch the booklet finisher tray during operation. Otherwise, an injury might occur.

3.

Keep your hands clear of the booklet finisher tray when pulling out or pushing in the finisher's staple unit, or removing paper jam. You might trap your fingers if you do not.

#### Finisher SR3160 or Booklet Finisher SR3170



1.

During operation, rollers for transporting the paper revolve. Take care not to touch rollers during operation. Otherwise, an injury might occur.

2.

Keep your hands clear of the booklet finisher tray when pulling out or pushing in the finisher's staple unit, or removing paper jam. You might trap your fingers if you do not. Take care not to touch the booklet finisher tray during operation. Otherwise, an injury might occur.

3.

During operation, rollers for transporting the paper revolve. Take care not to touch rollers during operation. Otherwise, an injury might occur.

4.

Keep your hands clear of the booklet finisher tray when pulling out or pushing in the finisher's staple unit, or removing paper jam. You might trap your fingers if you do not.

## **Power Switch Symbols**

The meanings of the symbols for the switches on this machine are as follows:

- I : POWER ON
- U : STANDBY

## 3. Other Information for This Machine

This chapter describes laws and regulations related to this machine.

## Laws and Regulations

#### **Duplication and Printing Prohibited**

Do not copy or print any item for which reproduction is prohibited by law.

Copying or printing the following items is generally prohibited by local law:

bank notes, revenue stamps, bonds, stock certificates, bank drafts, checks, passports, driver's licenses.

The preceding list is meant as a guide only and is not inclusive. We assume no responsibility for its completeness or accuracy. If you have any questions concerning the legality of copying or printing certain items, consult with your legal advisor.

This machine is equipped with a function that prevents making counterfeit bank bills. Due to this function the original images similar to bank bills may not be copied properly.

### Laser Safety

### Laser Safety for Type 1 and 2

#### **CDRH Regulations**

This equipment complies with requirements of 21 CFR Subchapter J for class I laser product. This equipment contains four AlGaInP laser diodes, 655–663 nanometer wavelength for each emitter. The beam divergence angle is 21 degrees (minimum) and 29 degrees (maximum) in the vertical direction, and 7 degrees (minimum) and 11 degrees (maximum) in the horizontal direction, and laser beams are generated in Continuous Wave (CW) mode. The maximum output power of the light source is 10 milliwatt.

#### Caution:

Use of controls or adjustments or performance of procedures other than those specified in the manuals might result in hazardous radiation exposure.

### Laser Safety for Type 3, 4, and 5

#### **CDRH Regulations**

This equipment complies with requirements of 21 CFR Subchapter J for class I laser product. This equipment contains four 4ch-Laser Diode Arrays (4ch-LDA). Laser diodes are AlGaInP, 657–663

nanometer wavelength for each emitter. The beam divergence angle is 16 degrees (minimum) and 23 degrees (maximum) in the vertical direction, and 7 degrees (minimum) and 12 degrees (maximum) in the horizontal direction, and laser beams are generated in Continuous Wave (CW) mode. Each 4ch-LDA has four light sources and the maximum output power of the light source is 17 milliwatt.

#### Caution:

Use of controls or adjustments or performance of procedures other than those specified in the manuals might result in hazardous radiation exposure.

#### Notes to USA Users of FCC Requirements

#### Part 15 of the FCC Rules

#### **Declaration of Conformity**

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.

Responsible party: Ricoh Americas Corporation

Address: 5 Dedrick Place, West Caldwell, NJ 07006

Telephone number: 973-882-2000

Product Name: Multi Function Peripheral

#### Model Number:

• Type 1: MP C3003SP/MP C3003SPG

• Type 2: MP C3503SP/MP C3503SPG

• Type 3: MP C4503SP/MP C4503SPG

Type 4: MP C5503SP/MP C5503SPG

Type 5: MP C6003SP/MP C6003SPG

#### 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

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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.

#### Caution:

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

#### Installing the Ferrite Core

A network interface cable and a telephone line cable with a ferrite core must be used for RF interference suppression.

#### Part 68 of the FCC Rules regarding Facsimile Unit

- This equipment complies with Part 68 of the FCC rules and requirements adopted by the ACTA. On
  the cover of this equipment is a label that contains, among other information, a product identifier in
  the format US:AAAEQ##TXXXXXX. If requested, this number must be provided to the telephone
  company.
- 2. This equipment uses the RJ11C USOC jack.
- 3. A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It is designed to be connected to a compatible modular jack that is also compliant. See installation instructions for detail.
- 4. The REN is used to determine the number of devices that may be connected to a telephone line. Excessive RENs on a telephone line may result in the devices not ringing in response to an incoming call. In most but not all areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company. The REN for this product is part of the product identifier that has the format US:AAAEQ##TXXXXXX. The digits represented by ## are the REN without a decimal point (e.g., 03 is a REN of 0.3).
- 5. If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.
- 6. The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens the telephone company will

provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

- 7. If trouble is experienced with this equipment, for repair or warranty information, please contact Ricoh Americas Corporation Customer Support Department at 1-800-FASTFIX. If this device is causing problems with your telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.
- 8. In the event of operation problems (document jam, copy jam, communication error indication), see the manual provided with this machine for instruction on resolving the problem.
- 9. Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.
- 10. If your home has specially wired alarm equipment connected to the telephone line, ensure the installation of this equipment does not disable your alarm equipment. If you have questions about what will disable alarm equipment, consult your telephone company or a qualified installer.

# WHEN PROGRAMMING EMERGENCY NUMBERS AND/OR MAKING TEST CALLS TO EMERGENCY NUMBERS:

- Remain on the line and briefly explain to the dispatcher the reason for the call before hanging
  up.
- 2. Perform such activities in the off-peak hours, such as early morning hours or late evenings.

The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device, including FAX machines, to send any message unless such message clearly contains in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent and an identification of the business or other entity, or other individual sending the message and the telephone number of the sending machine or such business, other entity, or individual. (The telephone number provided may not be a 900 number or any other number for which charges exceed local or long-distance transmission charges.)

In order to program this information into your FAX machine, you should complete the following steps: Follow the FAX HEADER programming procedure in the Programming chapter of the operating instructions to enter the business identification and telephone number of the terminal or business. This information is transmitted with your document by the FAX HEADER feature. In addition to the information, be sure to program the date and time into your machine.

## Important Safety Instructions for Facsimile Unit

When using your telephone equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury to persons, including the following:

- Do not use this product near water, for example, near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
- Avoid using a telephone during an electrical storm. There may be a remote risk of electric shock from lightning.

- Do not use a telephone in the vicinity of a gas leak to report the leak.
- Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a
  fire. They may explode. Check with local codes for possible special disposal instructions.

Save these instructions.

#### IMPORTANTES MESURES DE SÉCURITÉ de l'unité Fax

Certaines mesures de sécurité doivent être prises pendant l'utilisation de material téléphonique afin de réduire les risques d'incendie, de choc électrique et de blessures. En voici quelques-unes:

- Ne pas utiliser l'appareil près de l'eau, p.ex., près d'une baignoire, d'un lavabo, d'un évier de cuisine, d'un bac à laver, dans un sous-sol humide ou près d'une piscine.
- Éviter d'utiliser le téléphone (sauf s'il s'agit d'un appareil sans fil) pendant un orage électrique. Ceci peut présenter un risque de choc électrique causé par la foudre.
- Ne pas utiliser l'appareil téléphonique pour signaler une fuite de gaz s'il est situé près de la fuite.
- Utiliser seulement le cordon d'alimentation et le type de piles indiqués dans ce manual. Ne pas jeter les piles dans le feu: elles peuvent exploser. Se conformer aux règlements pertinents quant à l'élimination des piles.

Conserver ces instructions.

#### Notes to Canadian Users of Facsimile Unit

This product meets the applicable Industry Canada technical specifications.

The Ringer Equivalence Number is an indication of the maximum number of devices allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the RENs of all the devices does not exceed five.

#### Remarques à l'attention des utilisateurs canadiens de l'unité Fax

Le présent matériel est conforme aux spécifications techniques applicables d'Industrie Canada.

L'indice d'équivalence de la sonnerie (IES) sert à indiquer le nombre maximal de terminaux qui peuvent être raccordés à une interface téléphonique. La terminaison d'une interface peut consister en une combinaison quelconque de dispositifs, à la seule condition que la somme d'indices d'équivalence de la sonnerie de tous les dispositifs n'excède pas 5.

## **Other Information**

### **ENERGY STAR Program**

### ENERGY STAR® Program Requirements for Imaging Equipment



This company is a participant in the ENERGY STAR  $^{\circledR}$  Program.

This machine is compliant with the regulations specified by the  $\mathsf{ENERGY}\ \mathsf{STAR}^{\circledR}\ \mathsf{Program}.$ 

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 multi-function devices. Energy Star standards and logos are internationally uniform.



• For details about the "default delay time", see page 32 "Energy Saving Functions".

### **Energy Saving Functions**

To reduce its power consumption, this machine has the following functions:

#### Low Power mode for Type 3, 4, and 5

- If this machine remains idle for a specified period, it automatically reduces its electrical consumption.
- The default period the machine waits before entering Low Power mode is 1 minute. This default time can be changed.

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#### Sleep mode

- If this machine remains idle for a specified period or when the [Energy Saver] key is pressed, it enters Sleep mode to further reduce its electrical consumption.
- The default delay time the machine waits before entering Sleep mode is 1 minute. This default time can be changed.
- The machine can print jobs from computers and receive faxes while in Sleep mode.

#### Specification for Type 1 and 2

	Туре 1	Туре 2
Reduced electrical consumption in Sleep mode *1	0.49 W	0.49 W
Time of switch into Sleep mode	1 minute	1 minute
Time of switch out from Sleep mode *1	5.6 seconds	5.6 seconds

<sup>\* 1</sup> The time it takes to switch out from energy saving functions and electrical consumption may differ depending on the conditions and environment of the machine.

#### Specification for Type 3, 4, and 5

	Type 3	Type 4	Type 5
Reduced electrical consumption in Low Power mode * 1	67 W	67 W	67 W
Time of switch into Low Power mode	1 minute	1 minute	1 minute
Time of switch out from Low Power mode *1	4.9 seconds	6.4 seconds *2	6.4 seconds *2
Reduced electrical consumption in Sleep mode *1	0.55 W	0.55 W	0.56 W
Time of switch into Sleep mode	1 minute	1 minute	1 minute
Time of switch out from Sleep mode * 1	5.3 seconds	6.4 seconds *2	6.4 seconds *2

- \* 1 The time it takes to switch out from energy saving functions and electrical consumption may differ depending on the conditions and environment of the machine.
- \*2 The time it takes to switch from energy saving functions may differ depending on the functions you use and options you install.



- Specifications can vary depending on which options are installed on the machine.
- For details about how to change the default interval, see "Timer Settings", Connecting the Machine/ System Settings.
- The machine enters sleep mode directly in the following situations:
  - · Low Power Mode Timer and Sleep Mode Timer are set to the same time
  - Sleep Mode Timer is set to a shorter time than Low Power Mode Timer
- Depending on which embedded software application is installed on it, the machine might take longer than indicated to enter Sleep mode.

#### 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

# 4. Appendix

This appendix describes trademarks and specifications for the machine.

# **Specifications**

For specifications not described in this manual, see "Specifications", Maintenance and Specifications.

#### Warm-up time

- Type 1: 19 seconds
- Type 2: 19 seconds
- Type 3: 20 seconds
- Type 4: 16 seconds
- Type 5: 16 seconds \*1

(23°C (73.4°F), rated voltage)

\*1 The warm-up time may differ depending on the functions you use and options you install.

#### First copy/print time

- Type 1
  - Full color: 7.1 seconds
  - B&W: 4.6 seconds
- Type 2
  - Full color: 7.1 seconds
  - B&W: 4.6 seconds
- Type 3
  - Full color: 5.7 seconds
  - B&W: 4.0 seconds
- Type 4
  - Full color: 4.5 seconds
  - B&W: 3.1 seconds
- Type 5
  - Full color: 4.5 seconds
  - B&W: 3.1 seconds

 $(A4D, 8^{1}/_{2} \times 11D, delivered face down, feeding from tray 1, on the exposure glass)$ 

#### **Power consumption**

· Main unit only

	Type 1	Type 2	Type 3	Type 4	Type 5
Ready	78 W	78 W	107 W	107 W	107 W
During printing	515 W	515 W	758 W	959 W	959 W
Maximum	1,584 W or less				

The power level when the main switch is turned off and the power cord is plugged into an outlet: 1 W or less

Complete system

	Type 1	Type 2	Type 3	Type 4	Type 5
Maximum	1,584 W or less	1,584 W or less	1,584 W or less	1,584 W or less	1,584 W or less

- The complete system of Type 1 and 2 consists of the main unit, ARDF, lower paper trays, internal tray 2, large capacity tray (LCT), bridge unit, Booklet Finisher SR3150, fax unit, two extra G3 interface unit, and wireless LAN board.
- The complete system of Type 3, 4, and 5 consists of the main unit, one-pass duplex scanning ADF, lower paper trays, internal tray 2, large capacity tray (LCT), bridge unit, Booklet Finisher SR3170, fax unit, two extra G3 interface unit, and wireless LAN board.

#### Power consumption when using the facsimile function

• Immediate Transmission:

approx. 115 W

• Memory Transmission:

approx. 100 W

• Memory Reception:

approx. 100 W

• Reception:

approx. 585 W

#### Noise emission

- Sound power level:
  - Main unit only

	Type 1	Type 2	Туре 3	Type 4	Type 5
Stand-by	32.1 dB (A)	32.2 dB (A)	31.4 dB (A)	31.5 dB (A)	32.2 dB (A)
Copying	B&W: 60.8	B&W: 61.3	B&W: 63.1	B&W: 64.6	B&W: 65.4
	dB (A)				
	Color: 62.1	Color: 62.6	Color: 64.1	Color: 66.3	Color: 66.3
	dB (A)				

#### • Complete system

	Type 1	Type 2	Туре 3	Type 4	Type 5
Stand-by	35.0 dB (A)				
Copying	70.1 dB (A)	70.1 dB (A)	72.2 dB (A)	73.3 dB (A)	73.3 dB (A)

#### • Sound pressure level:

#### • Main unit only

	Type 1	Type 2	Туре 3	Type 4	Type 5
Stand-by	19.1 dB (A)	19.4 dB (A)	18.6 dB (A)	19.3 dB (A)	19.3 dB (A)
Copying	B&W: 48.8	B&W: 50	B&W: 51.8	B&W: 53	B&W: 52.6
	dB (A)				
	Color: 49.7	Color: 50.4	Color: 52.7	Color: 54.1	Color: 53.5
	dB (A)				

#### • Complete system

	Type 1	Type 2	Туре 3	Type 4	Type 5
Stand-by	29.0 dB (A)				
Copying	64.1 dB (A)	64.1 dB (A)	66.2 dB (A)	67.3 dB (A)	67.3 dB (A)

- 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.
- The complete system of Type 1 and 2 consists of the main unit, ARDF, lower paper trays, internal tray 2, large capacity tray (LCT), bridge unit, and Booklet Finisher SR3150.

- The complete system of Type 3 and 4 consists of the main unit, ARDF, lower paper trays, internal tray 2, large capacity tray (LCT), bridge unit, and Booklet Finisher SR3170.
- The complete system of Type 5 consists of the main unit, one-pass duplex scanning ADF, lower paper trays, internal tray 2, large capacity tray (LCT), bridge unit, and Booklet Finisher SR3 170.

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### **Trademarks**

Adobe, Acrobat, PostScript, PostScript 3, and Reader are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States and/or other countries.

Firefox is a registered trademark of the Mozilla Foundation.

Macintosh and Safari are trademarks of Apple Inc., registered in the United States 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.

The SD is a trademark of SD-3C, LLC.

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 XP are as follows:

Microsoft® Windows® XP Professional

Microsoft® Windows® XP Home Edition

Microsoft® Windows® XP Media Center Edition

Microsoft® Windows® XP Tablet PC Edition

• 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 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 Server 2003 are as follows:

Microsoft® Windows Server® 2003 Standard Edition

Microsoft® Windows Server® 2003 Enterprise Edition

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• 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

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

Microsoft® Windows Server® 2008 Standard

Microsoft® Windows Server® 2008 Enterprise

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

Microsoft® Windows Server® 2008 R2 Standard

Microsoft® Windows Server® 2008 R2 Enterprise

• 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

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.

# MP C3003/C3503/C4503/ C5503/C6003 series









# **User Guide**

What You Can Do with This Machine	1
Getting Started	2
Сору	3
Fax	4
Print	5
Scan	6
Document Server	7
Web Image Monitor	8











Troubleshooting

CD-ROM.

Adding Paper and Toner

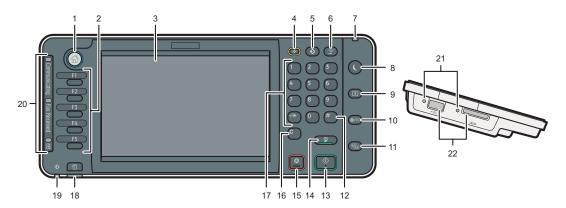




For safe and correct use, be sure to read the Safety Information in "Read This First" before using the machine.

# Guide to the Names and Functions of the Machine's Control Panel

This illustration shows the control panel of the machine with options fully installed.



#### 1. [Home] key

Press to display the [Home] screen. For details, see "How to Use the [Home] Screen".

#### 2. Function keys

No functions are registered to the function keys as a factory default. You can register often used functions, programs, and Web pages. For details, see "Configuring function keys", Getting Started .

#### 3. Display panel

Displays keys for each function, operation status, or messages. See "How to Use the Screens on the Control Panel", Getting Started .

#### 4. [Reset] key

Press to clear the current settings.

#### [Program] key (copier, Document Server, facsimile, and scanner mode)

- Press to register frequently used settings, or to recall registered settings. See "Registering Frequently Used Functions", Convenient Functions
- Press to program defaults for the initial display when modes are cleared or reset, or immediately after the main power switch is turned on.

See "Changing the Default Functions of the Initial Screen", Convenient Functions .

#### 6. [Interrupt] key

Press to make interrupt copies. See "Interrupt Copy", Copy/ Document Server .

#### 7. Main power indicator

The main power indicator goes on when you turn on the main power switch.

#### 8. [Energy Saver] key

Press to switch to and from Low Power mode or Sleep mode. See "Saving Energy", Getting Started .

When the machine is in Low Power mode, the [Energy Saver] key is lit. In Sleep mode, the [Energy Saver] key flashes slowly.

#### 9. [Login/Logout] key

Press to log in or log out.

#### 10. [User Tools/Counter] key

• User Tools

Press to change the default settings to meet your requirements. See "Accessing User Tools", Connecting the Machine/ System Settings .

#### Counter

Press to check or print the counter value. See "Counter", Maintenance and Specifications .

You can find out where to order expendable supplies and where to call when a malfunction occurs. You can also print these details. See "Checking Inquiry Using the User Tools", Maintenance and Specifications .

#### 11. [Simple Screen] key

Press to switch to the simple screen. See "Switching Screen Patterns", Getting Started .

#### 12. [#] key (Enter key)

Press to confirm values entered or items specified.

#### 13. [Start] key

Press to start copying, printing, scanning, or sending.

#### 14. [Sample Copy] key

Press to make a single set of copies or prints to check print quality before making multiple sets.

See "Sample Copy", Copy/ Document Server

...

#### 15. [Stop] key

Press to stop a job in progress, such as copying, scanning, faxing, or printing.

#### 16. [Clear] key

Press to delete a number entered.

#### 17. Number keys

Use to enter the numbers for copies, fax numbers and data for the selected function.

#### 18. [Check Status] key

Press to check the machine's system status, operational status of each function, and current jobs. You can also display the job history and the machine's maintenance information.

# Data In indicator (facsimile and printer mode)

Flashes when the machine is receiving print jobs or LAN-Fax documents from a computer. See Fax and Print .

# Communicating indicator, Fax Received indicator, Confidential File indicator

- Communicating indicator
   Lights continuously during data transmission and reception.
- Confidential File indicator
   Lights continuously while personal box data
   is being received. Blinks while Memory
   Lock file is being received. See "Personal
   Boxes" and "Printing a File Received with
   Memory Lock", Fax .

#### 21. Media access lamp

Lights up when a removable memory device is inserted in the media slot.

#### 22. Media slots

Use to insert an SD card or a USB flash memory device.

#### Simple Screen

When you press the [Simple Screen] key, the screen changes to the simplified display. Letters and keys are displayed at a larger size, making operations easier.

Certain keys do not appear on the simplified display.

### **Quick Reference Copy Guide**

# Tips

#### Paper Size



#### **Paper Size**

You can check the paper size using the scale on the exposure glass.

#### **Auto Image Density**

Dark texture originals will be copied so that background will not be reproduced.

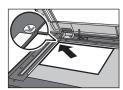
#### **Auto Paper Select**

Selects a suitable size of paper automatically.

#### How to make Copies...

(Placing Originals, Paper Specifications and Adding Paper , Basic Copying)

- Press the [Home] key on the top left of the control panel, and press the [Copier] icon on the [Home] screen.
- 2 Press the [Reset] key.
- Place the originals.
  - Exposure Glass (Face down)



- Auto Document Feeder (Face up)
  - ARDF



 One-pass duplex scanning ADF



- 4 Make desired settings.
- **5** Enter the number of copies.
- G Press the [Start] key.

#### How to select a color mode...

(Color Copying)

Select a color mode.



#### How to Reduce/Enlarge...

(Basic Copying)

#### Auto Reduce/Enlarge

Press [Auto Reduce / Enlarge].

Auto Reduce / Enlarge

- 2 Select the paper size.
- Place the originals, and then press the [Start] key.

#### Preset Reduce/Enlarge

1 Press [Reduce / Enlarge].

Reduce / Enlarge

- 2 Select a ratio, and then press [OK].
- Place the originals, and then press the [Start] key. (Paper size is selected automatically.)

#### How to save paper...

(Basic Copying)

- See if original is 1-sided or 2-sided (duplex).
- Dup./Combine/Series
- 2 Press [Dup./Combine/Series].
- **B** Select the original and copy types and/or the orientation.
- 4 Place the originals, and then press the [Start] key.

#### Duplex

#### 1-Sided → 2-Sided

Copies two 1-sided pages on one 2-sided page.



#### 2-Sided → 2-Sided

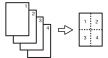
Copies one 2-sided page on one 2-sided page.



#### Combine

#### 1-sided Combine

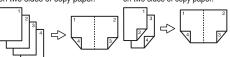
Copies multiple 1-sided or 2-sided originals on one side of copy paper.



#### 2-sided Combine

Copies multiple 1-sided originals on two sides of copy paper.

Copies multiple 2-sided originals on two sides of copy paper.

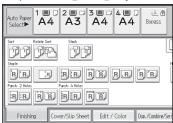


For more functions on Combine, see "Basic Copying", Copy/ Document Server .

#### How to finish your document... (Basic Copying)

#### Staple

- 1 Press [Finishing].
- 2 Select one of the stapling positions (Copies will be sorted automatically).
- Press [OK].
- Inter the number of copies.
- **5** Place the originals, and then press the [Start] key.



#### **Punch**

- 1 Press [Finishing].
- 2 Select one of the punch hole positions (Copies will be hole punched).
- Press [OK].
- 4 Enter the number of copies.
- 5 Place the originals, and then press the [Start] key.
- Staple and Punch can be done at the same time.
- Availability of finishing depends on your configuration.

#### **Document Server**

(Basic Copying)

#### Why use it...

- To store often used documents centrally and print on demand.
- To reduce network load.

#### How to use in copy mode...

1 Press [Store File].

Store File

2 Enter a file name, user name, or password if necessary.



- Specify a folder in which to store the document if necessary.
- Press [OK].
- Place the originals.
- **6** Make the scanning settings for the original.
- Press the [Start] key.



The machine stores scanned originals in memory and makes one set of copies. To find your document, press the [Home] key on the top left of the control panel, and press the [Document Server] icon on the [Home] screen.

For more functions on Document Server. see "Document Server", Copy/ Document Server .

#### **Advanced features**

#### Reduce/Enlarge

- · Zoom: You can specify the reproduction ratio in increments of 1%.
- Magnification: You can specify the horizontal and vertical reproduction ratios, individually.

#### **Series Copies**

· Separately copies the front and back of a 2-sided original onto two sheets.

#### **Booklet/Magazine**

· Copies two or more originals in page order.

(Basic Copying, Advanced Copying)

#### Edit/Stamp

- Image Repeat/Double Copies: The original image is copied repeatedly.
- · Centering: Moves image to center.
- Erase: Erases the center and/or all four sides of the original image.
- Stamps: Copies with the date, page numbers, etc.

#### Cover/Slip Sheet

- Front Cover / Front/Back Cover: Create cover sheets.
- · Designate: Copies certain pages of the original onto designation sheets.

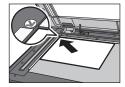


#### **Quick Reference Fax Guide**

#### How to send a fax...

(Transmission)

- Specify a transmission mode:
  - · Memory Transmission, or
  - Immediate Transmission (selected by pressing [Immed. TX])
- 2 Place the original.
  - Exposure glass (Face down)



· Auto Document Feeder (Face up)

ARDF



 One-pass duplex scanning ADF



- **1** Make the scan settings you require.
- Specify a destination.
- Press the [Start] key.

If you choose Memory Transmission, you can send to more destinations at once. To do this, after step 4, specify destinations and press the [Start] key.

To send to an Internet Fax, e-mail, or folder destination, press [Internet Fax], [E-mail], or [Folder] to switch the transmission type.

(T	li			
To:				
Reg. No. N	lanual Entry Ro	scent_ SN	TTP	
Frequent .	48 (D)	EF GH	LJK LMN	OPQ RST
Erench Branch	ERRLIN OFF ICE	NEW YORK O	LONDON OFF ICE	TORONTO OF FICE
COORNIA DETROIT FA CTORY	LOS ANGELE S FACT	ABCD COMPA	(11009) SAN FRANCI SCO OF	(asons) Admin

#### How to program a Destination key...

(Registering Addresses and Users, Connecting the Machine/ System Settings ©)

- 1 Press the [User Tools/Counter] key.
- 2 Press [Address Book Mangmnt].
- D Check that [Program / Change] is selected.
- Press [New Program].
- Press [Change] and set user's information, press [OK].
- 6 Press [Fax Dest.].
- Press [Change] under Fax Destination, enter the fax number using the number keys and press [OK].
- Press [OK].
- Press [Exit].
- Press the [User Tools/Counter] key.

#### How to fax to Document Server...

(Storing a Document)

- 1 Press [Store File].
- 2 Select [Send & Store].
- **B** Set the user name, file name, and password as necessary, and then press [OK].
- Specify a destination, and then press the [Start] key.

#### To send a fax from Document Server:

- 1 Press [Select Stored File].
- 2 Select the documents to be sent, and then press [OK].
- Specify a destination, and then press the [Start] key.

#### How to send at a specific time (Send Later)

(Other Transmission Features)

Using this function, you can instruct the machine to send the fax at a later time via **Memory Transmission.** 

Advantage: you can take advantage of offpeak telephone charges, without being at the machine.

- 1 Place the original, and then select the scan settings you require.
- Press [TX Mode].



Press [Send Later].



- Enter the time using the number keys, and then press [#].
- D Press [OK] twice.

#### Advanced Fax Features

#### **See Fax (a) Operating Instructions:**

- SUB/SEP Codes (Other Transmission Features)

Privacy can be protected when faxing with a SUB/SEP Code, since only people who know the SUB/SEP Code can receive or print the fax document.

- Printed reports (Changing/Confirming Communication Information) Inform you if a fax has been saved, sent, or failed to be transmitted.
- LAN-Fax features Sending a fax from a computer (Fax via Computer)

#### How to cancel a transmission... (Transmission)

#### Memory + Immediate

Before the original is scanned = before pressing the [Start] key:

1 Press the [Reset] key.

While the original is being scanned

- 1 Press the [Stop] key.
- Press [Cancel Scanning] or [Cancel TX].

#### Memory

After the original is scanned

- 1 Press the [Stop] key.
- 2 Press [Standby File List].
- Select the file you want to cancel.
- Press [Stop Transmission], and then press [OK].
- Press [Exit].

#### How to print the Journal...

(Changing/Confirming Communication Information)

The Journal is printed automatically after every 50 communications. You can also request a Journal at any time, by following the procedure below.

Press [TX/RX Status / Print].



Select [Print Journal].



- Select the printing method:

  - [Print per File No.]
  - [Print per User]
- Press the [Start] key.
- Press [Exit] twice.

Chapter references in this guide refer to the bundled OI CD; Fax @ and Connecting the Machine/ System Settings .

#### **Quick Reference Scanner Guide**



To use the scanner functions, several settings must be made beforehand. For details about these settings, see "Accessing User Tools", Connecting the Machine/ System Settings and Scan on the supplied CD-ROM.

#### How to scan...

Available scan functions:

- 1 Scan to E-mail
- 2 Scan to Folder (SMB/FTP/NCP)
- Scan Using WSD (Web Services on Devices)
- Store to Hard Disk
- **5** Save to Memory Storage Device
- **6** Scan to Delivery Server
- Scan via TWAIN Driver
- For details about **2**, **3**, **0**, and **1**, see Scan on the supplied CD-ROM.

#### How to use Scan to E-mail/Scan to Folder...

(Basic Procedure for Sending Scan Files by Email. Basic Procedure When Using Scan to Folder)

- Press the [Home] key on the top left of the control panel, and press the [Scanner] icon on the [Home] screen.
- Make sure that no previous settings remain. If a previous setting remains, press the [Reset] key.
- Press the [E-mail] or [Folder] tab.
- Place originals.
- **I** If necessary, specify the scan settings according to the original to be scanned.
- If necessary, press [Send File Type / Name] to specify settings such as file name and file format.

Specify the destination(s). You can specify multiple destinations.

#### For scan to e-mail:

- Before you select destination(s), make sure you have selected [To]. If necessary, press [Cc] or [Bcc], and then select destination(s).
- B For scan to e-mail only

Specify the e-mail sender.

- Depending on the security settings,
- the logged-in user may be specified as [Sender Name]



- To specify the e-mail sender, press [Sender Name].
- · Select a sender.
- Press [OK].
- For reception confirmation e-mail, press [Recept. Notice].
- D For scan to e-mail only

Enter a subject line if necessary.

- · Press [Subject].
- · Enter the subject.
- Press [OK].
- Press the [Start] key.

#### How to save to the machine's hard disk...

(Storing and Saving the Scanned Documents)

- Press the [Home] key on the top left of the control panel, and press the [Scanner] icon on the [Home] screen.
- Make sure that no previous settings remain. If a previous setting remains, press the [Reset] key.
- Place originals.
- Press [Store File].
- D Press [Store to HDD].
- If necessary, specify file information, such as [User Name], [File Name], and [Password].
- Press [OK].
- If necessary, press [Scan Settings] to specify scanner settings such as resolution and scan size.
- Press the [Start] key.

For details about saving to memory storage device, see "Storing the Scanned Documents to a USB Flash Memory Device or SD Card", Scan on the supplied CD-ROM.

#### Why use it?

To store scanned files in the hard disk of the machine for later (shared) use. (See Scan ②.)

#### Displaying a list of files stored on the machine's hard disk

(Storing and Saving the Scanned Documents)

- Press the [Home] key on the top left of the control panel, and press the [Scanner] icon on the [Home] screen.
- Press [Select Stored File]. The list of stored files is displayed.



#### Registering an E-mail destination...

(Registering Addresses and Users, Connecting the Machine/ System Settings ©)

- Press the [User Tools/Counter] key.
- 2 Press [Address Book Mangmnt].
- D Check that [Program / Change] is selected.
- Select the name whose e-mail address you want to register. Press the name key, or enter the registered number using the number keys.
- Press [E-mail].
- G Press [Change], under "E-mail Address".
- 2 Enter the e-mail address.
- Press [OK].
  For details about registering folders, see
  "Registering Addresses and Users",
  Connecting the Machine/ System Settings

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#### How to Read the Manuals

#### Symbols Used in the Manuals

This manual uses the following symbols:



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.



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

#### Reference

This symbol is located at the end of sections. It indicates where you can find further relevant information.

[]

Indicates the names of keys on the machine's display or control panels.



Indicates instructions stored in a file on a provided CD-ROM.

Region A (mainly Europe and Asia), (mainly Europe) or (mainly Asia)

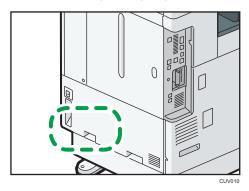
Region B (mainly North America)

Differences in the functions of Region A and Region B models are indicated by two symbols. Read the information indicated by the symbol that corresponds to the region of the model you are using. For details about which symbol corresponds to the model you are using, see page 7 "Model-Specific Information".

## **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
- 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



- 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.
- If your machine is a region A model and "CODE XXXX -27" is printed on the label, see
   "Region A (mainly Europe)" also.
- If your machine is a region A model and "CODE XXXX -29" is printed on the label, see "Region A (mainly Asia)" also.

# Names of Major Features

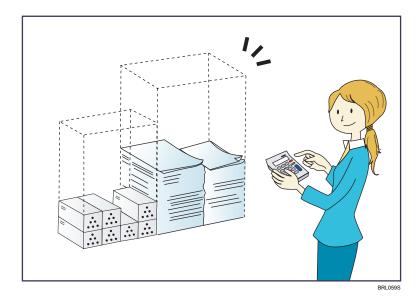
In this manual, major features of the machine are referred to as follows:

- Auto Reverse Document Feeder → ARDF
- Auto Document Feeder → ADF (in this manual, "ADF" refers to the ARDF and the one-pass duplex scanning ADF)
- Large Capacity Tray → LCT

### 1. What You Can Do with This Machine

You can search for a description by what you want to do.

## **Reducing my Costs**



#### Printing multi-page documents on both sides of sheets (Duplex Copy)

 $\Rightarrow$  See "Duplex Copying", Copy/ Document Server 3.

#### Printing multi-page documents and received faxes on a single sheet (Combine (Copier/Fax))

- $\Rightarrow$  See "Combined Copying", Copy/ Document Server 0.
- $\Rightarrow$  See "Combine Two Originals", Fax 3.

#### Printing received faxes on both sides of sheets (2 Sided Print)

 $\Rightarrow$  See "Two-Sided Printing", Fax 3.

#### Converting received faxes to electronic formats (Paperless Fax)

 $\Rightarrow$  See "Confirming/Printing/Deleting Received and Stored Documents", Fax 2.

#### Sending files from the computer without printing them (LAN-Fax)

 $\Rightarrow$  See "Sending Fax Documents from Computers", Fax  $\odot$ .

#### Checking how much paper is saved ([Information] screen)

 $\Rightarrow$  See "How to Use the [Information] Screen", Getting Started  $\odot$ .

#### Reducing electricity consumption

- ⇒ See "Saving Energy", Getting Started .
- $\Rightarrow$  See "Timer Settings", Connecting the Machine/ System Settings 3.



#### Sending scan files

 $\Rightarrow$  See "Basic Procedure for Sending Scan Files by E-mail", Scan 3.

#### Sending the URL of the folder in which scan files are stored

 $\Rightarrow$  See "Sending the URL by E-mail", Scan 2.

#### Storing scan files in a shared folder

 $\Rightarrow$  See "Basic Procedure When Using Scan to Folder", Scan @.

#### Storing scan files on media

⇒ See "Basic Procedure for Saving Scan Files on a Memory Storage Device", Scan

#### Embedding text information in scanned files

 $\Rightarrow$  See "Embedding Text Information in Scanned Data", Scan 0.

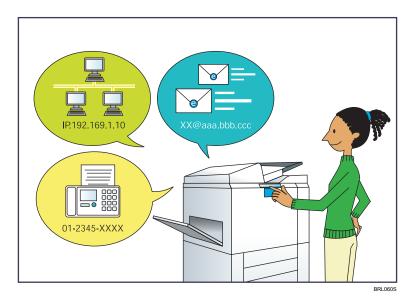
#### Converting transmitted faxes to electronic formats and sending them to a computer

 $\Rightarrow$  See "Overview of Folder Transmission Function", Fax 3.

#### Managing and using documents converted to electronic formats (Document Server)

 $\Rightarrow$  See "Relationship between Document Server and Other Functions", Copy/ Document Server 2.

# **Registering Destinations**



#### Using the control panel to register destinations in the Address Book

- ⇒ See "Registering Entered Destinations to the Address Book", Fax.
- ⇒ See "Registering a destination in the address book manually", Scan.

#### Using Web Image Monitor to register destinations from a computer

 $\Rightarrow$  See "Registering Internet Fax Destination Information Using Web Image Monitor", Fax 3.

#### Downloading destinations registered in the machine to the LAN-Fax driver destination list

⇒ See "Using the machine's Address Book as the LAN-Fax destination list", Fax .





#### Registering and using frequently-used settings (Program)

⇒ See "Registering Functions in a Program", Convenient Functions .

# Registering frequently-used settings as initial settings (Program as Defaults (Copier/Document Server/Fax/Scanner))

⇒ See "Changing the Default Functions of the Initial Screen", Convenient Functions .

#### Registering frequently-used printing settings to the printer driver

⇒ See "Using One Click Presets", Print.

#### Changing the initial settings of the printer driver to frequently-used printing settings

 $\Rightarrow$  See "Displaying the Printing Preferences Dialog Box", Print @ .

#### Adding shortcuts to frequently used programs or Web pages

 $\Rightarrow$  See "Adding Icons to the [Home] Screen", Convenient Functions 3.

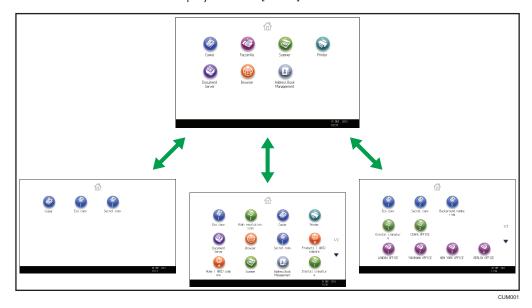
#### Changing the order of the function and shortcut icons

 $\Rightarrow$  See "Changing the Order of Icons on the [Home] Screen", Convenient Functions 2.

#### 1

# Customizing the [Home] Screen

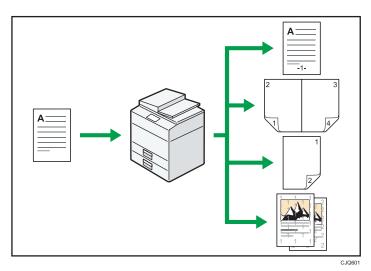
The icons of each function are displayed on the [Home] screen.



- You can add shortcuts to often used programs or Web pages to the [Home] screen. The programs or Web pages can be recalled easily by pressing the shortcut icons.
- You can display only the icons of functions and shortcuts that you use.
- You can change the order of the function and shortcut icons.

#### Reference

- For details about the features on the [Home] screen, see "How to Use the [Home] Screen", Getting Started .
- For details about how to customize the [Home] screen, see "Types of [Home] Screens and How to Customize Them", Convenient Functions.

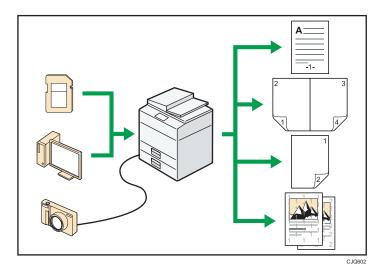


- You can make copies in full color. You can switch the color copy mode depending on the type of originals used and the desired finish.
  - ⇒ See "Copying in Color", Copy/ Document Server .
- You can print stamps on copies. Stamps can include background numbers, scanned images, dates, and page numbers.
  - $\Rightarrow$  See "Stamps", Copy/ Document Server 5.
- You can adjust the color tones and image quality of your copies.
  - $\Rightarrow$  For details about a color adjustment, see "Adjusting Color", Copy/ Document Server @ .
  - $\Rightarrow$  For details about an image adjustment, see "Image Adjustment", Copy/ Document Server 0.
- You can reduce or enlarge the copy image. Auto Reduce / Enlarge function enables the machine
  to detect the original size automatically. Also, it enables the machine to select an appropriate
  reproduction ratio based on the paper size you specify. If the orientation of the original is different
  from that of the paper you are copying onto, the machine rotates the original image by 90 degrees
  to match it with the copy paper.
  - $\Rightarrow$  See "Reducing or Enlarging Originals", Copy/ Document Server  $\odot$ .
- Copier functions such as Duplex, Combine, Booklet, and Magazine allow you to save on paper by copying multiple pages onto single sheets.
  - $\Rightarrow$  For details about duplex copying, see "Duplex Copying", Copy/ Document Serverigotimes .
  - $\Rightarrow$  For details about combined copying, see "Combined Copying", Copy/ Document Server 3.
  - $\Rightarrow$  For details about combined copying, see "Booklet/Magazine", Copy/ Document Server 3.
- You can copy onto various types of paper such as envelopes and OHP transparencies.
  - ⇒ See "Copying onto Various Types of Paper", Copy/ Document Server.

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- The finisher allows you to sort, staple, and punch holes in your copies.
  - $\Rightarrow$  See "Finishing", Copy/ Document Server 2.

# **Printing Data Using Various Functions**



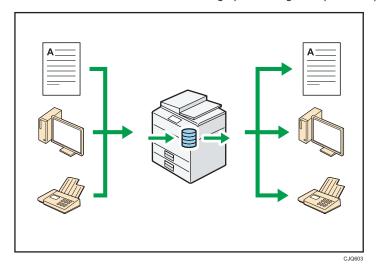
- This machine supports network and local connections.
- You can send PDF files directly to the machine for printing, without having to open a PDF application.
  - $\Rightarrow$  See "Printing a PDF File Directly", Print 3.
- You can print or delete print jobs stored on the machine's hard disk, which have been previously sent from computers using the printer driver. The following types of print jobs can be selected: Sample Print, Locked Print, Hold Print, and Stored Print.
  - $\Rightarrow$  See "Storing Documents in the Hard Disk Drive and Printing them", Print 2.
- The finisher allows you to collate, staple, and punch holes in your prints.
  - ⇒ For details about stapling, see "Staple", Print.
  - $\Rightarrow$  For details about punching, see "Punch", Print 2.
- If the PictBridge card is installed, you can connect a PictBridge-compatible digital camera to this machine using a USB cable. This allows you to print the photographs stored on the camera using the camera's own interface.
  - $\Rightarrow$  See "Direct Printing from a Digital Camera (PictBridge)", Print3.
- You can print files stored on a removable memory device and specify print conditions such as print quality and print size.
  - $\Rightarrow$  See "Direct Printing from a Memory Storage Device", Print 2.

П

#### 1

# **Utilizing Stored Document**

You can store files scanned in copier, facsimile, printer, or scanner mode on the machine's hard disk. Web Image Monitor allows you to use your computer to search for, view, print, delete, and send stored files via the network. You can also change print settings and print multiple documents (Document Server).



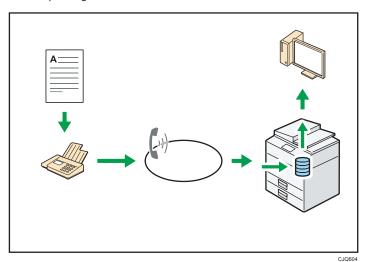
- You can retrieve stored documents scanned in scanner mode to your computer.
- Using the file format converter, you can download documents stored in copier, Document Server, or printer mode to your computer.

#### ■ Reference

- For details about how to use the Document Server, see "Storing Data in the Document Server", Copy/ Document Server.
- For details about the Document Server in copier mode, see "Document Server", Copy/ Document Server.
- For details about the Document Server in printer mode, see "Saving and Printing Using the Document Server", Print.
- For details about the Document Server in fax mode, see "Storing a Document", Fax .
- For details about the Document Server in scanner mode, see "Storing and Saving the Scanned Documents", Scan .

#### Reception

You can store and save received fax documents as electronic formats in the machine's hard disk without printing them.



You can use Web Image Monitor to check, print, delete, retrieve, or download documents using your computer (Storing received documents).

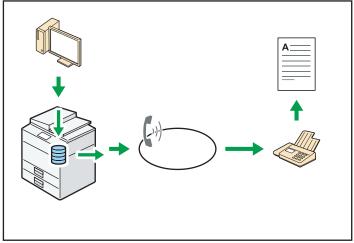


• See "Confirming/Printing/Deleting Received and Stored Documents", Fax.

#### **Transmission**

You can send a fax from your computer over the network (Ethernet or wireless LAN) to this machine, which then forwards the fax via its telephone connection (LAN-Fax).

7

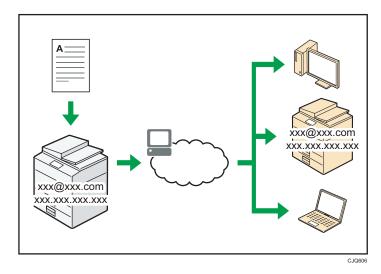


C.IQ605

- To send a fax, print from the Windows application you are working with, select LAN-Fax as the printer, and then specify the destination.
- You can also check the sent image data.

# Reference

- For details about the machine's settings, see "Network Settings Requirements", Connecting the Machine/ System Settings.
- For details about how to use the function, see "Sending Fax Documents from Computers", Fax
   .



#### E-mail Transmission and Reception

This machine converts scanned document images to e-mail format, and transmits and receives the e-mail data over the Internet.

- To send a document, specify an e-mail address instead of dialing the destination telephone number (Internet Fax and e-mail transmission).
  - ⇒ See "Specifying an Internet Fax Destination by Entering It Manually", Fax.
- This machine can receive e-mail messages via Internet Fax or from computers (Internet Fax Reception and Mail to Print).
  - ⇒ See "Receiving E-mail by Internet Fax/Mail to Print", Fax .
- Internet Fax compatible machines and computers that have e-mail addresses can receive e-mail messages via Internet Fax.

## IP-Fax

The IP-Fax function sends or receives documents between two facsimiles directly via a TCP/IP network.

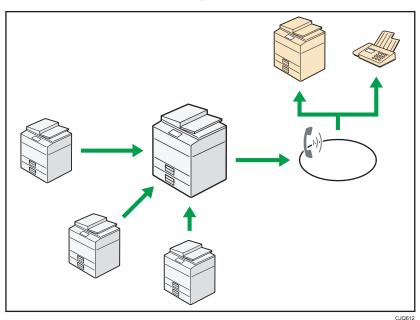
- To send a document, specify an IP address or host name instead of a fax number (IP-Fax Transmission).
  - $\Rightarrow$  See "Specifying an IP-Fax Destination by Entering It Manually", Fax@.
- This machine can receive documents sent via Internet Fax (IP-Fax Reception).
  - $\Rightarrow$  See "Types of Reception", Fax 3.
- Using a VoIP gateway, this machine can send to G3 facsimiles connected to the public switched telephone network (PSTN).

ſ

# ■ Reference

• For details about the machine's settings, see "Network Settings Requirements", Connecting the Machine/ System Settings .

You can send and receive faxes through a different machine's fax functions via a network (Remote Fax).



- To use the remote fax function, install the fax connection unit on the main-machine and submachine.
- The procedure for sending faxes is as same as that of for the machine with the fax unit. When a job has finished, confirm results displayed on sending history or printed on reports.
- You can forward documents received by the main machine with the facsimile function to submachines.

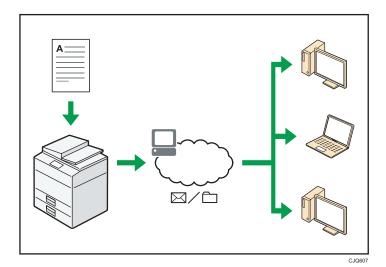
# Reference

• For details, see "Sending/Receiving Documents Using a Remote Machine (Remote Fax)", Fax .

٦

#### 1

# Using the Facsimile and the Scanner in a Network Environment

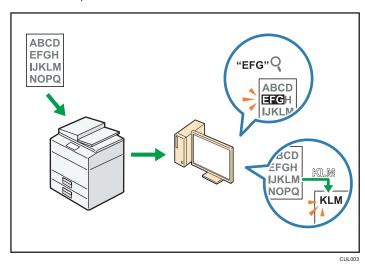


- You can send scan files to a specified destination using e-mail (Sending scan files by e-mail).
  - ⇒ See "Overview of E-mail Transmission Function", Fax .
  - $\Rightarrow$  See "Basic Procedure for Sending Scan Files by E-mail", Scan  $\bigcirc$ .
- You can send scan files directly to folders (Sending scan files by Scan to Folder).
  - ⇒ See "Overview of Folder Transmission Function", Fax.
  - $\Rightarrow$  See "Basic Procedure When Using Scan to Folder", Scan $\bigcirc$ .
- You can use this machine as a delivery scanner for the ScanRouter delivery software<sup>\*1</sup> (Network
  delivery scanner). You can save scan files in the delivery server or send them to a folder in a
  computer on the same network.
  - $\Rightarrow$  See "Basic Procedure for Delivering Files", Scan  $\odot$ .
- You can use Web Services on Devices (WSD) to send scan files to a client computer.
  - ⇒ See "Basic Operating Procedure of WSD Scanner (Push Type)", Scan.
- \*1 The ScanRouter delivery software is no longer available for sale.

# **Embedding Text Information in Scanned Files**

You can extract text information from a scanned document and embed it in the file without using a computer.

If you scan a document using this function, embedded text can be searched by using the text search function or copied to another document.



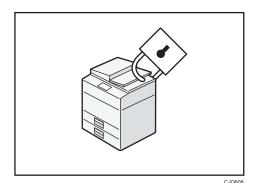
- To use this function, the optional OCR unit is required.
- You can select a file type from [PDF], [High Compression PDF], or [PDF/A].
- This function can optically recognize characters in various languages and up to approximately 40,000 characters a page.

# Reference

• See "Embedding Text Information in Scanned Data", Scan .

П

# Preventing Information Leakage (Security Functions)



- You can protect documents from unauthorized access and stop them from being copied without permission.
- You can control the use of the machine, as well as prevent machine settings from being changed without authorization.
- By setting passwords, you can prevent unauthorized access via the network.
- You can erase or encrypt the data on the hard disk to minimize the risk of information leakage.
- You can limit the usage of functions for each user.

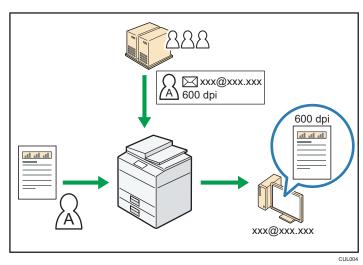
# Reference

• See Security Guide .

# Centrally Controlling Scan Conditions and Distribution

You can use the distributed scan management (DSM) system in Windows Server 2008 R2 to manage the destinations and scan settings for each individual user in a group and to use the information when distributing scanned data.

You can also use this system to centrally manage information about people using the network and the machine's scanner functions. Both delivered files and user information can be controlled.



You must set up and configure a Windows server to use the distributed scan management system.
 This system is supported under Windows Server 2008 R2.

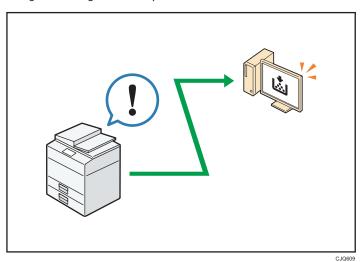
# Reference

For details about how to deliver files using the distributed scan management system, see
 "Managing Scan Conditions and Other Settings in the Block using Distributed Scan Management", Scan.

П

# Monitoring and Setting the Machine Using a Computer

Using Web Image Monitor, you can check the machine's status and change the settings.



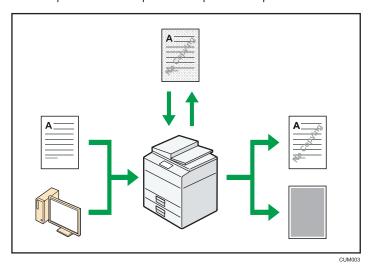
You can check which tray is running out of paper, register information in the Address Book, specify the network settings, configure and change the system settings, manage jobs, print the job history, and configure the authentication settings.

# Reference

- See "Using Web Image Monitor", Connecting the Machine/ System Settings .
- See Web Image Monitor Help.

# **Preventing Unauthorized Copying**

You can print embedded patterns on printouts to prevent unauthorized copying.



- Using the copier function or the printer driver, you can embed a pattern in the printed document. If
  the document is copied on a machine with the Copy Data Security unit, protected pages are
  grayed out in the copy. This can minimize the risk of confidential information being copied.
  Protected fax messages are grayed out before being transmitted or stored. If a document protected
  by unauthorized copy guard is copied on a machine that is equipped with the Copy Data Security
  unit, the machine beeps to notify users that unauthorized copying is being attempted.
  - If the document is copied on a machine without the Copy Data Security Unit, the hidden text becomes conspicuous in the copy, showing that the copy is unauthorized.
- Using the copier function or the printer driver, you can embed text in the printed document for
  unauthorized copy prevention. If the document is copied, scanned, or stored in a Document Server
  by a copier or multifunction printer, the embedded text appears conspicuous in the copy,
  discouraging such unauthorized copying.

# Reference

- For details, see the printer driver Help and Security Guide .
- For details about this function in the copier mode, see "Preventing Unauthorized Copies", Copier/Document Server.
- For details about this function in the printer mode, see "Printing Documents that Are Not Authorized for Duplication", Print.

П

# 2. Getting Started

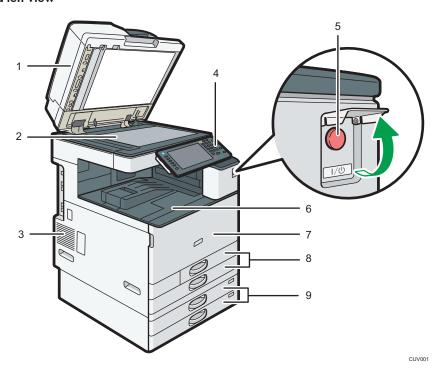
This chapter describes how to start using this machine.

# **Guide to Names and Functions of Components**



 Do not obstruct the machine's vents. Doing so risks fire caused by overheated internal components.

#### Front and left view



## 1. ARDF or one-pass duplex scanning ADF

(The illustration shows the one-pass duplex scanning ADF.)

Lower the ADF over originals placed on the exposure glass.

If you load a stack of originals in the ADF, the ADF will automatically feed the originals one by one.

The ARDF scans both sides of an original one side at a time.

The one-pass duplex scanning ADF scans both sides of an original simultaneously.

#### 2. Exposure glass

Place originals face down here.

#### 3. Vents

Prevent overheating.

#### 4. Control panel

See "Guide to the Names and Functions of the Machine's Control Panel".

#### 5. Main power switch

To operate the machine, the main power switch must be on. If it is off, open the main power switch's cover and turn the switch on.

#### 6. Internal tray 1

Copied/printed paper and fax messages are delivered here.

#### 7. Front cover

Open to access the inside of the machine.

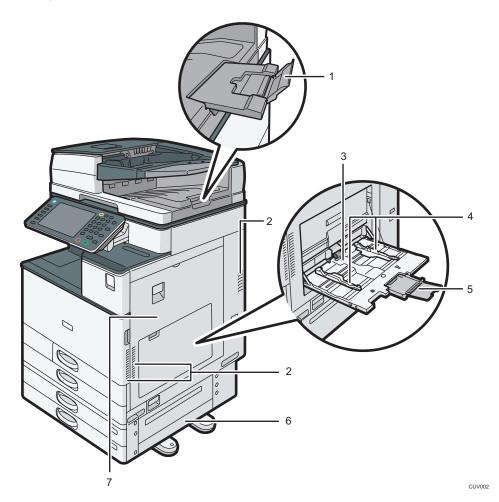
#### 8. Paper trays (Trays 1-2)

Load paper here.

#### 9. Lower paper trays

Load paper here.

#### Front and right view



#### 1. ADF's extender

Pull this extender to support large paper.

#### 2. Vents

Prevent overheating.

#### 3. Bypass tray

Use to copy or print on OHP transparencies, adhesive labels, and paper that cannot be loaded in the paper trays.

# 4. Paper guides

When loading paper in the bypass tray, align the paper guides flush against the paper.

#### 5. Extender

Pull this extender out when loading sheets larger than A4 $\square$ ,  $8^1/_2 \times 11 \square$  in the bypass tray.

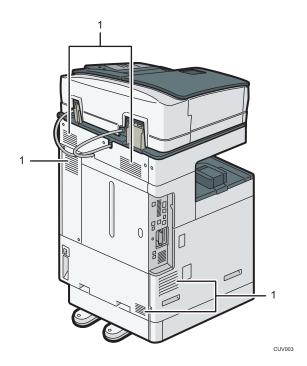
# 6. Lower right cover

Open this cover when a paper jam occurs.

# 7. Right cover

Open this cover when a paper jam occurs.

## Rear and left view



#### 1. Vents

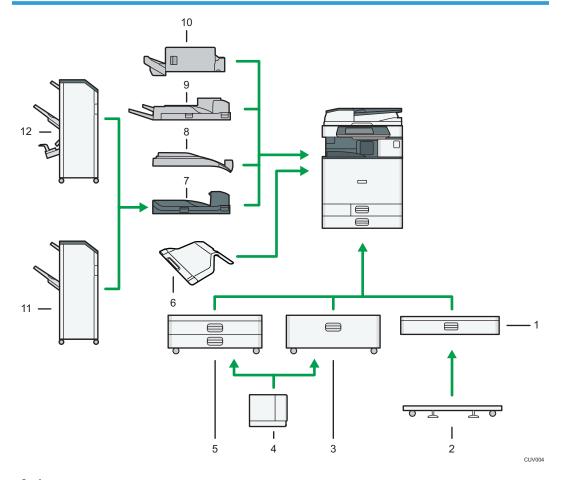
Prevent overheating.

#### 2

# Guide to Functions of the Machine's Options

# Guide to Functions of the Machine's External Options

# External options for Type 1 and 2 Region A (mainly Europe and Asia)



#### 1. Lower paper tray

Holds up to 550 sheets of paper.

#### 2. Caster table for lower paper tray

To use the lower paper tray, attach the caster table.

## 3. Tray 3 (LCT)

Holds up to 2,000 sheets of paper.

You can load paper even if Tray 3 (LCT) is in use. It is okay to pull out the left half of the tray while Tray 3 (LCT) is in use.

#### 4. Large capacity tray (LCT)

Holds up to 1,500 sheets of paper.

#### 5. Lower paper trays

Consists of two paper trays. Holds up to 1,100 sheets of paper. Each paper tray holds 550 sheets.

#### 6. Internal tray 2

If you select this as the output tray, copied/printed paper or fax messages are delivered here face down.

#### 7. Bridge unit

Relays paper to the finisher.

#### 8. Internal shift tray

Sorts and stacks multiple sheets of paper.

#### 9. External tray

If you select this as the output tray, copied/printed paper and fax messages are delivered here face down.

#### 10. Internal Finisher SR3130

Sorts, stacks, and staples multiple sheets of paper.

Copies can be punched if the optional punch unit is installed on the finisher.

#### 11. Finisher SR3140

Sorts, stacks, and staples multiple sheets of paper. Consists of the following paper trays:

- Finisher upper tray
- · Finisher shift tray

Copies can be punched if the optional punch unit is installed on the finisher.

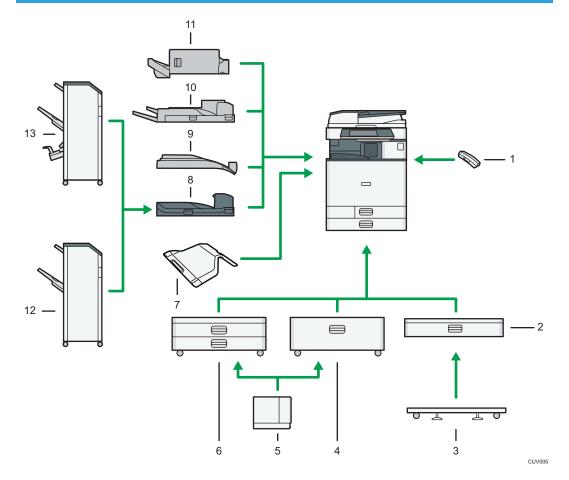
#### 12. Booklet Finisher SR3150

Sorts, stacks, and staples multiple sheets of paper. The saddle stitch function can staple multiple sheets of paper in the center and fold them into booklets. Consists of the following paper trays:

- Finisher upper tray
- · Finisher shift tray
- Finisher booklet tray

Copies can be punched if the optional punch unit is installed on the finisher.

# External options for Type 1 and 2 @Region B (mainly North America)



#### 1. Handset

Used as a receiver when a fax unit is installed.

Allows you to use the On Hook Dial and Manual Dial functions. It also allows you to use the machine as a telephone.

#### 2. Lower paper tray

Holds up to 550 sheets of paper.

#### 3. Caster table for lower paper tray

To use the lower paper tray, attach the caster table.

### 4. Tray 3 (LCT)

Holds up to 2,000 sheets of paper.

You can load paper even if Tray 3 (LCT) is in use. It is okay to pull out the left half of the tray while Tray 3 (LCT) is in use.

## 5. Large capacity tray (LCT)

Holds up to 1,500 sheets of paper.

#### 6. Lower paper trays

Consists of two paper trays. Holds up to 1,100 sheets of paper. Each paper tray holds 550 sheets.

#### 7. Internal tray 2

If you select this as the output tray, copied/printed paper or fax messages are delivered here face down.

#### 8. Bridge unit

Relays paper to the finisher.

#### 9. Internal shift tray

Sorts and stacks multiple sheets of paper.

#### 10. External tray

If you select this as the output tray, copied/printed paper and fax messages are delivered here face down.

#### 11. Internal Finisher SR3130

Sorts, stacks, and staples multiple sheets of paper.

Copies can be punched if the optional punch unit is installed on the finisher.

#### 12. Finisher SR3140

Sorts, stacks, and staples multiple sheets of paper. Consists of the following paper trays:

- Finisher upper tray
- · Finisher shift tray

Copies can be punched if the optional punch unit is installed on the finisher.

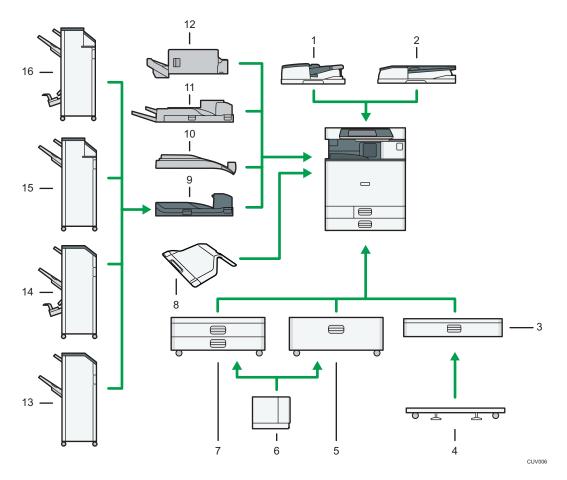
#### 13. Booklet Finisher SR3150

Sorts, stacks, and staples multiple sheets of paper. The saddle stitch function can staple multiple sheets of paper in the center and fold them into booklets. Consists of the following paper trays:

- Finisher upper tray
- · Finisher shift tray
- · Finisher booklet tray

Copies can be punched if the optional punch unit is installed on the finisher.

# External options for Type 3 and 4 Region A (mainly Europe and Asia)



#### 1. One-pass duplex scanning ADF

Load a stack of originals here. They will feed in automatically.

#### 2. ARDF

Load a stack of originals here. They will feed in automatically.

#### 3. Lower paper tray

Holds up to 550 sheets of paper.

# 4. Caster table for lower paper tray

To use the lower paper tray, attach the caster table.

#### 5. Tray 3 (LCT)

Holds up to 2,000 sheets of paper.

You can load paper even if Tray 3 (LCT) is in use. It is okay to pull out the left half of the tray while Tray 3 (LCT) is in use.

#### 6. Large capacity tray (LCT)

Holds up to 1,500 sheets of paper.

#### 7. Lower paper trays

Consists of two paper trays. Holds up to 1,100 sheets of paper. Each paper tray holds 550 sheets.

#### 8. Internal tray 2

If you select this as the output tray, copied/printed paper or fax messages are delivered here face down.

#### 9. Bridge unit

Relays paper to the finisher.

#### 10. Internal shift tray

Sorts and stacks multiple sheets of paper.

#### 11. External tray

If you select this as the output tray, copied/printed paper and fax messages are delivered here face down.

#### 12. Internal Finisher SR3130

Sorts, stacks, and staples multiple sheets of paper.

Copies can be punched if the optional punch unit is installed on the finisher.

#### 13. Finisher SR3140

Sorts, stacks, and staples multiple sheets of paper. Consists of the following paper trays:

- Finisher upper tray
- · Finisher shift tray

Copies can be punched if the optional punch unit is installed on the finisher.

#### 14. Booklet Finisher SR3150

Sorts, stacks, and staples multiple sheets of paper. The saddle stitch function can staple multiple sheets of paper in the center and fold them into booklets. Consists of the following paper trays:

- Finisher upper tray
- · Finisher shift tray
- Finisher booklet tray

Copies can be punched if the optional punch unit is installed on the finisher.

#### 15. Finisher SR3160

Sorts, stacks, and staples multiple sheets of paper. Consists of the following paper trays:

- Finisher upper tray
- · Finisher shift tray

Copies can be punched if the optional punch unit is installed on the finisher.

#### 16. Booklet Finisher SR3170

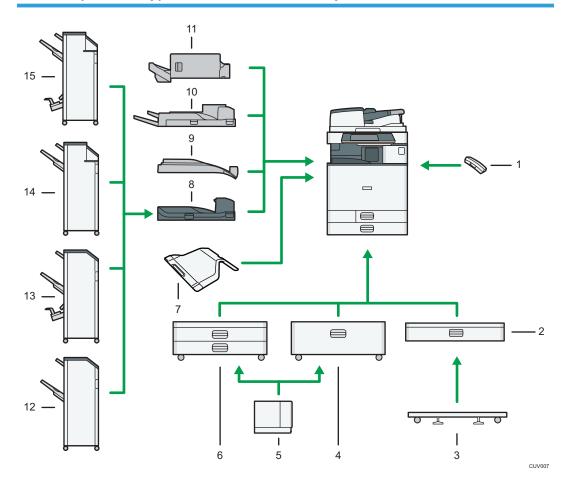
Sorts, stacks, and staples multiple sheets of paper. The saddle stitch function can staple multiple sheets of paper in the center and fold them into booklets. Consists of the following paper trays:

- Finisher upper tray
- Finisher shift tray

#### • Finisher booklet tray

Copies can be punched if the optional punch unit is installed on the finisher.

# External options for Type 3 and 4 @Region B (mainly North America)



#### 1. Handset

Used as a receiver when a fax unit is installed.

Allows you to use the On Hook Dial and Manual Dial functions. It also allows you to use the machine as a telephone.

#### 2. Lower paper tray

Holds up to 550 sheets of paper.

## 3. Caster table for lower paper tray

To use the lower paper tray, attach the caster table.

#### 4. Tray 3 (LCT)

Holds up to 2,000 sheets of paper.

You can load paper even if Tray 3 (LCT) is in use. It is okay to pull out the left half of the tray while Tray 3 (LCT) is in use.

#### 5. Large capacity tray (LCT)

Holds up to 1,500 sheets of paper.

You can load paper even if Tray 3 (LCT) is in use. It is okay to pull out the left half of the tray while Tray 3 (LCT) is in use.

#### 6. Lower paper trays

Consists of two paper trays. Holds up to 1,100 sheets of paper. Each paper tray holds 550 sheets.

#### 7. Internal tray 2

If you select this as the output tray, copied/printed paper or fax messages are delivered here face down.

#### 8. Bridge unit

Relays paper to the finisher.

#### 9. Internal shift tray

Sorts and stacks multiple sheets of paper.

#### 10. External tray

If you select this as the output tray, copied/printed paper and fax messages are delivered here face down.

#### 11. Internal Finisher SR3130

Sorts, stacks, and staples multiple sheets of paper.

Copies can be punched if the optional punch unit is installed on the finisher.

#### 12. Finisher SR3140

Sorts, stacks, and staples multiple sheets of paper. Consists of the following paper trays:

- Finisher upper tray
- · Finisher shift tray

Copies can be punched if the optional punch unit is installed on the finisher.

#### 13. Booklet Finisher SR3150

Sorts, stacks, and staples multiple sheets of paper. The saddle stitch function can staple multiple sheets of paper in the center and fold them into booklets. Consists of the following paper trays:

- Finisher upper tray
- · Finisher shift tray
- Finisher booklet tray

Copies can be punched if the optional punch unit is installed on the finisher.

#### 14. Finisher SR3160

Sorts, stacks, and staples multiple sheets of paper. Consists of the following paper trays:

- Finisher upper tray
- · Finisher shift tray

Copies can be punched if the optional punch unit is installed on the finisher.

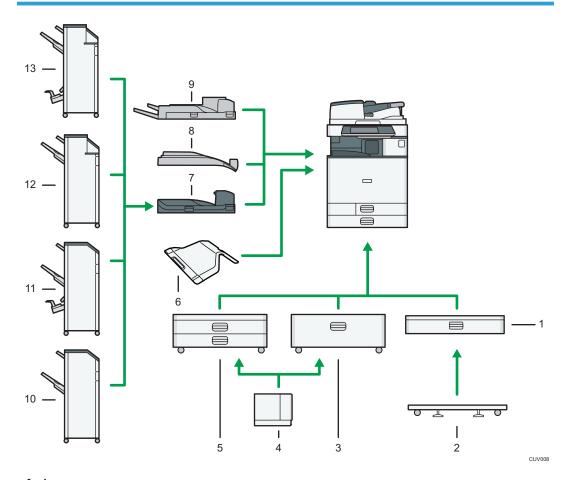
#### 15. Booklet Finisher SR3170

Sorts, stacks, and staples multiple sheets of paper. The saddle stitch function can staple multiple sheets of paper in the center and fold them into booklets. Consists of the following paper trays:

- Finisher upper tray
- Finisher shift tray
- Finisher booklet tray

Copies can be punched if the optional punch unit is installed on the finisher.

# External options for Type 5 Region (mainly Europe and Asia)



#### 1. Lower paper tray

Holds up to 550 sheets of paper.

#### 2. Caster table for lower paper tray

To use the lower paper tray, attach the caster table.

#### 3. Tray 3 (LCT)

Holds up to 2,000 sheets of paper.

You can load paper even if Tray 3 (LCT) is in use. It is okay to pull out the left half of the tray while Tray 3 (LCT) is in use.

## 4. Large capacity tray (LCT)

Holds up to 1,500 sheets of paper.

#### 5. Lower paper trays

Consists of two paper trays. Holds up to 1,100 sheets of paper. Each paper tray holds 550 sheets.

#### 6. Internal tray 2

If you select this as the output tray, copied/printed paper or fax messages are delivered here face down.

#### 7. Bridge unit

Relays paper to the finisher.

#### 8. Internal shift tray

Sorts and stacks multiple sheets of paper.

#### 9. External tray

If you select this as the output tray, copied/printed paper and fax messages are delivered here face down.

#### 10. Finisher SR3140

Sorts, stacks, and staples multiple sheets of paper. Consists of the following paper trays:

- Finisher upper tray
- · Finisher shift tray

Copies can be punched if the optional punch unit is installed on the finisher.

#### 11. Booklet Finisher SR3150

Sorts, stacks, and staples multiple sheets of paper. The saddle stitch function can staple multiple sheets of paper in the center and fold them into booklets. Consists of the following paper trays:

- Finisher upper tray
- Finisher shift tray
- Finisher booklet tray

Copies can be punched if the optional punch unit is installed on the finisher.

#### 12. Finisher SR3160

Sorts, stacks, and staples multiple sheets of paper. Consists of the following paper trays:

- Finisher upper tray
- · Finisher shift tray

Copies can be punched if the optional punch unit is installed on the finisher.

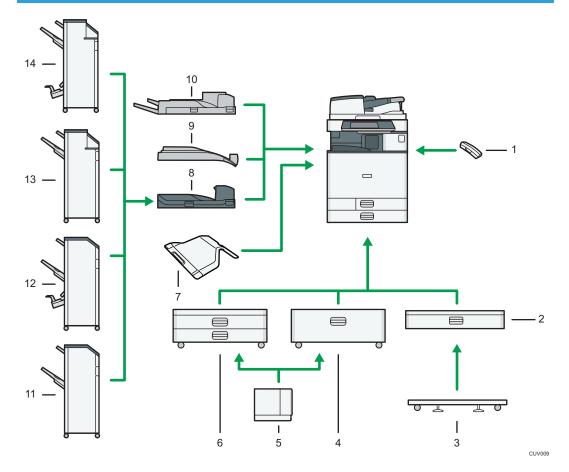
#### 13. Booklet Finisher SR3170

Sorts, stacks, and staples multiple sheets of paper. The saddle stitch function can staple multiple sheets of paper in the center and fold them into booklets. Consists of the following paper trays:

- Finisher upper tray
- · Finisher shift tray
- Finisher booklet tray

Copies can be punched if the optional punch unit is installed on the finisher.

# External options for Type 5 Region B (mainly North America)



#### 1. Handset

Used as a receiver when a fax unit is installed.

Allows you to use the On Hook Dial and Manual Dial functions. It also allows you to use the machine as a telephone.

#### 2. Lower paper tray

Holds up to 550 sheets of paper.

#### 3. Caster table for lower paper tray

To use the lower paper tray, attach the caster table.

## 4. Tray 3 (LCT)

Holds up to 2,000 sheets of paper.

You can load paper even if Tray 3 (LCT) is in use. It is okay to pull out the left half of the tray while Tray 3 (LCT) is in use.

#### 5. Large capacity tray (LCT)

Holds up to 1,500 sheets of paper.

#### 6. Lower paper trays

Consists of two paper trays. Holds up to 1,100 sheets of paper. Each paper tray holds 550 sheets.

#### 7. Internal tray 2

If you select this as the output tray, copied/printed paper or fax messages are delivered here face down.

#### 8. Bridge unit

Relays paper to the finisher.

#### 9. Internal shift tray

Sorts and stacks multiple sheets of paper.

#### 10. External tray

If you select this as the output tray, copied/printed paper and fax messages are delivered here face down.

#### 11. Finisher SR3140

Sorts, stacks, and staples multiple sheets of paper. Consists of the following paper trays:

- Finisher upper tray
- · Finisher shift tray

Copies can be punched if the optional punch unit is installed on the finisher.

#### 12. Booklet Finisher SR3150

Sorts, stacks, and staples multiple sheets of paper. The saddle stitch function can staple multiple sheets of paper in the center and fold them into booklets. Consists of the following paper trays:

- Finisher upper tray
- · Finisher shift tray
- Finisher booklet tray

Copies can be punched if the optional punch unit is installed on the finisher.

#### 13. Finisher SR3160

Sorts, stacks, and staples multiple sheets of paper. Consists of the following paper trays:

- Finisher upper tray
- · Finisher shift tray

Copies can be punched if the optional punch unit is installed on the finisher.

#### 14. Booklet Finisher SR3170

Sorts, stacks, and staples multiple sheets of paper. The saddle stitch function can staple multiple sheets of paper in the center and fold them into booklets. Consists of the following paper trays:

- Finisher upper tray
- · Finisher shift tray
- Finisher booklet tray

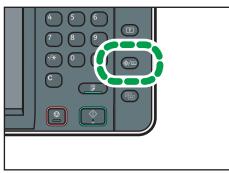
Copies can be punched if the optional punch unit is installed on the finisher.

#### 2

# **Changing the Display Language**

You can change the language used on the display. English is set as default.

1. Press the [User Tools/Counter] key.



CUP009

- 2. Press language key until the language you want to display appears.
- 3. Press the [User Tools/Counter] key.

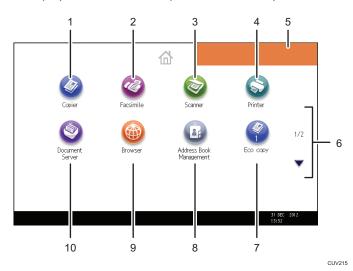
# 2

# How to Use the [Home] Screen

The icons of each function are displayed on the [Home] screen.

You can add shortcuts to frequently used programs or Web pages to the [Home] screen. The icons of added shortcuts appear on the [Home] screen. The programs or Web pages can be recalled easily by pressing the shortcut icons.

To display the [Home] screen, press the [Home] key.



# 1. [Copier]<sup>©</sup>

Press to make copies.

For details about how to use the copy function, see Copy/ Document Server .

## 2. [Facsimile]

Press to send or receive faxes.

For details about how to use the fax function, see Fax .

# 3. [Scanner]

Press to scan originals and save images as files.

For details about how to use the scanner function, see Scan.

#### 4. [Printer]

Press to make settings for using the machine as a printer.

For details about how to make settings for the printer function, see Print .

#### 5. Home screen image

You can display an image on the [Home] screen, such as a corporate logo. To change the image, see "Displaying the Image on the [Home] Screen", Convenient Functions .

#### 6. ▲/▼

Press to switch pages when the icons are not displayed on one page.

#### 7. Shortcut icon

You can add shortcuts to programs or Web pages to the [Home] screen. For details about how to register shortcuts, see page 47 "Adding Icons to the [Home] Screen". The program number appears on the bottom of the shortcut icon.

#### 8. [Address Book Management]

Press to display the Address Book.

For details about how to use the Address Book, see "Address Book", Connecting the Machine/ System Settings .

## 9. [Browser]

Press to display Web pages.

For details about how to use the browser function, see Convenient Functions .

#### 10. [Document Server]

Press to store or print documents on the machine's hard disk.

For details about how to use the Document Server function, see Copy/ Document Server.

# Adding Icons to the [Home] Screen

You can add shortcuts to programs stored in copier, facsimile, or scanner mode, or Web pages registered in Favorites using the browser function.

You can also review icons of functions and embedded software applications that you deleted from the [Home] screen.



- Shortcuts to programs stored in Document Server mode cannot be registered to the [Home] screen.
- Shortcut names of up to 32 characters can be displayed in a standard screen. If the name of the shortcut is longer than 32 characters, the 32nd character is replaced with "...". Only 30 characters can be displayed in a simple screen. If the name of the shortcut is longer than 30 characters, the 30th character is replaced with "...".
- For details about how to make a program, see page 51 "Registering Functions in a Program".
- For details about the procedure for registering Web pages to Favorites, see "Specifying the Settings for Favorites", Convenient Functions.
- Shortcuts to Web pages that are registered to Common Favorites can be registered to the [Home] screen. When user authentication is enabled, shortcuts to Web pages that are registered to Favorites by User can also be registered to a user's [Home] screen.
- For details about the procedure for registering a shortcut using the [Program] screen, see "Registering a Shortcut to a Program to the [Home] Screen", Convenient Functions.
- You can register up to 72 function and shortcut icons. Delete unused icons if the limit is reached. For
  details see "Deleting an Icon on the [Home] Screen", Convenient Functions.

• You can change the position of icons. For details, see "Changing the Order of Icons on the [Home] Screen", Convenient Functions.

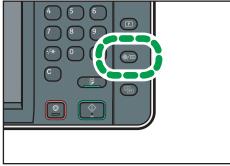
### Adding icons to the [Home] screen using Web Image Monitor

- 1. Start Web Image Monitor.
  - For details, see "Using Web Image Monitor", Connecting the Machine/System Settings.
- 2. Log in to Web Image Monitor as an administrator.
  - For details, see Security Guide .
- 3. Point to [Device Management], and then click [Device Home Management].
- 4. Click [Edit Icons].
- Point to [+Icon can be added.] of the position that you want to add, and then click [+ Add].
- 6. Select the function or shortcut icon you want to add.
- 7. Click [OK] four times.

#### Adding icons to the [Home] screen using the User Tools

In the following procedure, a shortcut to a copier program is registered to the [Home] screen.

- 1. Register a program.
- 2. Press the [User Tools/Counter] key.



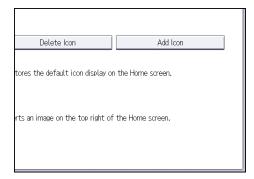
CUP009

#### 2

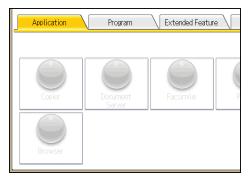
# 3. Press [Edit Home].



# 4. Press [Add Icon].



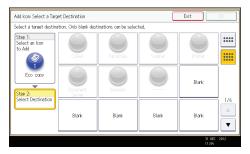
# 5. Press the [Program] tab.



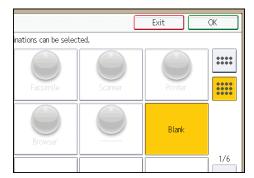
6. Make sure that [Copier Program] is selected.



- 7. Select the program you want to add.
- 8. Specify the position where [Blank] is displayed.



9. Press [OK].



10. Press the [User Tools/Counter] key.



• Press [==] on the upper-right corner of the screen to check the position on the simple screen.

#### 2

# Registering Functions in a Program

Depending on the functions, the number of programs that can be registered is different.

• Copier: 25 programs

• Document Server: 25 programs

• Facsimile: 100 programs

• Scanner: 25 programs

The following settings can be registered to programs:

#### Copier:

Color mode, original type, density, Special Original, paper tray, Store File (except for User Name, File Name, and Password), Auto Reduce / Enlarge, Create Margin, Finishing, Cover/Slip Sheet, Edit / Color, Dup./Combine/Series, Reduce / Enlarge, number of copies

#### Document Server (on the initial document print screen):

2 Sided Copy Top to Top, 2 Sided Copy Top to Bottom, Booklet, Magazine, Finishing, Cover/Slip Sheet (except for Main Sheet Tray in Designate / Chapter), Edit / Stamp, number of prints

#### Facsimile:

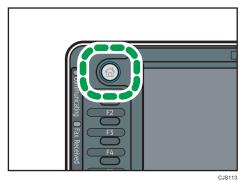
Scan Settings, density, Original Feed Type, File Type, Store File (except for User Name, File Name, and Password), Preview, transmission type, destinations (except for folder destinations), Select Line, Adv.Features, memory transmission/immediate transmission, Communi. Result Rep., TX Mode (except for Subject)

#### Scanner:

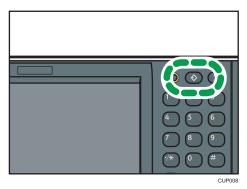
Scan Settings, density, Original Feed Type, Send File Type / Name (except for Security Settings and Start No.), Store File (except for User Name, File Name, and Password), Preview, Destinations selected from the Address Book, Text, Subject, Security, Recept. Notice

This section explains how to register functions in a program using copier function as an example.

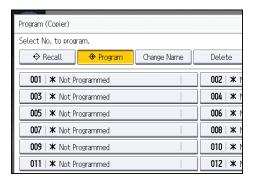
 Press the [Home] key on the top left of the control panel, and press the [Copier] icon on the [Home] screen.



- 2. Edit the copy settings so all functions you want to store in a program are selected.
- 3. Press the [Program] key.



- 4. Press [Program].
- 5. Press the program number you want to register.



- 6. Enter the program name.
- 7. Press [OK].
- 8. Press [Exit].



- The number of characters you can enter for a program name varies depending on the functions as follows:
  - Copier: 34 characters
  - Document Server: 34 characters
  - Facsimile: 20 characters
  - Scanner: 34 characters
- When a specified program is registered as the default, its values become the default settings, which are displayed without pressing the [Program] key, when modes are cleared or reset, and after the machine is turned on. See "Changing the Default Functions of the Initial Screen", Convenient Functions .

- When the paper tray you specified in a program is empty and if there is more than one paper tray with the same size paper in it, the paper tray prioritized under [Paper Tray Priority: Copier] or [Paper Tray Priority: Facsimile] in the [Tray Paper Settings] tab will be selected first. For details, see "System Settings", Connecting the Machine/System Settings.
- Destinations that are registered in the machine's Address Book can be registered to a program of the scanner mode.
- Destinations can be registered to a program of the scanner mode only when [Include Destinations] is selected for [Program Setting for Destinations] in [Scanner Features]. For details about the setting, see "General Settings", Scan.
- Folder destinations that have protection codes cannot be registered to a program of the scanner mode.
- Programs are not deleted by turning the power off or by pressing the [Reset] key unless the program is deleted or overwritten.
- Program numbers with next to them already have settings made for them.
- Programs can be registered to the [Home] screen, and can be recalled easily. For details, see
   "Registering a Shortcut to a Program to the [Home] Screen", Convenient Functions and page 47
   "Adding Icons to the [Home] Screen". Shortcuts to programs stored in Document Server mode cannot be registered to the [Home] screen.

# **Example of Programs**

#### Copier mode

Program name	Program description	Effect
Есо сору	Specify [Combine 2 Sides] in [Dup./Combine/Series].	You can save paper and toner.
Dated confidential copy	In [Edit / Color], specify [CONFIDENTIAL] under [Preset Stamp], and [Date Stamp].	You can increase security awareness by printing "CONFIDENTIAL" and the date on copies.
Conference material copy	Specify [Combine 2 Sides] in [Dup./Combine/Series] and [Staple] in [Finishing].	You can copy conference materials efficiently.

Program name	Program description	Effect
Magazine copy	Specify [Magazine] in [Dup./ Combine/Series] and [Staple: Center] in [Finishing].	You can save paper. Also, you can perform printing jobs such as producing leaflets in-house instead of having them printed by an outside printing company.
Unified-size copy	Specify [Mixed Sizes] in [Special Original] and [Auto Reduce / Enlarge] in the initial display.	You can print various size copies onto one size of paper, so they are easier to manage.
Stamping corporate name copy	Specify [User Stamp] in [Edit / Color].	You can stamp the name of your company on copies of working or architectural drawings. Your company name needs to be preregistered in the machine.
Thumbnail copy	Specify [Combine 1 Side] in [Dup./Combine/Series].	You can copy up to eight pages onto one side of a sheet, so that you can save paper.
Storage copy: XXXX (replace XXXX by a folder name)	Specify a folder in [Target Folder to Store] in [Store File].	You can use folders to organize stored files by user name or intended use.

## Scanner mode

Program name	Program description	Effect
Easy PDF scan	Select [Full Color: Text / Photo] in [Scan Settings]. In [Send File Type / Name], select [PDF] under [File Type] and enter the business details such as "London branch: daily report" under [File Name].	You can scan documents efficiently.
High compression PDF scan	Select [Full Color: Text / Photo] in [Scan Settings] and [High Compression PDF] in [Send File Type / Name].	You can compress the data size of scanned documents, so that you can send and store them.

Program name	Program description	Effect	
Long-term storage scan	Select [PDF/A] in [Send File Type / Name].	You can easily digitize documents to "PDF/A" file format, which is suitable for long-term storage.	
Unified-size scan	In [Scan Settings], select [Mixed Original Sizes] in [Scan Size] and specify the finished size of scanned data in [Reduce / Enlarge] under [Edit].	You can skip this procedure to unify the size when reprinting scanned data.	
Digital signature scan	In [Send File Type / Name], specify [PDF] in [File Type], and also specify [Digital Signature].	You can add a digital signature to an important document such as a contract, so that any data tampering can be detected.	
Dividing file scan	Specify [Divide] in [Original Feed Type].	You can scan a multiple page original as one file by splitting it into groups of a specified number of pages.	
High resolution scan	Specify settings to save scanned data in TIFF format. Also, specify a higher resolution in [Scan Settings].	Scanned documents maintain much of the detail of the originals, but the size of the data may be quite large.	
Batch document scan	Select [Batch] in [Original Feed Type].	You can apply multiple scans to a large volume of originals and send the scanned originals as a single job.	
Scan to XXXX	Select e-mail or folder destinations	If you register destinations and scan	
(replace XXXX by a destination name)	from the list that is registered in the machine's Address Book, and then specify the scan settings.	settings that you use often, you can skip the procedures to specify them when sending a scanned file.	
Storage scan: XXXX (replace XXXX by a folder name)	Specify a folder in [Target Folder to Store] in [Store File].	You can use folders to organize stored files by user name or intended use.	

#### Facsimile mode

Program name	Program description	Effect	
Transmission result notification fax	Select [Preview] in the initial display and specify [E-mail TX Results] in [TX Mode].	You can check whether the transmission settings are correct before and after transmission.	
Specified time fax transmission	Specify [Send Later] in [TX Mode].	You can send a fax at a specified time.	
Departmental fax transmission	Specify [Fax Header Print] in [TX Mode].	This setting can be used if the receiver specifies forwarding destinations by senders.	



- Depending on the options installed, some functions cannot be registered. For details, see "Functions Requiring Optional Configurations", Getting Started.
- The names of programs given above are just examples. You can assign any name to a program according to your objectives.
- Depending on your business details or the type of documents to be scanned, registering a program cannot be recommended.

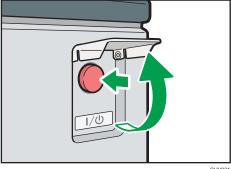
# **Turning On/Off the Power**

The main power switch is on the right side of the machine. When this switch is turned on, the main power turns on and the main power indicator on the right side of the control panel lights up. When this switch is turned off, the main power turns off and the main power indicator on the right side of the control panel goes out. When this is done, machine power is off. When the fax unit is installed, fax files in memory may be lost if you turn this switch off. Use this switch only when necessary.

## Turning On the Main Power

- 1. Make sure the power cord is firmly plugged into the wall outlet.
- 2. Open the main power switch cover, and push the main power switch.





# Turning Off the Main Power

# **ACAUTION**

When disconnecting the power cord from the wall outlet, always pull the plug, not the cord.
 Pulling the cord can damage the power cord. Use of damaged power cords could result in fire or electric shock.

# 

- Do not turn off the power while the machine is in operation.
- Do not hold down the main power switch while turning off the main power. Doing so forcibly turns
  off the machine's power and may damage the hard disk or memory and cause malfunctions.
- Open the main power switch cover, and then push the main power switch.
   The main power indicator goes out. The main power turns off automatically when the machine shuts down. If the screen on the control panel does not disappear, contact your service representative.

# When the Authentication Screen Is Displayed

If Basic Authentication, Windows Authentication, LDAP Authentication, or Integration Server Authentication is active, the authentication screen appears on the display. The machine only becomes operable after entering your own Login User Name and Login Password. If User Code Authentication is active, you cannot use the machine until you enter the User Code.

If you can use the machine, you can say that you are logged in. When you go out of the operable state, you can say that you are logged out. After logging in the machine, be sure to log out of it to prevent unauthorized usage.



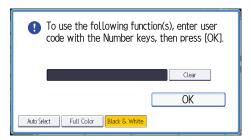
- Ask the user administrator for the Login User Name, Login Password, and User Code. For details about user authentication, see Security Guide .
- User Code to enter on User Code Authentication is the numerical value registered in the Address Book as "User Code".

## User Code Authentication Using the Control Panel

This section explains the procedure for logging in to the machine using the control panel while User Code Authentication is active.

If User Code Authentication is active, a screen prompting you to enter a User Code appears.

1. Enter a User Code (up to eight digits), and then press [OK].



# Logging In Using the Control Panel

This section explains the procedure for logging in to the machine when Basic Authentication, Windows Authentication, LDAP Authentication, or Integration Server Authentication is set.

## 1. Press [Login].



- 2. Enter a Login User Name, and then press [OK].
- 3. Enter a Login Password, and then press [OK].

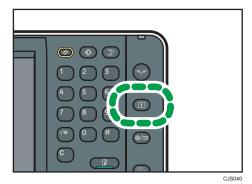
When the user is authenticated, the screen for the function you are using appears.

# Logging Out Using the Control Panel

This section explains the procedure for logging out the machine when Basic Authentication, Windows Authentication, LDAP Authentication, or Integration Server Authentication is set.



- To prevent use of the machine by unauthorized persons, always log out when you have finished using the machine.
- 1. Press the [Login/Logout] key.



2. Press [Yes].

# **Placing Originals**

## Placing Originals on the Exposure Glass

# **ACAUTION**

 Keep your hands away from the hinges and exposure glass when lowering the ADF. Not doing so may result in an injury if your hands or fingers are pinched.

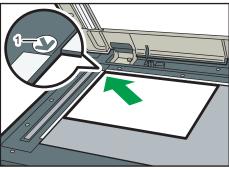
# Mportant (

- Do not lift the ADF forcefully. Otherwise, the cover of the ADF might open or be damaged.
- 1. Lift the ADF.

Be sure to lift the ADF by more than 30 degrees. Otherwise, the size of the original might not be detected correctly.

2. Place the original face down on the exposure glass. The original should be aligned to the rear left corner.

Start with the first page to be scanned.



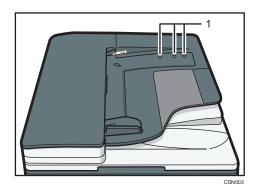
CVA05

- 1. Positioning mark
- 3. Lower the ADF.

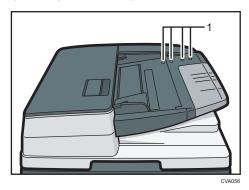
# Placing Originals in the Auto Document Feeder

Be sure not to block the sensor or load the original untidily. Doing so may cause the machine to detect the size of the original incorrectly or display a paper misfeed message. Also, be sure not to place originals or other objects on the top cover. Doing so may cause a malfunction.

#### **ARDF**



# One-pass duplex scanning ADF



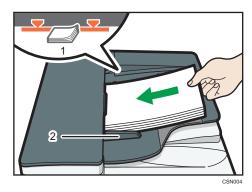
#### 1. Sensors

- 1. Adjust the original guide to the original size.
- 2. Place the aligned originals squarely face up in the ADF.

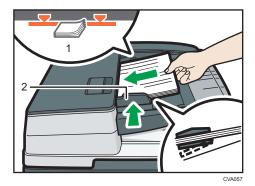
Do not stack originals beyond the limit mark.

The first page should be on the top.

ARDF



• One-pass duplex scanning ADF



- 1. Limit mark
- 2. Original guide

# 3. Copy

This chapter describes frequently used copier functions and operations. For the information not included in this chapter, see Copy/ Document Server on the supplied CD-ROM.

# **Basic Procedure**

To make copies of originals, place them on the exposure glass or in the ADF.

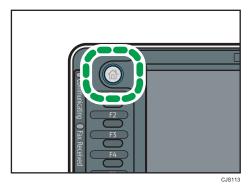
When placing the original on the exposure glass, start with the first page to be copied. When placing the original in the ADF, place them so that the first page is on the top.

For details about how to place the original on the exposure glass, see page 60 "Placing Originals on the Exposure Glass".

For details about how to place the original in the ADF, see page 60 "Placing Originals in the Auto Document Feeder".

To copy onto paper other than plain paper, specify the paper type in User Tools according to the weight of the paper you are using. For details, see "Tray Paper Settings", Connecting the Machine/System Settings.

1. Press the [Home] key on the top left of the control panel, and press the [Copier] icon on the [Home] screen.



2. Make sure that no previous settings remain.

When there are previous settings remaining, press the [Reset] key.

- 3. Place the originals.
- 4. Make desired settings.
- 5. Enter the number of copies with the number keys.

The maximum copy quantity that can be entered is 999.

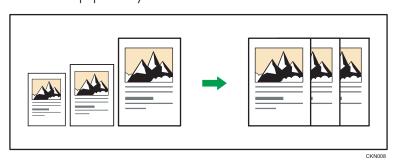
#### 6. Press the [Start] key.

When placing the original on the exposure glass, press the [#] key after all originals are scanned. Some functions such as Batch mode may require that you press the [#] key when placing originals in the ADF. Follow the messages that appear on screen.

7. When the copy job is finished, press the [Reset] key to clear the settings.

# Auto Reduce / Enlarge

The machine automatically detects the original size and then selects an appropriate reproduction ratio based on the paper size you select.



**☆ Important** 

• If you select a reproduction ratio after pressing [Auto Reduce / Enlarge], [Auto Reduce / Enlarge] is canceled and the image cannot be rotated automatically.

This is useful to copy different size originals to the same size paper.

If the orientation in which your original is placed is different from that of the paper you are copying onto, the machine rotates the original image by 90 degrees and fits it on the copy paper (Rotate Copy). For example, to reduce A3 (11 × 17) $\Box$  originals to fit onto A4 (8 $^1/_2$  × 11) $\Box$  paper, select a paper tray containing A4 (8 $^1/_2$  × 11) $\Box$  paper, and then press [Auto Reduce / Enlarge]. The image is automatically rotated. For details about Rotate Copy, see "Rotate Copy", Copy/ Document Server.

The original sizes and orientations you can use with this function are as follows:

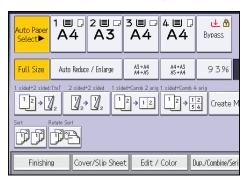
#### Region A (mainly Europe and Asia)

Original location	Original size and orientation
Exposure glass	A3 $\Box$ , B4 JIS $\Box$ , A4 $\Box$ $\Box$ , B5 JIS $\Box$ $\Box$ , A5 $\Box$ , 8 $^1/_2 \times 13\Box$
ADF	A3 $\Box$ , B4 JIS $\Box$ , A4 $\Box$ $\Box$ , B5 JIS $\Box$ $\Box$ , A5 $\Box$ $\Box$ , B6 JIS $\Box$ $\Box$ , 11 × 17 $\Box$ , 8 $^{1}/_{2}$ × 11 $\Box$ $\Box$ , 8 $^{1}/_{2}$ × 13 $\Box$

## Region B (mainly North America)

Original location	Original size and orientation	
Exposure glass	$11 \times 17^{\Box}$ , $8^{1}/_{2} \times 14^{\Box}$ , $8^{1}/_{2} \times 11^{\Box}$ , $5^{1}/_{2} \times 8^{1}/_{2}^{\Box}$	
ADF	$11 \times 17^{\Box}$ , $8^{1}/_{2} \times 14^{\Box}$ , $8^{1}/_{2} \times 11^{\Box}$ , $5^{1}/_{2} \times 8^{1}/_{2}^{\Box}$ $\Box$ , $10 \times 14^{\Box}$ , $7^{1}/_{4} \times 10^{1}/_{2}^{\Box}$ , A3 $\Box$ , A4 $\Box$	

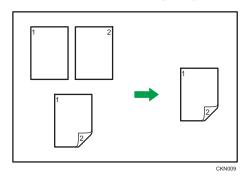
1. Press [Auto Reduce / Enlarge].



- 2. Select the paper size.
- 3. Place the originals, and then press the [Start] key.

# **Duplex Copying**

Copies two 1-sided pages or one 2-sided page onto a 2-sided page. During copying, the image is shifted to allow for the binding margin.



There are two types of Duplex.

#### 1 Sided → 2 Sided

Copies two 1-sided pages on one 2-sided page.

#### 2 Sided → 2 Sided

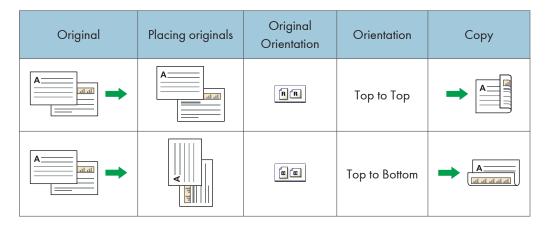
Copies one 2-sided page on one 2-sided page.

The resulting copy image will differ according to the orientation in which you place your originals ( $\square$  or  $\square$ ).

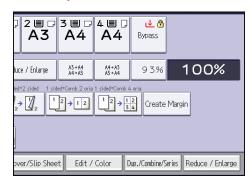
#### Original orientation and completed copies

To copy on both sides of the paper, select the original and copy orientation according to how you want the printout to appear.

Original	Placing originals	Original Orientation	Orientation	Сору
A	A	RR	Top to Top	→ A
	A A MINING THE PROPERTY OF THE	æ	Top to Bottom	<b>A</b>

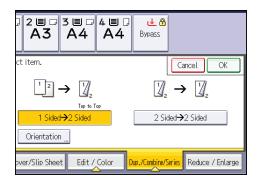


1. Press [Dup./Combine/Series].



- 2. Make sure that [Duplex] is selected. If [Duplex] is not selected, press [Duplex].
- Select [1 Sided → 2 Sided] or [2 Sided → 2 Sided] according to how you want the document to be output.

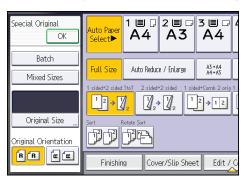
To change the original or copy orientation, press [Orientation].



- 4. Press [OK].
- 5. Place the originals.
- 6. Press [Special Original].



7. Select the original orientation, and then press [OK].

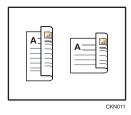


8. Press the [Start] key.

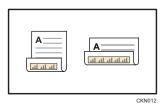
# **Specifying the Original and Copy Orientation**

Select the orientation of the originals and copies if the original is two-sided or if you want to copy onto both sides of the paper.

• Top to Top

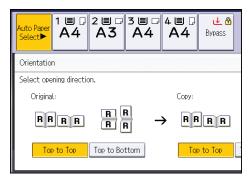


• Top to Bottom



1. Press [Orientation].

2. Select [Top to Top] or [Top to Bottom] for [Original:] if the original is two-sided.



- 3. Select [Top to Top] or [Top to Bottom] for [Copy:].
- 4. Press [OK].

# **Combined Copying**

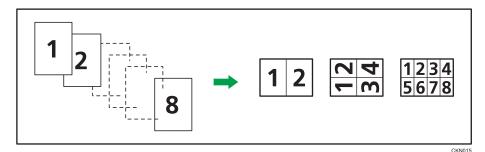
This mode can be used to select a reproduction ratio automatically and copy the originals onto a single sheet of copy paper.

The machine selects a reproduction ratio between 25 and 400%. If the orientation of the original is different from that of the copy paper, the machine will automatically rotate the image by 90 degrees to make copies properly.

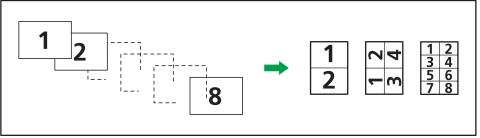
#### Orientation of the original and image position of Combine

The image position of Combine differs according to original orientation and the number of originals to be combined.

• Portrait (□) originals



• Landscape (□) originals

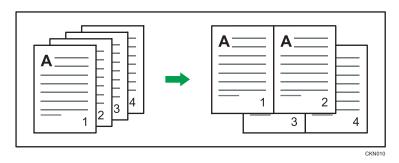


CKN016

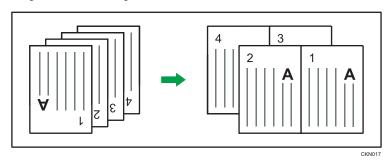
#### Placing originals (originals placed in the ADF)

The default value for the copy order in the Combine function is [From Left to Right]. To copy originals from right to left in the ADF, place them upside down.

· Originals read from left to right



• Originals read from right to left



# **One-Sided Combine**

Combine several pages onto one side of a sheet.



There are six types of One-Sided Combine.

# 1 Sided 2 Originals → Combine 1 Side

Copies two 1-sided originals to one side of a sheet.

# 1 Sided 4 Originals → Combine 1 Side

Copies four 1-sided originals to one side of a sheet.

# 1 Sided 8 Originals → Combine 1 Side

Copies eight 1-sided originals to one side of a sheet.

# 2 Sided 2 Pages → Combine 1 Side

Copies one 2-sided original to one side of a sheet.

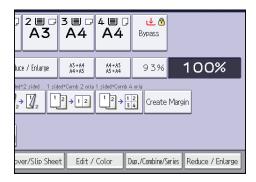
## 2 Sided 4 Pages → Combine 1 Side

Copies two 2-sided originals to one side of a sheet.

#### 2 Sided 8 Pages → Combine 1 Side

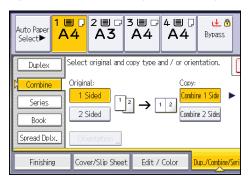
Copies four 2-sided originals to one side of a sheet.

1. Press [Dup./Combine/Series].



- 2. Press [Combine].
- 3. Select [1 Sided] or [2 Sided] for [Original:].

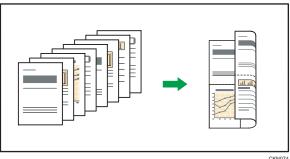
If you selected [2 Sided], you can change the orientation.



- 4. Press [Combine 1 Side].
- 5. Select the number of originals to combine.
- 6. Press [OK].
- 7. Select the paper size.
- 8. Place the originals, and then press the [Start] key.

#### Two-Sided Combine

Combines various pages of originals onto two sides of one sheet.



CKN074

There are six types of Two-Sided Combine.

## 1 Sided 4 Originals → Combine 2 Sides

Copies four 1-sided originals to one sheet with two pages per side.

# 1 Sided 8 Originals → Combine 2 Sides

Copies eight 1-sided originals to one sheet with four pages per side.

## 1 Sided 16 Originals → Combine 2 Sides

Copies 16 1-sided originals to one sheet with eight pages per side.

## 2 Sided 4 Pages → Combine 2 Sides

Copies two 2-sided originals to one sheet with two pages per side.

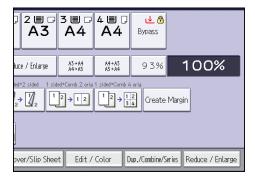
## 2 Sided 8 Pages → Combine 2 Sides

Copies four 2-sided originals to one sheet with four pages per side.

## 2 Sided 16 Pages → Combine 2 Sides

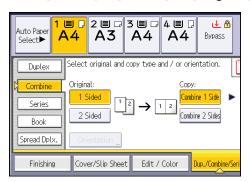
Copies eight 2-sided originals to one sheet with eight pages per side.

#### 1. Press [Dup./Combine/Series].



#### 2. Press [Combine].

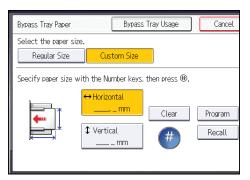
3. Select [1 Sided] or [2 Sided] for [Original:].



- 4. Press [Combine 2 Sides].
- 5. Press [Orientation].
- 6. Select [Top to Top] or [Top to Bottom] for [Original:] and/or [Copy:], and then press [OK].
- 7. Select the number of originals to combine.
- 8. Press [OK].
- 9. Select the paper size.
- 10. Place the originals, and then press the [Start] key.

Paper that has a horizontal length of 148.0–457.2 mm (5.83–18.00 inches) and a vertical length of 90.0–320.0 mm (3.55–12.59 inches) can be fed in from the bypass tray.

- Load the paper face down in the bypass tray.
   The bypass tray ( ) is automatically selected.
- 2. Press the [#] key.
- 3. Press [Paper Size].
- 4. Press [Custom Size].
- 5. Enter the horizontal size with the number keys, and then press [#].



- 6. Enter the vertical size with the number keys, and then press [#].
- 7. Press [OK] twice.
- 8. Place the originals, and then press the [Start] key.

3

# **Copying onto Envelopes**

This section describes how to copy onto regular size and custom size envelopes. Place the original on the exposure glass and place the envelope in the bypass tray or paper tray.

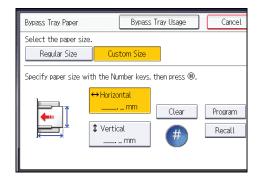
Specify the thickness of the paper according to the weight of the envelopes you are printing on. For details about the relationship between paper weight and paper thickness and the sizes of envelopes that can be used, see page 144 "Recommended Paper Sizes and Types".

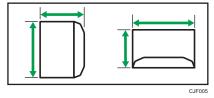
For details about how to handle envelopes, supported envelope types, and how to load envelopes, see page 155 "Envelopes".



The Duplex function cannot be used with envelopes. If the Duplex function is specified, press [1 sided → 2 sided:TtoT] to cancel the setting.

To copy onto custom size envelopes, you must specify the envelope's dimensions. Specify the horizontal and vertical length of the envelope.





: Vertical

Be sure to include the fully open flap in the horizontal dimension.

# Copying onto Envelopes from the Bypass Tray

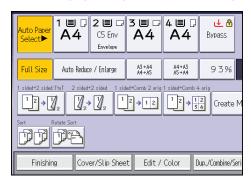
Before using this function, select [Envelope] for the paper type under [Tray Paper Settings] in User Tools. For details, see "Tray Paper Settings", Connecting the Machine/ System Settings.

- Load the envelopes face down in the bypass tray.
   The bypass tray (=) is automatically selected.
- 2. Press the [#] key.
- 3. Press [Paper Size].
- 4. Specify the envelope size, and then press [OK] twice.
- 5. Place the originals, and then press the [Start] key.

# Copying onto Envelopes from the Paper Tray

Before using this function, specify the paper size and type under [Tray Paper Settings] in User Tools. For the paper type, select [Envelope]. For details, see "Tray Paper Settings", Connecting the Machine/System Settings.

1. Select the paper tray where the envelopes are loaded.



2. Place the originals, and then press the [Start] key.

# Sort

The machine assembles copies as sets in sequential order.



• You cannot use the bypass tray with Rotate Sort.

#### Sort/Shift Sort

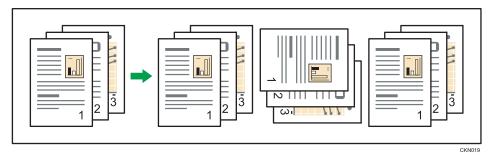
Copies are assembled as sets in sequential order.

To use Shift Sort, a finisher or the internal shift tray is required. Each time the copies of one set or a job are delivered, the next copy is shifted to separate each set or job.



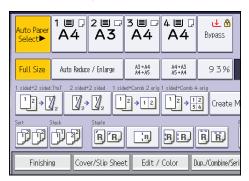
#### **Rotate Sort**

Every other copy set is rotated by 90 degrees (DD) and delivered to the copy tray.

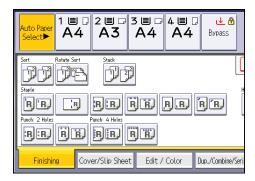


To use the Rotate Sort function, two paper trays loaded with paper of the same size and type, but in different orientation ( $\square\square$ ), are required. For details, see "Tray Paper Settings", Connecting the Machine/ System Settings.

1. Press [Finishing].



2. Select [Sort] or [Rotate Sort], and then press [OK].



- 3. Enter the number of copy sets using the number keys.
- 4. Place the originals.

To confirm the type of finishing, press the [Sample Copy] key.

5. Press the [Start] key.



 Depending on your model and which options are installed on it, some of these functions might not be available. For details, see "Functions Requiring Optional Configurations", Getting Started.

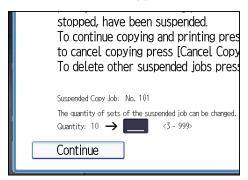
# Changing the Number of Sets

You can change the number of copy sets during copying.



- This function can be used only when the Sort function is selected.
- 1. While "Copying..." is displayed, press the [Stop] key.

2. Enter the number of copy sets with the number keys.



3. Press [Continue].

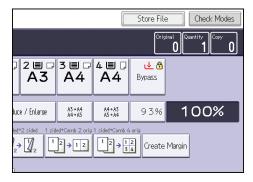
Copying starts again.

# Storing Data in the Document Server

The Document Server enables you to store documents being read with the copy feature on the hard disk of this machine. Thus you can print them later applying necessary conditions.

You can check the stored documents on the Document Server screen. For details about the Document Server, see page 123 "Storing Data".

1. Press [Store File].



- 2. Enter a file name, user name, or password if necessary.
- 3. Specify a folder in which to store the document if necessary.
- 4. Press [OK].
- 5. Place the originals.
- 6. Make the scanning settings for the original.
- 7. Press the [Start] key.

Stores scanned originals in memory and makes one set of copies. If you want to store another document, do so after copying is complete.

3

# 4. Fax

This chapter describes frequently used facsimile functions and operations. For the information not included in this chapter, see Fax on the supplied CD-ROM.

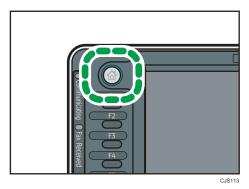
# Basic Procedure for Transmissions (Memory Transmission)

This section describes the basic procedure for transmitting documents using Memory Transmission.

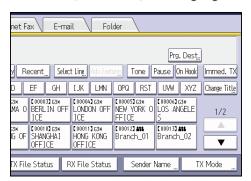
You can specify the fax, IP-Fax, Internet Fax, e-mail, or folder destinations. Multiple types of destination can be specified simultaneously.



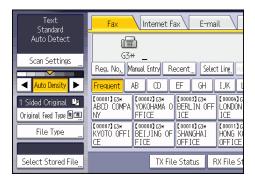
- It is recommended that you call the receivers and confirm with them when sending important documents.
- If there is a power failure (the main power switch is turned off) or the machine is unplugged for
  about one hour, all the documents stored in memory are deleted. As soon as the main power
  switch is turned on, the Power Failure Report is printed to help you check the list of deleted files. See
  "When an Error Is Notified via a Report or E-mail", Troubleshooting.
- 1. Press the [Home] key on the top left of the control panel, and press the [Facsimile] icon on the [Home] screen.



2. Make sure "Ready" appears on the screen.



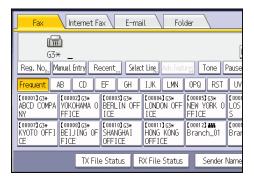
- 4. Place the original into the ADF.
- 5. Make the scan settings such as scan size and resolution.



- 6. Configure the transmission settings such as [TX Mode] as necessary.
- 7. Specify a destination.

You can enter the destination's number or address directly or select from the Address Book by pressing the destination key.

If you make a mistake, press the [Clear] key, and then enter again.



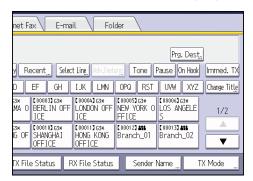
8. When sending the same original to several destinations (broadcasting), specify the next destination.

4

- If you send documents to Internet Fax or e-mail destinations or enable the E-mail TX Results function, specify a sender.
- 10. Press the [Start] key.

## Sending Originals Using the Exposure Glass (Memory Transmission)

1. Make sure [Immed. TX] is not highlighted.



- 2. Place the first page of the original face down on the exposure glass.
- 3. Specify a destination.
- 4. Make the scan settings you require.
- 5. Press the [Start] key.
- 6. Place the next original on the exposure glass within 60 seconds when you send multiple originals, and then repeat steps 4 and 5.

Repeat this step for each page.



7. Press the [#] key.

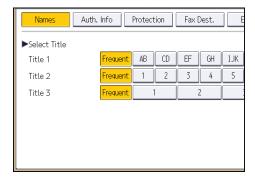
The machine dials the destination and starts transmission.

## Registering a Fax Destination

- 1. Press the [User Tools/Counter] key.
- 2. Press [Address Book Mangmnt].
- 3. Check that [Program / Change] is selected.
- 4. Press [New Program].
- 5. Press [Change] under "Name".

The name entry display appears.

- 6. Enter the name, and then press [OK].
- 7. Press [▼Next].
- 8. Press the key for the classification you want to use under "Select Title".



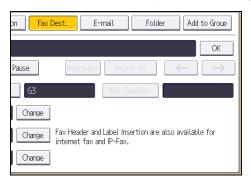
The keys you can select are as follows:

- [Frequent]: Added to the page that is displayed first.
- [AB], [CD], [EF], [GH], [IJK], [LMN], [OPQ], [RST], [UVW], [XYZ], [1] to [10]: Added to the list of items in the selected title.

You can select [Frequent] and one more key for each title.

- 9. Press [Fax Dest.].
- 10. Press [Change] under "Fax Destination".

11. Enter the fax number using the number keys, and then press [OK].



- 12. Specify optional settings such as "SUB Code", "SEP Code", and "International TX Mode".
- 13. Press [OK].
- 14. Press [Exit].
- 15. Press the [User Tools/Counter] key.

## **Deleting a Fax Destination**

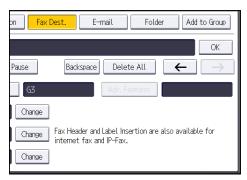


- If you delete a destination that is a specified delivery destination, messages to its registered
   Personal Box, for example, cannot be delivered. Be sure to check the settings in the fax function before deleting any destinations.
- 1. Press the [User Tools/Counter] key.
- 2. Press [Address Book Mangmnt].
- 3. Check that [Program / Change] is selected.
- 4. Select the name whose fax destination you want to delete.

Press the name key, or enter the registered number using the number keys.

You can search by the registered name, user code, fax number, folder name, e-mail address, or IP-Fax destination.

- 5. Press [Fax Dest.].
- 6. Press [Change] under "Fax Destination".



- 8. Press [OK].
- 9. Press [Exit].
- 10. Press the [User Tools/Counter] key.

# Transmitting while Checking Connection to Destination (Immediate Transmission)

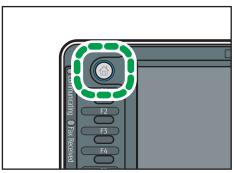
Using Immediate Transmission, you can send documents while checking the connection to the destination.

You can specify fax or IP-Fax destinations.

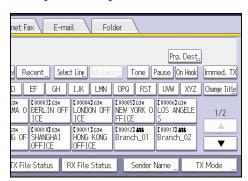
If you specify Internet Fax, e-mail, folder destinations, and group or multiple destinations, the transmission mode is automatically switched to Memory Transmission.



- It is recommended that you call the receivers and confirm with them when sending important documents
- Press the [Home] key on the top left of the control panel, and press the [Facsimile] icon on the [Home] screen.



- CJS113
- 2. Make sure "Ready" appears on the screen.
- 3. Press [Immed. TX].



- 4. Place the original into the ADF.
- 5. Select the scan settings you require.

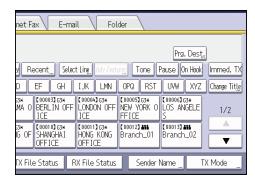
6. Specify a destination.

If you make a mistake, press the [Clear] key, and then enter again.

7. Press the [Start] key.

# Sending Originals Using the Exposure Glass (Immediate Transmission)

1. Press [Immed. TX].



- 2. Place the first page face down on the exposure glass.
- 3. Specify a destination.
- 4. Make the scan settings you require.
- 5. Press the [Start] key.
- 6. Place the next original on the exposure glass within 10 seconds when you send multiple originals, and then repeat steps 4 and 5.

Repeat this step for each page.



7. Press the [#] key.

4

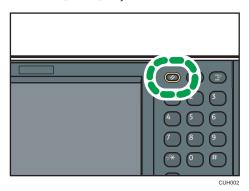
# Canceling a Transmission

This section explains how to cancel a fax transmission.

#### Canceling a Transmission Before the Original Is Scanned

Use this procedure to cancel a transmission before pressing the [Start] key.

#### 1. Press the [Reset] key.



#### Canceling a Transmission While the Original Is Being Scanned

Use this procedure to cancel scanning or transmitting of the original while it is being scanned.

If you cancel a transmission using the standard memory transmission function, you need to follow a different procedure to cancel the transmission. See page 92 "Canceling a Transmission After the Original Is Scanned".

#### 1. Press the [Stop] key.



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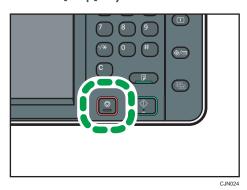
Depending on the transmission mode and function you use, either [Cancel Scanning] or [Cancel TX] is displayed.

#### Canceling a Transmission After the Original Is Scanned

Use this procedure to cancel a transmission after the original is scanned.

You can cancel transmission of a file while the file is being sent, stored in memory, or if it fails to transmit. All the scanned data is deleted from memory.

#### 1. Press the [Stop] key.



You can also press [TX/RX Status / Print], and then [Check / Stop Transmission File].

2. Press [Standby File List].

To cancel transmission of a file stored in the memory, press the [File List] tab.

3. Select the file you want to cancel.

If the desired file is not shown, press [▲] or [▼] to find it.

- 4. Press [Stop Transmission].
- 5. Press [OK].

To cancel another file, repeat steps 3 through 5.

6. Press [Exit].

After pressing [Check / Stop Transmission File] under [TX/RX Status / Print] in step 1, press [Exit] twice.

# **Storing a Document**

You can store and send a document at the same time. You can also just store a document.

The following information can be set for the stored documents as necessary:

#### **User Name**

You can set this function if necessary to know who and what departments stored documents in the machine. A user name can be selected from the Address Book or entered manually.

#### File Name

You can specify a name for a stored document. If you do not specify a name, scanned documents will be automatically assigned names such as "FAX0001" or "FAX0002".

#### **Password**

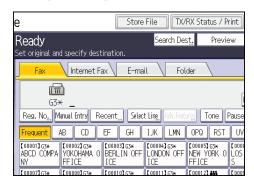
You can set this function so as not to send to unspecified people. A four to eight digit number can be specified as a password.

You can also change the file information after storing files.

1. Place the original, and then specify the scan settings you require.

Specify the [Original Orientation] setting correctly. If you do not, the top/bottom orientation of the original will not be displayed correctly in the preview.

#### 2. Press [Store File].



#### 3. Select [Send & Store] or [Store Only].

Select [Send & Store] to send documents after they are stored.

Select [Store Only] to store documents.

4. Set the user name, file name, and password as necessary.



User Name

Press [User Name], and then select a user name. To specify an unregistered user name, press [Manual Entry], and then enter the name. After specifying a user name, press [OK].

• File Name

Press [File Name], enter a file name, and then press [OK].

Password

Press [Password], enter a password using the number keys, and then press [OK]. Re-enter the password for confirmation, and then press [OK].

- 5. Press [OK].
- 6. If you have selected [Send & Store], specify the receiver.
- 7. Press the [Start] key.

#### **Sending Stored Documents**

The machine sends documents stored with the facsimile function in the Document Server.

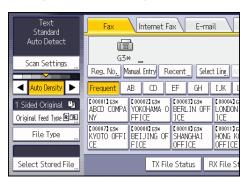
The documents stored in the Document Server can be sent again and again until they are deleted.

The stored documents are sent with the scan settings made when they were stored.

You cannot use the following transmission methods:

- Immediate Transmission
- Parallel Memory Transmission
- On Hook Dial
- Manual Dial

#### 1. Press [Select Stored File].



#### 2. Select the documents to be sent.

When multiple documents are selected, they are sent in the order of selection.

- Press [User Name] to place the documents in order by programmed user name.
- Press [File Name] to place the documents in alphabetical order.
- Press [Date] to place the documents in order of programmed date.
- Press [Queue] to arrange the order of the documents to be sent.

To view details about stored documents, press [Details].

Press the Thumbnails key to switch the screen to thumbnail display.

- 3. If you select a document with a password, enter the password using the number keys, and then press [OK].
- When you want to add your originals to stored documents and send them all at once, press [Original + Stored File] or [Stored file + Original].

When [Original + Stored File] is pressed, the machine sends the originals, and then stored files. When [Stored file + Original] is pressed, the machine sends the stored files, and then originals.

- 5. Press [OK].
- 6. To add an original to stored documents, place the original, and then select any scan settings you require.
- 7. Specify the destination, and then press the [Start] key.

# **Printing the Journal Manually**

To print the Journal manually, select the printing method: [All], [Print per File No.], or [Print per User].

#### Αll

Prints the results of communications in the order made.

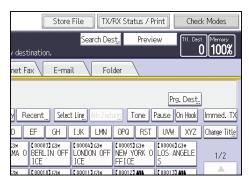
#### Print per File No.

Prints only the results of communications specified by file number.

#### Print per User

Prints the results of communications by individual senders.

1. Press [TX/RX Status / Print].



- 2. Press [Print Journal].
- 3. Select the printing method.
- 4. If you selected [Print per File No.] in step 3, enter a 4-digit file number using the number keys.
- 5. If you selected [Print per User] in step 3, select a user from the list, and then press [OK].
- 6. Press the [Start] key.
- 7. Press [Exit] twice.

# 5. Print

This chapter describes frequently used printer functions and operations. For the information not included in this chapter, see Print on the supplied CD-ROM.

### **Quick Install**

You can install the printer drivers easily from the CD-ROM provided with this machine.

Using Quick Install, the PCL 6 printer driver is installed under network environment, and the Standard TCP/IP port will be set.



- Manage Printers permission is required to install the drivers. Log on as an Administrators group member.
- 1. Quit all applications. (Do not close this manual.)
- 2. Insert the provided CD-ROM into the computer's CD-ROM drive.

If the [AutoPlay] dialog box appears, click [Run AUTORUN.EXE].

If you are using a computer that is running Windows 8 or Windows Server 2012, click the drive and CD-ROM names when these appear in the upper right corner of the screen, and then click [Run SETUP.EXE].

- 3. Select an interface language, and then click [OK].
- 4. Click [Quick Install].
- 5. The software license agreement appears in the [License Agreement] dialog box. After reading the agreement, click [I accept the agreement.], and then click [Next].
- 6. Click [Next].
- 7. Select the machine model you want to use in the [Select Printer] dialog box.
- 8. Click [Install].
- Configure the user code, default printer, and shared printer as necessary.
- 10. Click [Continue].

The installation starts.

If the [User Account Control] dialog box appears, and then click [Yes] or [Continue].

11. Click [Finish].

When you are prompted to restart your computer, restart it by following the instructions that appear.

12. Click [Exit] in the first window of the installer, and then take out the CD-ROM.

# **Displaying the Printer Driver Properties**

This section explains how to open the printer driver properties from [Devices and Printers].

#### 

- Manage Printers permission is required to change the printer settings. Log on as an Administrators group member.
- You cannot change the machine default settings for individual users. Settings made in the printer properties dialog box are applied to all users.
- 1. On the [Start] menu, click [Devices and Printers].
- 2. Right-click the icon of the printer you want to use.
- 3. Click [Printer properties].

# **Standard Printing**

#### 

- The default setting is 2 sided printing. If you want to print on only one side, select [Off] for the 2 sided printing setting.
- If you send a print job via USB 2.0 while the machine is in Low Power mode or Sleep mode, an
  error message might appear when the print job is complete. In this case, check if the document was
  printed.

#### When Using the PCL 6 Printer Driver

- 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].
- 4. In the "Job Type:" list, select [Normal Print].
- 5. In the "Document Size:" list, select the size of the original to be printed.
- 6. In the "Orientation:" list, select [Portrait] or [Landscape] as the orientation of the original.
- In the "Input Tray:" list, select the paper tray that contains the paper you want to print onto.
  - If you select [Auto Tray Select] in the "Input Tray:" list, the source tray is automatically selected according to the paper size and type specified.
- 8. In the "Paper Type:" list, select the type of paper that is loaded in the paper tray.
- 9. Select [Color] or [Black and White] in the "Color/ Black and White:" list.
- 10. If you want to print multiple copies, specify a number of sets in the "Copies:" box.
- 11. Click [OK].
- 12. Start printing from the application's [Print] dialog box.

# Printing on Both Sides of Sheets

This section explains how to print on both sides of each page using the printer driver.



- The types of paper that can be printed on both sides are as follows:
  - Plain (60 to 81 g/m2), Recycled, Special 1, Special 2, Special 3, Middle Thick (82 to 105 g/m2), Thick 1(106 to 169 g/m2), Thick 2(170 to 220 g/m2), Thick 3(221 to 256 g/m2), Thin (52 to 59 g/m2), Color, Letterhead, Preprinted, Bond, Cardstock

#### When Using the PCL 6 Printer Driver

- 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].
- 4. Click the [Detailed Settings] tab.
- 5. In the "Menu:" box, click the [Edit] icon.
- 6. Select the method for binding the output pages in the "2 sided:" list.
- 7. Change any other print settings if necessary.
- 8. Click [OK].
- 9. Start printing from the application's [Print] dialog box.

#### Types of 2 Sided Printing

You can select which way the bound pages open by specifying which edge to bind.

Orientation	Open to Left	Open to Top	
Portrait	A:		
Landscape	A	A	

# Combining Multiple Pages into Single Page

This section explains how to print multiple pages onto a single sheet. The combine printing function allows you to economize on paper by printing multiple sheets at reduced size onto a single sheet.

#### When Using the PCL 6 Printer Driver

- 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].
- 4. Click the [Detailed Settings] tab.
- 5. In the "Menu:" box, click the [Edit] icon.
- 6. Select the combination pattern in the "Layout:" list, and then specify the method for combining pages in the "Page Order:" list.

To draw a border line around each page, select [Draw Frame Border].

- 7. Change any other print settings if necessary.
- 8. Click [OK].
- 9. Start printing from the application's [Print] dialog box.

#### Types of Combine Printing

This function allows you to print 2, 4, 6, 9, or 16 pages at reduced size onto a single sheet and to specify a page ordering pattern for the combination. When combining 4 or more pages onto a single sheet of paper, four patterns are available.

The following illustrations show example page ordering patterns for 2- and 4-page combinations.

#### 2 Pages per Sheet

Orientation	From Left to Right/Top to Bottom	From Right to Left/Top to Bottom	
Portrait	3 4 1 2	4 3 2 1	
Landscape	3 1 4	3 1 4 2	

O

### 4 Pages per Sheet

Right, then Down	Down, then Right	Left, then Down	Down, then Left
1 2 3 4	1 3 2 4	2 1 4 3	3 1 4 2

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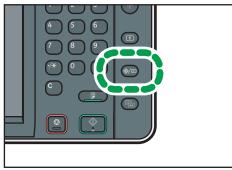
#### b

# **Printing on Envelopes**

Configure the paper settings appropriately using both the printer driver and the control panel.

#### Configuring Envelope Settings Using the Control Panel

- 1. Load envelopes in the paper tray.
- 2. Press the [User Tools/Counter] key.



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- 3. Press [Tray Paper Settings].
- 4. Select the paper size setting of the paper tray in which the envelopes are loaded.
- 5. Select the envelope size, and then press [OK].
- 6. Press [▼Next].
- 7. Select the paper type setting of the paper tray in which the envelopes are loaded.
- 8. Press [Envelope] in the "Paper Type" area, and then select the appropriate item in the "Paper Thickness" area.
- 9. Press [OK].
- 10. Press the [User Tools/Counter] key.

#### Printing on Envelopes Using the Printer Driver

#### When using the PCL 6 printer driver

- 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].

- 4. In the "Document Size:" list, select the envelope size.
- 5. In the "Input Tray:" list, select the paper tray where the envelopes are loaded.
- 6. In the "Paper Type:" list, select [Envelope].
- 7. Change any other print settings if necessary.
- 8. Click [OK].
- 9. Start printing from the application's [Print] dialog box.

# Saving and Printing Using the Document Server

The Document Server enables you to store documents on the machine's hard disk, and allows you to edit and print them as necessary.

#### Mportant (

- Applications with their own drivers, such as PageMaker, do not support this function.
- Do not cancel the file transfer process while the data is being sent to the Document Server. The process may not be canceled properly. If you accidentally cancel a print job, use the control panel of the machine to delete the transferred data. For details about how to delete documents that are stored in the Document Server, see "Deleting a Stored Document", Copy/ Document Server, or Web Image Monitor Help.
- Up to 3,000 files can be stored in the Document Server. New files cannot be stored when 3,000 files have already been stored. Even if less than 3,000 files are stored, new files cannot be stored when
  - The number of pages in a document exceeds 2,000.
  - The total number of stored pages in the machine and the sent data has reached 9,000 (It may be fewer depending on the print data).
  - The hard disk is full.

You can send data created on a client computer to the Document Server.

#### Storing Documents in Document Server

- If the machine's hard disk is used for purposes other than the Document Server, the maximum number of the documents that can be stored in the server may be less than the number described in the specification.
- 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].
- 4. In the "Job Type:" list, click [Document Server].
- 5. Click [Details...].
- 6. Enter a user ID, file name, password, and user name as required.

- 8. If the folder is protected by a password, enter the password in the "Folder Password:" box.
- 9. Click [OK].
- 10. Change any other print settings if necessary.
- 11. Click [OK].
- 12. Start printing from the application's [Print] dialog box.



• You can print the documents stored in the Document Server using the control panel.

#### Managing Documents Stored in Document Server

When this machine is configured as a network printer using TCP/IP, you can view or delete the documents stored in the machine's Document Server using DeskTopBinder or Web Image Monitor from a client computer connected to the network. You can print and operate this machine remotely without operating the control panel.

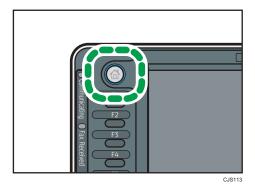
# 6. Scan

This chapter describes frequently used scanner functions and operations. For the information not included in this chapter, see Scan on the supplied CD-ROM.

# Basic Procedure When Using Scan to Folder



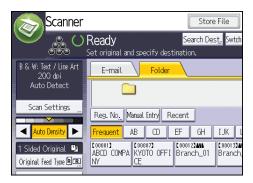
- Before performing this procedure, refer to "Preparation for Sending by Scan to Folder", Scan and confirm the details of the destination computer. Also refer to "Registering Folders", Connecting the Machine/ System Settings, and register the address of the destination computer to the address book.
- Press the [Home] key on the top left of the control panel, and press the [Scanner] icon on the [Home] screen.



2. Make sure that no previous settings remain.

If a previous setting remains, press the [Reset] key.

3. Press the [Folder] tab.



4. Place originals.





Example: Scanning the document in color/duplex mode, and saving as a PDF file.

- Press [Scan Settings], and then press [Full Color: Text / Photo] in the [Original Type] tab.
- Press [Original Feed Type], and then press [2 Sided Original].
- Press [PDF] under [Send File Type / Name].
- 6. Specify the destination.

You can specify multiple destinations.

7. Press the [Start] key.

# Creating a Shared Folder on a Computer Running Windows/Confirming a Computer's Information

The following procedures explain how to create a shared folder on a computer running Windows, and how to confirm the computer's information. In these examples, Windows 7 Ultimate is the operating system, and the computer is a member in a network domain. Write down the confirmed information.

#### Step 1: Confirming the user name and computer name

Confirm the user name and the name of the computer you will send scanned documents to.

- On the [Start] menu, point to [All Programs], then [Accessories], and then click on [Command Prompt].
- 2. Enter the command "ipconfig/all", and then press the [Enter] key.
- 3. Confirm the name of the computer.

The computer's name is displayed under [Host Name].

You can also confirm the IPv4 address. The address displayed under [IPv4 Address] is the IPv4 address of the computer.

4. Next, enter the command "set user", and then press the [Enter] key. (Be sure to put a space between "set" and "user".)

#### 5. Confirm the user name.

The user name is displayed under [USERNAME].

#### Step 2: Creating a shared folder on a computer running Microsoft Windows

Create a shared destination folder in Windows and enable sharing. In the following procedure, a computer which is running under Windows 7 Ultimate and participating in a domain is used as an example.

#### 

- You must log in as an Administrators group member to create a shared folder.
- If "Everyone" is left selected in step 6, the created shared folder will be accessible by all users. This
  is a security risk, so we recommend that you give access rights only to specific users. Use the
  following procedure to remove "Everyone" and specify user access rights.
- 1. Create a folder, just as you would create a normal folder, in a location of your choice on the computer.
- 2. Right-click the folder, and then click [Properties].

When using Windows XP, right-click the folder, and then click [Sharing and Security].

3. On the [Sharing] tab, select [Advanced Sharing...].

When using Windows XP, on the [Sharing] tab, select [Share this folder].

Proceed to step 5.

- 4. Select the [Share this folder] check box.
- 5. Click [Permissions].
- 6. In the [Group or user names:] list, select "Everyone", and then click [Remove].
- 7. Click [Add...].
- 8. In the [Select Users or Groups] window, click [Advanced...].
- 9. Specify one or more object types, select a location, and then click [Find Now].
- From the list of results, select the groups and users you want to grant access to, and then click [OK].
- 11. In the [Select Users or Groups] window, click [OK].
- 12. In the [Groups or user names:] list, select a group or user, and then, in the [Allow] column of the permissions list, select either the [Full Control] or [Change] check box.
  - Configure the access permissions for each group and user.
- 13. Click [OK].

#### Step 3: Specifying access privileges for the created shared folder

If you want to specify access privileges for the created folder to allow other users or groups to access the folder, configure the folder as follows:

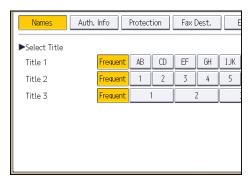
- 1. Right-click the folder created in step 2, and then click [Properties].
- 2. On the [Security] tab, click [Edit...].
- 3. Click [Add...].
- 4. In the [Select Users or Groups] window, click [Advanced...].
- Specify one or more object types, select a location, and then click [Find Now].
- 6. From the list of results, select the groups and users you want to grant access to, and then click [OK].
- 7. In the [Select Users or Groups] window, click [OK].
- In the [Groups or user names:] list, select a group or user, and then, in the [Allow] column of the permissions list, select either the [Full Control] or [Change] check box.
- 9. Press [OK] twice.

#### Registering an SMB Folder

- 1. Press the [User Tools/Counter] key.
- 2. Press [Address Book Mangmnt].
- 3. Check that [Program / Change] is selected.
- 4. Press [New Program].
- 5. Press [Change] under "Name".

The name entry display appears.

- 6. Enter the name, and then press [OK].
- 7. Press [▼Next].
- Press the key for the classification you want to use under "Select Title".

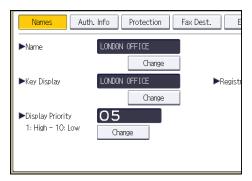


The keys you can select are as follows:

- [Frequent]: Added to the page that is displayed first.
- [AB], [CD], [EF], [GH], [IJK], [LMN], [OPQ], [RST], [UVW], [XYZ], [1] to [10]: Added to the list of items in the selected title.

You can select [Frequent] and one more key for each title.

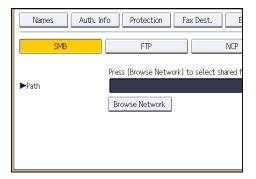
9. Press [Auth. Info], and then press [▼Next].



10. Press [Specify Other Auth. Info] on the right side of "Folder Authentication".

When [Do not Specify] is selected, the SMB User Name and SMB Password that you have specified in "Default User Name / Password (Send)" of File Transfer settings are applied.

- 11. Press [Change] under "Login User Name".
- 12. Enter the login user name of the destination computer, and then press [OK].
- 13. Press [Change] under "Login Password".
- 14. Enter the password of the destination computer, and then press [OK].
- 15. Enter the password again to confirm, and then press [OK].
- 16. Press [Folder].
- 17. Check that [SMB] is selected.



18. Press [Change] or [Browse Network], and then specify the folder.

To specify a folder, you can either enter the path manually or locate the folder by browsing the network.

- 19. Press [Connection Test] to check the path is set correctly.
- 20. Press [Exit].

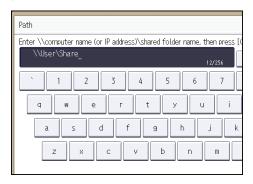
If the connection test fails, check the settings, and then try again.

- 21. Press [OK].
- 22. Press [Exit].
- 23. Press the [User Tools/Counter] key.

#### Locating the SMB folder manually

- 1. Press [Change] under "Path".
- 2. Enter the path where the folder is located.

For example: if the name of the destination computer is "User", and the folder name is "Share", the path will be \\User\Share.



If the network does not allow automatic obtaining of IP addresses, include the destination computer's IP address in the path. For example: if the IP address of the destination computer is "192.168.0.191", and the folder name is "Share", the path will be \\192.168.0.191\Share.

3. Press [OK].

If the format of the entered path is not correct, a message appears. Press [Exit], and then enter the path again.

#### Locating the SMB folder using Browse Network

1. Press [Browse Network].

The client computers sharing the same network as the machine appear.

Network display only lists client computers you are authorized to access.

2. Select the group that contains the destination computer.

3. Select the computer name of the destination computer.

Shared folders under it appear.



You can press [Up One Level] to switch between levels.

- 4. Select the folder you want to register.
- 5. Press [OK].

#### Deleting an SMB Registered Folder

- 1. Press the [User Tools/Counter] key.
- 2. Press [Address Book Mangmnt].
- 3. Check that [Program / Change] is selected.
- 4. Select the name whose folder you want to delete.

Press the name key, or enter the registered number using the number keys.

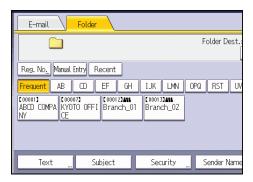
You can search by the registered name, user code, fax number, folder name, e-mail address, or IP-Fax destination.

- 5. Press [Folder].
- 6. Press the protocol which is not currently selected.

A confirmation message appears.

- 7. Press [Yes].
- 8. Press [OK].
- 9. Press [Exit].
- 10. Press the [User Tools/Counter] key.

1. Press [Manual Entry].



- 2. Press [SMB].
- 3. Press [Manual Entry] on the right side of the path field.
- 4. Enter the path for the folder.

In the following example path, the shared folder name is "user" and the computer name is "desk01":

\\desk01\user

- 5. Press [OK].
- 6. Depending on the destination setting, enter the user name for logging in to the computer.

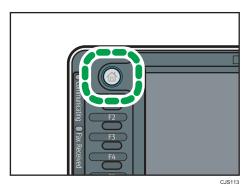
  Press [Manual Entry] to the right of the user name field to display the soft keyboard.
- 7. Depending on the destination setting, enter the password for logging in to the computer.
  Press [Manual Entry] for the password to display the soft keyboard.
- 8. Press [Connection Test].

A connection test is performed to check whether the specified shared folder exists.

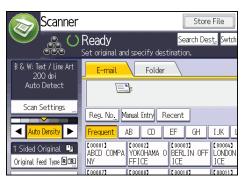
- 9. Check the connection test result, and then press [Exit].
- 10. Press [OK].

# Basic Procedure for Sending Scan Files by E-mail

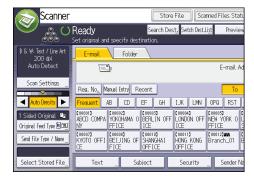
 Press the [Home] key on the top left of the control panel, and press the [Scanner] icon on the [Home] screen.



- Make sure that no previous settings remain.If a previous setting remains, press the [Reset] key.
- 3. Press the [E-mail] tab.



- 4. Place originals.
- 5. If necessary, specify the scan settings according to the original to be scanned.



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Example: Scanning the document in color/duplex mode, and saving as a PDF file.

- Press [Scan Settings], and then press [Full Color: Text / Photo] in the [Original Type] tab.
- Press [Original Feed Type], and then press [2 Sided Original].
- Press [PDF] under [Send File Type / Name].
- 6. Specify the destination.

You can specify multiple destinations.

- 7. To specify the e-mail sender, press [Sender Name], and then press [OK].
- 8. To use Message Disposition Notification, press [Recept. Notice].

If you select [Recept. Notice], the selected e-mail sender will receive e-mail notification when the e-mail recipient has opened the e-mail.

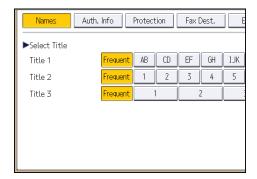
9. Press the [Start] key.

#### Registering an E-mail Destination

- 1. Press the [User Tools/Counter] key.
- 2. Press [Address Book Mangmnt].
- 3. Check that [Program / Change] is selected.
- 4. Press [New Program].
- 5. Press [Change] under "Name".

The name entry display appears.

- 6. Enter the name, and then press [OK].
- 7. Press [VNext].
- 8. Press the key for the classification you want to use under "Select Title".



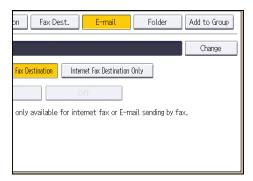
The keys you can select are as follows:

• [Frequent]: Added to the page that is displayed first.

[AB], [CD], [EF], [GH], [IJK], [LMN], [OPQ], [RST], [UVW], [XYZ], [1] to [10]: Added to the
list of items in the selected title.

You can select [Frequent] and one more key for each title.

- 9. Press [E-mail].
- 10. Press [Change] under "E-mail Address".



11. Enter the e-mail address.



- 12. Press [OK].
- 13. Select [E-mail / Internet Fax Destination] or [Internet Fax Destination Only].

If [E-mail / Internet Fax Destination] is specified, registered e-mail addresses appear in both Internet fax address display and E-mail address display on the fax function screen, and in the address display on the scanner function screen.

If [Internet Fax Destination Only] is specified, registered e-mail addresses only appear in Internet fax display on the fax function screen.

- 14. If you want to use Internet fax, specify whether or not to use "Send via SMTP Server".
- 15. Press [OK].
- 16. Press [Exit].
- 17. Press the [User Tools/Counter] key.

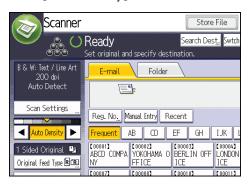
- 1. Press the [User Tools/Counter] key.
- 2. Press [Address Book Mangmnt].
- 3. Check that [Program / Change] is selected.
- 4. Select the name whose e-mail address you want to delete.

Press the name key, or enter the registered number using the number keys. You can search by the registered name, user code, fax number, folder name, e-mail address, or IP-Fax destination.

- 5. Press [E-mail].
- 6. Press [Change] under "E-mail Address".
- 7. Press [Delete All], and then press [OK].
- 8. Press [OK].
- 9. Press [Exit].
- 10. Press the [User Tools/Counter] key.

#### **Entering an E-mail Address Manually**

1. Press [Manual Entry].

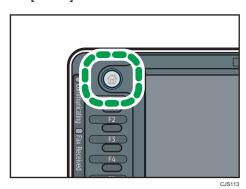


- 2. Enter the e-mail address.
- 3. Press [OK].

# **Basic Procedure for Storing Scan Files**

#### 

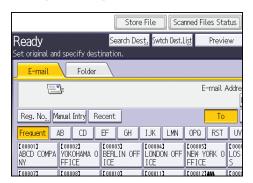
- You can specify a password for each stored file. Files that are not password-protected can be
  accessed by other users on the same local area network using DeskTopBinder. We recommend
  that you protect stored files from unauthorized access by specifying passwords.
- Scan file stored in the machine may be lost if some kind of failure occurs. We advise against using
  the hard disk to store important files. The supplier shall not be responsible for any damage that may
  result from the loss of files.
- 1. Press the [Home] key on the top left of the control panel, and press the [Scanner] icon on the [Home] screen.



2. Make sure that no previous settings remain.

If a previous setting remains, press the [Reset] key.

- 3. Place originals.
- 4. Press [Store File].



- 5. Press [Store to HDD].
- If necessary, specify the stored file's information, such as [User Name], [File Name], [Password], and [Select Folder].
  - User Name

Press [User Name], and then select a user name. To specify an unregistered user name, press [Manual Entry], and then enter the name. After specifying a user name, press [OK].

• File Name

Press [File Name], enter a file name, and then press [OK].

Password

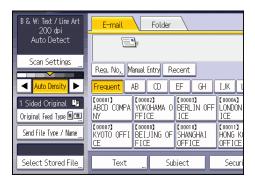
Press [Password], enter a password, and then press [OK]. Re-enter the password for confirmation, and then press [OK].

- Select Folder
   Specify the folder to save the stored files.
- 7. Press [OK].
- 8. If necessary, press [Scan Settings] to specify scanner settings such as resolution and scan size.
- 9. Press the [Start] key.

#### Checking a Stored File Selected from the List

This section explains how to preview a file selected from the list of stored files.

1. Press [Select Stored File].



- 2. Specify the folder in which the stored files are saved.
- 3. From the list of stored files, select the file you want to check.

You can select more than one file.

4. Press [Preview].

# Specifying the File Type

This section explains the procedure for specifying the file type of a file you want to send.

File types can be specified when sending files by e-mail or Scan to Folder, sending stored files by e-mail or Scan to Folder, and saving files on a memory storage device.

You can select one of the following file types:

• Single Page: [TIFF / JPEG], [PDF]

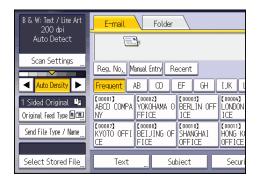
If you select a single-page file type when scanning multiple originals, one file is created for each single page and the number of files sent is the same as the number of pages scanned.

• Multi-page: [TIFF], [PDF]

If you select a multi-page file type when scan multiple originals, scanned pages are combined and sent as a single file.

Selectable file types differ depending on the scan settings and other conditions. For details about file types, see "Notes About and Limitations of File Types", Scan.

#### 1. Press [Send File Type / Name].



#### 2. Select a file type.

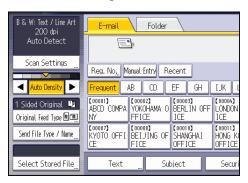


If necessary, configure [PDF File Setting].

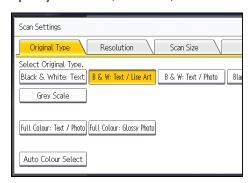
#### 3. Press [OK].

# **Specifying Scan Settings**

1. Press [Scan Settings].



2. Specify resolution, scan size, and other settings, as required.



3. Press [OK].

# 7. Document Server

This chapter describes frequently used Document Server functions and operations. For the information not included in this chapter, see Copy/ Document Server on the supplied CD-ROM.

# **Storing Data**

This section describes the procedure for storing documents on the Document Server.



- A document accessed with a correct password remains selected even after operations are complete, and it can be accessed by other users. After the operation, be sure to press the [Reset] key to cancel the document selection.
- The user name registered to a stored document in the Document Server is to identify the document creator and type. It is not to protect confidential documents from others.
- When turning on the fax transmission or scanning by the scanner, make sure that all other operations are ended.

#### File Name

A file name such as "COPY0001" and "COPY0002" is automatically attached to the scanned document. You can change the file name.

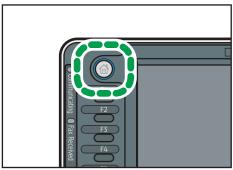
#### **User Name**

You can register a user name to identify the user or user group that stored the documents. To assign it, select the user name registered in the Address Book, or enter the name directly. Depending on the security setting, [Access Privileges] may appear instead of [User Name].

For details about the Address Book, see "Registering Addresses and Users", Connecting the Machine/System Settings .

#### **Password**

To prevent unauthorized printing, you can specify a password for any stored document. A protected document can only be accessed if its password is entered. If a password is specified for the documents, the lock icon appears on the left side of the file name.



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- 2. Press [To Scanning Screen].
- 3. Press [Target Fldr. to Store].
- 4. Specify a folder in which to store the document, and then press [OK].
- 5. Press [User Name].
- 6. Specify a user name, and then press [OK].

The user names shown are names that were registered in the Address Book. To specify a name not shown in the screen, press [Manual Entry], and then enter a user name.

- 7. Press [File Name].
- 8. Enter a file name, and then press [OK].
- 9. Press [Password].
- 10. Enter a password with the number keys, and then press [OK].

You can use four to eight digits for the password.

- 11. For double-check, enter the password again, and then press [OK].
- 12. Place the original.
- 13. Specify the original scanning conditions.
- 14. Press the [Start] key.

The original is scanned. The document is saved in the Document Server.

After scanning, a list of folders will be displayed. If the list does not appear, press [Finish Scanning].

#### /

# **Printing Stored Documents**

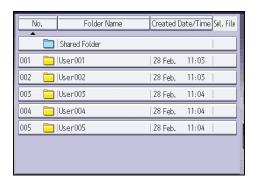
Prints stored documents on the Document Server.

The items you can specify on the printing screen are as follows:

- Paper tray
- The number of prints
- [Finishing] ([Sort], [Rotate Sort], [Stack], [Staple], [Punch], [Half Fold])
- [Cover/Slip Sheet] ([Front Cover], [Front/Back Cover], [Designate/Chapter], [Slip Sheet])
- [Edit / Stamp] ([Margin Adj.], [Stamp])
- [2 Sided Copy Top to Top], [2 Sided Copy Top to Bottom], [Booklet], [Magazine]

For details about each function, see Copy/ Document Server .

1. Select a folder.



- 2. Select a document to be printed.
- 3. When printing two or more documents at a time, repeat step 2.

Up to 30 documents can be printed.

- 4. When specifying printing conditions, press [To Printing Screen], and then configure print settings.
- 5. Enter the number of print copies with the number keys.

The maximum quantity that can be entered is 999.

6. Press the [Start] key.

# 8. Web Image Monitor

This chapter describes frequently used Web Image Monitor functions and operations. For the information not included in this chapter, see Connecting the Machine/ System Settings on the supplied CD-ROM or Web Image Monitor Help.

# **Displaying Top Page**

This section explains the Top Page and how to display Web Image Monitor.

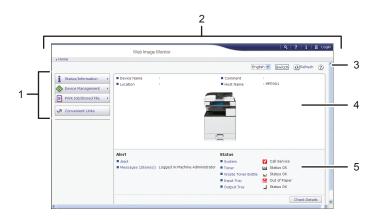


- When entering an IPv4 address, do not begin segments with zeros. For example: If the address is "192.168.001.010", you must enter it as "192.168.1.10".
- 1. Start your Web browser.
- Enter "http://(machine's IP address or host name)/" in your Web browser's URL bar.
   Top Page of Web Image Monitor appears.

If the machine's host name has been registered on the DNS or WINS server, you can enter it.

When setting SSL, a protocol for encrypted communication, under environment which server authentication is issued, enter "https://(machine's IP address or host name)/".

Web Image Monitor is divided into the following areas:



#### 1. Menu area

If you select a menu item, its content will be shown.

#### 2 Header area

The dialog box for switching to the user mode and administrator mode appears, and each mode's menu will be displayed.

The link to Help and dialog box for keyword search appears.

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#### 3. Refresh/Help

- (Refresh): Click at the upper right in the work area to update the machine information. Click the Web browser's [Refresh] button to refresh the entire browser screen.
- (Help): Use Help to view or download Help file contents.

#### 4. Basic Information area

Displays the basic information of the machine.

#### 5. Work area

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

# 9. Adding Paper and Toner

This chapter describes how to load paper into the paper tray and recommended paper sizes and types.

# **Precautions for Loading Paper**

## **CAUTION**

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

## € Important

• Do not stack paper over the limit mark.



- To prevent multiple sheets from being fed at once, fan the paper before loading it.
- If you load paper when only a few sheets of paper remain in the tray, multiple sheet feeding may
  occur. Remove any remaining paper, stack them with the new sheets of paper, and then fan the
  entire stack before loading it into the tray.
- Straighten curled or warped paper before loading.
- For details about the paper sizes and types that can be used, see page 144 "Recommended Paper Sizes and Types".
- You might at times hear a rustling noise from paper moving through the machine. This noise does
  not indicate a malfunction.

# **Loading Paper into Paper Trays**

Every paper tray is loaded in the same way.

In the following example procedure, paper is loaded into Tray 2.

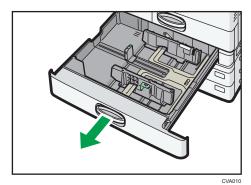
#### Mportant (

- Region A (mainly Europe and Asia)

  Tray 1 can hold A4D paper only. If you want to print on A5D, B5 JISD, or 81/2 × 11D from Tray

  1, contact your service representative.
- Region B (mainly North America)

  Tray 1 can hold  $8^{1}/_{2} \times 11^{\square}$  paper only. If you want to print on A4 $\square$ , A5 $\square$ , or B5 JIS $\square$  from Tray 1, contact your service representative.
- Check the paper edges are aligned at the right side.
- If a paper tray is pushed vigorously when putting it back into place, the position of the tray's side fences may slip out of place.
- When loading a low number of sheets, be sure not to squeeze the side fences in too tightly. If the
  side fences are squeezed too tightly against the paper, the edges may crease, thin paper may
  wrinkle, or the paper may misfeed.
- 1. Check that paper in the paper tray is not being used, and then pull the tray carefully out until it stops.

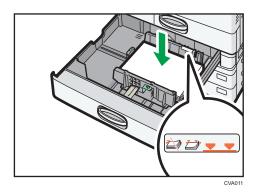


2. Square the paper and load it print side up.

Do not stack paper over the limit mark.

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3. Carefully push the paper tray fully in.



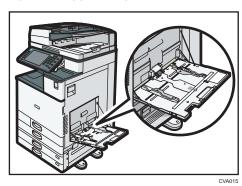
- Various sizes of paper can be loaded in Trays 2–4 by adjusting the positions of side fences and end fence. For details, see "Changing the Paper Size in Trays 2 4", Copy/ Document Server.
- You can load envelopes in Trays 2–4. When loading envelopes, place them in the correct orientation. For details, see page 155 "Envelopes".

# Loading Paper into the Bypass Tray

Use the bypass tray to use OHP transparencies, adhesive labels, translucent paper, and paper that cannot be loaded in the paper trays.



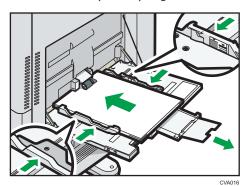
- The maximum number of sheets you can load at the same time depends on paper type. Do not stack paper over the limit mark. For the maximum number of sheets you can load, see page 144 "Recommended Paper Sizes and Types".
- 1. Open the bypass tray.



- 2. Load the paper face down until you hear the beep.
- 3. Align the paper guides to the paper size.

If the guides are not flush against the paper, images might be skewed or paper misfeeds might occur.

When loading paper into the bypass tray of a Type 5 machine, align the paper guides to the paper, and then the machine will automatically make fine adjustments to the position of the side fences so that they exactly align with the size of the paper you loaded.



**U**Note

• When you use the bypass tray, it is recommended to load the paper in  $\square$  orientation.

9

- Certain types of paper might not be detected properly when placed on the bypass tray. If this
  happens, remove the paper and place it on the bypass tray again.
- Pull the extender out when loading sheets larger than A4 $\square$ ,  $8^1/2 \times 11 \square$  in the bypass tray.
- When loading thick paper, thin paper, or OHP transparencies, specify the paper size and the paper type.
- Letterhead paper must be loaded in a specific orientation. For details, see page 141 "Loading Orientation-fixed Paper or Two-sided Paper".
- You can load envelopes into the bypass tray. Envelopes must be loaded in a specific orientation.
   For details, see page 155 "Envelopes".
- Specify the sizes of paper that are not automatically detected. For details about the sizes that can be detected automatically, see page 144 "Recommended Paper Sizes and Types". For details about how to specify sizes, see page 133 "Printing from the Bypass Tray Using the Printer Function" or "Copying from the Bypass Tray", Copy/ Document Server.
- When copying from the bypass tray, see "Copying from the Bypass Tray", Copy/ Document Server<sup>3</sup>. When printing from a computer, see page 133 "Printing from the Bypass Tray Using the Printer Function".
- When the [Panel Key Sound] is turned off, it does not sound if you load paper into the bypass tray.
   For details about [Panel Key Sound], see "General Features", Connecting the Machine/ System Settings.

## Printing from the Bypass Tray Using the Printer Function



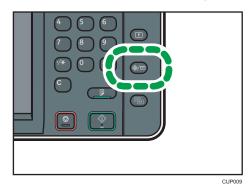
- If you select [Machine Setting(s)] in [Bypass Tray] under [Tray Setting Priority] in [System] of the
  Printer Features menu, the settings made using the control panel have priority over the printer driver
  settings. For details, see "System", Print.
- The default of [Bypass Tray] is [Machine Setting(s): Any Type].



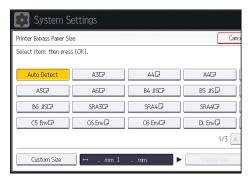
- Settings remain valid until they are changed.
- For details about setting printer drivers, see "Printing Documents", Print.
- The default of [Printer Bypass Paper Size] is [Auto Detect].

#### Specifying regular sizes using the control panel

1. Press the [User Tools/Counter] key.



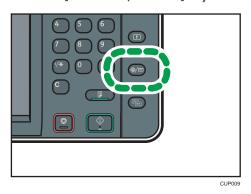
- 2. Press [Tray Paper Settings].
- 3. Press [Printer Bypass Paper Size].
- 4. Select the paper size.



- 9
- 5. Press [OK].
- 6. Press the [User Tools/Counter] key.

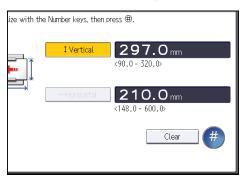
# Specifying a custom size paper using the control panel

1. Press the [User Tools/Counter] key.



- 2. Press [Tray Paper Settings].
- 3. Press [Printer Bypass Paper Size].
- **4.** Press [Custom Size].

  If a custom size is already specified, press [Change Size].
- 5. Press [Vertical].
- 6. Enter the vertical size using the number keys, and then press [#].



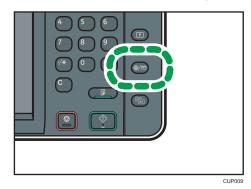
- 7. Press [Horizontal].
- 8. Enter the horizontal size using the number keys, and then press [#].
- 9. Press [OK] twice.
- 10. Press the [User Tools/Counter] key.

# Specifying thick paper, thin paper, or OHP transparencies for paper type using the control panel

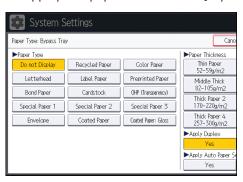


• Use A4 $\square\square$  or  $8^1/_2 \times 11^{\square\square}$  size OHP transparencies, and specify their size.

- Usually only one side of OHP transparencies can be used for printing. Be sure to load them with the print side down.
- When printing onto OHP transparencies, remove printed sheets one by one.
- 1. Press the [User Tools/Counter] key.



- 2. Press [Tray Paper Settings].
- 3. Press [Printer Bypass Paper Size], and then specify the paper size.
- 4. Press [OK].
- 5. Press [▼Next].
- 6. Press [Paper Type: Bypass Tray].
- 7. Select the proper items, according to the paper type you want to specify.
  - Press [OHP (Transparency)] on the [Paper Type] area when loading OHP transparencies.
  - To load thin or thick paper, press [Do not Display] on the [Paper Type] area, and then select the appropriate paper thickness in the [Paper Thickness] area.



- 8. Press [OK].
- 9. Press the [User Tools/Counter] key.



• We recommend that you use specified OHP transparencies.

• For details about paper thickness, see "Tray Paper Settings", Connecting the Machine/ System

Settings .

# Loading Paper into Tray 3 (LCT)

Region A (mainly Europe and Asia)

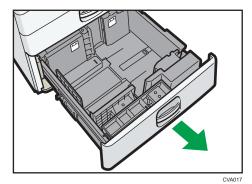
Tray 3 (LCT) can hold A4 $\square$  paper only. If you want to print on  $8^1/_2 \times 11^{\square}$  from Tray 3 (LCT), contact your service representative.

Region B (mainly North America)

Tray 3 (LCT) can hold  $8^{1}/_{2} \times 11^{\square}$  paper only. If you want to print on A4 $^{\square}$  from Tray 3 (LCT), contact your service representative.

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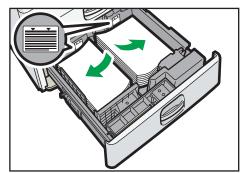
- When paper loaded in the right side of Tray 3 (LCT) runs out, paper on the left is automatically shifted to the right. Do not pull out Tray 3 (LCT) while the tray is moving paper; wait until sounds stop coming from the tray.
- For the right stack, align the right edge of the paper with the right edge of the tray. For the left stack, align the left edge of the paper to the left edge of the tray.
- 1. Carefully pull out the paper tray until it stops.



2. Square the paper and load it print side up.

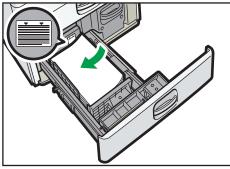
Do not stack paper over the limit mark.

• Whole tray pulled out



CVA018

Left half of the tray pulled out



3. Carefully push the paper tray fully in.



- You can load paper even if Tray 3 (LCT) is in use. It is okay to pull out the left half of the tray while Tray 3 (LCT) is in use.
- Load 30 or more sheets of paper in the left half of the tray.

# Loading Paper into the Large Capacity Tray (LCT)

Region A (mainly Europe and Asia)

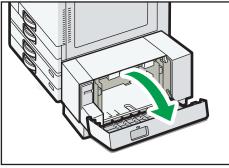
The large capacity tray (LCT) can hold A4 $^{\square}$  paper only. If you want to print on 8 $^{1}/_{2} \times 11^{\square}$  or B5 JIS $^{\square}$  from the large capacity tray (LCT), contact your service representative.

Region B (mainly North America)

The large capacity tray (LCT) can hold  $8^{1}/_{2} \times 11^{1}$  paper only. If you want to print on A4 $^{1}$  or B5 JIS $^{1}$  from the large capacity tray (LCT), contact your service representative.



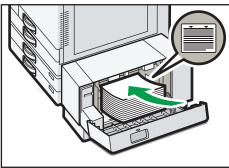
- Check the paper edges are aligned at the left side.
- 1. Check that paper in the paper tray is not being used, and then open the right cover of the large capacity tray (LCT).



CVA02

2. Load paper into the paper tray with the print side down.

Do not stack paper over the limit mark.



CVA02

3. Close the right cover of the large capacity tray (LCT).

# Loading Orientation-fixed Paper or Two-sided Paper

Orientation-fixed (top to bottom) or two-sided paper (for example, letterhead paper, punched paper, or copied paper) might not be printed correctly, depending on how the originals and paper are placed.

#### **Settings for the User Tools**

· Copier mode

Specify [Yes] for [Letterhead Setting] in [Input / Output] under the Copier / Document Server Features menu, and then place the original and paper as shown below.

• Printer mode

Specify [Auto Detect] or [On (Always)] for [Letterhead Setting] in [System] under the Printer Features menu, and then place the paper as shown below.

For details about the letterhead settings, see "Input / Output", Copy/ Document Server , or "System", Print .

#### Original orientation and paper orientation

The meanings of the icons are as follows:

lcon	Meaning
R	Place or load paper scanned or printed side face up.
	Place or load paper scanned or printed side face down.
e22222222 CD	

#### Original orientation

Original orientation	Exposure glass	ADF
Readable orientation		R

Original orientation	Exposure glass	ADF
Unreadable orientation	• Copy	
	• Scanner	

- Paper orientation
  - Copier mode

Copy side	Tray 1 or Tray 3 (LCT)	Trays 2–4	Large capacity tray (LCT)	Bypass tray
One-sided	-	-		
		[,		98
Two-sided				-
		90		

• Printer mode

Print side	Tray 1 or Tray 3 (LCT)	Trays 2–4	Large capacity tray (LCT)	Bypass tray
One-sided			0	
		"		G6
Two-sided		0		
		0		"





- In copier mode:
  - For details about how to make two-sided copies, see page 67 "Duplex Copying".
- In printer mode:
  - To print on letterhead paper when [Auto Detect] is specified for [Letterhead Setting], you must specify [Letterhead] as the paper type in the printer driver's settings.
  - If a print job is changed partway through printing from one-sided to two-sided printing, one-sided output after the first copy may be printed facing a different direction. To ensure all paper is output facing the same direction, specify different input trays for one-sided and two-sided printing. Note also that two-sided printing must be disabled for the tray specified for one-sided printing.
  - For details about how to make two-sided prints, see page 100 "Printing on Both Sides of Sheets".

# **Recommended Paper Sizes and Types**

This section describes recommended paper sizes and types.



- If you use paper that curls, either because it is too dry or too damp, a staple clogging or paper jam may occur.
- Do not use paper designed for inkjet printers, as these may stick to the fusing unit and cause a
  misfeed.
- When you load OHP transparencies, check the front and back of the sheets, and place them correctly, or a misfeed might occur.

#### Tray 1

Paper type and weight	Paper size	Paper capacity
52–300 g/m² (14 lb. Bond– 110 lb. Cover) Thin Paper–Thick Paper 4	Region $\triangle$ A4 $\square$ Region $\bigcirc$	550 sheets
52-300 g/m² (14 lb. Bond- 110 lb. Cover) Thin Paper-Thick Paper 4	*1  Region A  A5D, B5 JISD, 81/2 × 11D  Region B  A4D, A5D, B5 JISD	550 sheets

 $<sup>\</sup>ensuremath{^{\star}}\ensuremath{\,\text{l}}$  . To load paper any of the sizes specified above, contact your service representative.

Tray 2

Paper type and weight	Paper size	Paper capacity
52–300 g/m² (14 lb. Bond– 110 lb. Cover)	Paper sizes that can be detected automatically:	550 sheets
Thin Paper—Thick Paper 4	Region A	
	A3□, A4□□, A5□, B4 JIS □, B5 JIS□□, 8¹/ <sub>2</sub> × 11□, SRA3□	
	Region B	
	A4 $\Box$ , A5 $\Box$ , B5 JIS $\Box$ , 11 × 17 $\Box$ , 8 <sup>1</sup> / <sub>2</sub> × 14 $\Box$ , 8 <sup>1</sup> / <sub>2</sub> × 11 $\Box$ $\Box$ , 7 <sup>1</sup> / <sub>4</sub> × 10 <sup>1</sup> / <sub>2</sub> $\Box$ , 12 × 18 $\Box$	
52-300 g/m <sup>2</sup> (14 lb. Bond- 110 lb. Cover)	Select the paper size using the Tray Paper Settings menu:	550 sheets
Thin Paper–Thick Paper 4	Region	
	A5 $\square$ , A6 $\square$ , B6 JIS $\square$ , 11 × 17 $\square$ , 8 $^{1}/_{2}$ × 14 $\square$ , 8 $^{1}/_{2}$ × 13 $\square$ , 8 $^{1}/_{2}$ × 11 $\square$ , 8 $^{1}/_{4}$ × 14 $\square$ , 8 $^{1}/_{4}$ × 13 $\square$ , 8 × 13 $\square$ ,	
	$8 \times 10^{\square}$ , $7^{1}/_{4} \times 10^{1}/_{2}^{\square}$ , $5^{1}/_{2} \times 8^{1}/_{2}^{\square}$ , $8K^{\square}$ , $16K^{\square}$ $\square$ , $12 \times 18^{\square}$ , $11 \times 15^{\square}$ , $10 \times 14^{\square}$	
	Region B	
	A3D, A4D, A5D, A6D, B4 JISD, B5 JISD, B6 JISD, 8 <sup>1</sup> / <sub>2</sub> × 13D, 8 <sup>1</sup> / <sub>4</sub> × 14D, 8 <sup>1</sup> / <sub>4</sub> × 13D, 8 × 13D, 8 × 10D,	
	$7^{1}/_{4} \times 10^{1}/_{2}$ $\Box$ , $5^{1}/_{2} \times 8^{1}/_{2}$ $\Box$ , $8K$ $\Box$ , $16K$ $\Box$ $\Box$ , $11 \times 15$ $\Box$ , $10 \times 14$ $\Box$ , $SRA3$ $\Box$	

#### Trays 3 and 4

Paper type and weight	Paper size	Paper capacity
52-300 g/m² (14 lb. Bond- 110 lb. Cover)	Paper sizes that can be detected automatically:	550 sheets
Thin Paper–Thick Paper 4	Region	
	A3□, A4□□, A5□, B4 JIS □, B5 JIS□□, 8¹/2 × 11□, SRA3□	
	Region B	
	A4 $\Box$ , A5 $\Box$ , B5 JIS $\Box$ , 11 × 17 $\Box$ , 8 $^{1}/_{2}$ × 14 $\Box$ , 8 $^{1}/_{2}$ × 11 $\Box$ , 7 $^{1}/_{4}$ × 10 $^{1}/_{2}$ $\Box$ , 12 × 18 $\Box$	

<sup>\*1</sup> When loading paper with a vertical length of more than 304.8 mm (12.0 inches) in Trays 2–4, use paper that has a horizontal width of 450 mm (17.8 inches) or less.

Paper type and weight	Paper size	Paper capacity
52–300 g/m² (14 lb. Bond– 110 lb. Cover) Thin Paper–Thick Paper 4	Select the paper size using the Tray Paper Settings menu:	550 sheets
	11 × 17 $\Box$ , 8 $^{1}/_{2}$ × 14 $\Box$ , 8 $^{1}/_{2}$ × 13 $\Box$ , 8 $^{1}/_{2}$ × 11 $\Box$ , 8 $^{1}/_{4}$ × 14 $\Box$ , 8 $^{1}/_{4}$ × 13 $\Box$ , 8 × 13 $\Box$ , 8 × 10 $\Box$ , 7 $^{1}/_{4}$ × 10 $^{1}/_{2}$ $\Box$ , 8K $\Box$ , 16K $\Box$ $\Box$ , 12 × 18 $\Box$ , 11 × 15 $\Box$ , 10 × 14 $\Box$	
	A3 $\Box$ , A4 $\Box$ , B4 JIS $\Box$ , B5 JIS $\Box$ , 8 $^{1}/_{2} \times 13\Box$ , 8 $^{1}/_{4} \times 14$ $\Box$ , 8 $^{1}/_{4} \times 13\Box$ , 8 $\times 10\Box$ , 7 $^{1}/_{4} \times 10^{1}/_{2}\Box$ , 8K $\Box$ , 16K $\Box$ D, 11 $\times$ 15 $\Box$ , 10 $\times$ 14 $\Box$ , SRA3 $\Box$	
52–300 g/m² (14 lb. Bond– 110 lb. Cover) Thin Paper–Thick Paper 4	Custom size*1:  Region A  Vertical: 182.0–320.0 mm  Horizontal: 148.0–457.2 mm  Region B  Vertical: 7.17–12.59 inches  Horizontal: 5.83–18.00 inches	550 sheets
Envelopes	Select the paper size using the Tray Paper Settings menu: $4^{1}/_{8} \times 9^{1}/_{2}$ , C5 Env	50 sheets

<sup>\*1</sup> When loading paper with a vertical length of more than 304.8 mm (12.0 inches) in Trays 2–4, use paper that has a horizontal width of 450 mm (17.8 inches) or less.

## Bypass tray (Types 1–4)

Paper type and weight	Paper size	Paper capacity
52–300 g/m² (14 lb. Bond– 110 lb. Cover) Thin Paper–Thick Paper 4	Paper sizes that can be detected automatically:  Region A  A3D, A4DD, A5DD, A6D, B4 JISD, B5 JISDD, B6 JISD, SRA3D  Region B  11 × 17D, 8 <sup>1</sup> / <sub>2</sub> × 11DD, 5 <sup>1</sup> / <sub>2</sub> × 8 <sup>1</sup> / <sub>2</sub> D, 12 × 18D, SRA3D	<ul> <li>100 sheets (up to 10 mm in height)</li> <li>Thick Paper 1: 40 sheets</li> <li>Thick Paper 2-Thick Paper 3: 20 sheets</li> <li>Thick Paper 4: 16 sheets</li> </ul>
52–300 g/m² (14 lb. Bond– 110 lb. Cover) Thin Paper–Thick Paper 4	*1  *1  *1  *1  *1  *1  *1  *1  *1  *1	<ul> <li>100 sheets (up to 10 mm in height)</li> <li>Thick Paper 1: 40 sheets</li> <li>Thick Paper 2–Thick Paper 3: 20 sheets</li> <li>Thick Paper 4: 16 sheets</li> </ul>

Paper type and weight	Paper size	Paper capacity
52–300 g/m² (14 lb. Bond– 110 lb. Cover) Thin Paper–Thick Paper 4	Custom size*2:  Region A  Vertical: 90.0–320.0 mm  Horizontal: 148.0–457.2 mm*3, *4  Region B  Vertical: 3.55–12.59 inches  Horizontal: 5.83–18.00 inches*3, *4	<ul> <li>100 sheets (up to 10 mm in height)</li> <li>Thick Paper 1: 40 sheets</li> <li>Thick Paper 2-Thick Paper 3: 20 sheets</li> <li>Thick Paper 4: 16 sheets</li> </ul>
OHP transparencies	A4DD, 8 <sup>1</sup> / <sub>2</sub> × 11DD	50 sheets
Translucent paper	A3D, A4DD, B4 JISD, B5 JISDD	1 sheet
Label paper (adhesive labels)	B4 JIS□, A4□□	30 sheets
Envelopes	*1 $4^{1}/_{8} \times 9^{1}/_{2}$ $\square$ $\square$ , $3^{7}/_{8} \times 7^{1}/_{2}$ $\square$ $\square$ , C5 Env $\square$ $\square$ , C6 Env $\square$ $\square$ , DL Env $\square$	10 sheets

- \*1 Select the paper size. For copier mode, see "Copying onto Regular Size Paper from the Bypass Tray", Copy/ Document Server. For printer mode, see page 134 "Specifying regular sizes using the control panel".
- \*2 Enter the paper size. For copier mode, see "Copying onto Custom Size Paper from the Bypass Tray", Copy/ Document Server. For printer mode, see page 135 "Specifying a custom size paper using the control panel".
- \*3 In printer or facsimile mode, the maximum horizontal length of the custom size is 600.0 mm (23.62 inches).
- \*4 Paper that has a horizontal length of 432 mm (17.1 inches) or more is prone to creasing, feed failures, and jamming.

## Bypass tray (Type 5)

Paper type and weight	Paper size	Paper capacity
52–300 g/m² (14 lb. Bond– 110 lb. Cover) Thin Paper–Thick Paper 4	Paper sizes that can be detected automatically:  ——Region A  A3□, A4□□, A5□□, A6□, B5 JIS□□, B6 JIS□, 11 × 17 □, 8¹/2 × 11□, 8 × 13□, 7¹/4 × 10¹/2□, 5¹/2 × 8¹/2□, 8K□, 10 × 14□, 12 × 18□, SRA3□, SRA4□  ——Region B  A3□, A4□, A5□□, A6□, B5 JIS□□, B6 JIS□, 11 × 17 □, 8¹/2 × 11□□, 8 × 13□, 7¹/4 × 10¹/2□, 5¹/2 × 8¹/2□, 8K□, 12 × 18□, 10 × 14□, SRA3□, SRA4□	<ul> <li>100 sheets (up to 10 mm in height)</li> <li>Thick Paper 1: 40 sheets</li> <li>Thick Paper 2-Thick Paper 3: 20 sheets</li> <li>Thick Paper 4: 16 sheet</li> </ul>
52–300 g/m² (14 lb. Bond– 110 lb. Cover) Thin Paper–Thick Paper 4	*1  *1  **Region A  **B4 JISD, 8 <sup>1</sup> / <sub>2</sub> × 14D, 8 <sup>1</sup> / <sub>2</sub> × 13D, 8 <sup>1</sup> / <sub>2</sub> × 11D, 8 <sup>1</sup> / <sub>4</sub> × 14D, 8 <sup>1</sup> / <sub>4</sub> × 13D, 8 × 10  **D,  **T <sup>1</sup> / <sub>4</sub> × 10 <sup>1</sup> / <sub>2</sub> D, 16KDD,  *11 × 15D, SRA4D  **Region B  **A4D, B4 JISD, 8 <sup>1</sup> / <sub>2</sub> × 14  **D, 8 <sup>1</sup> / <sub>2</sub> × 13D, 8 <sup>1</sup> / <sub>4</sub> × 14  **D, 8 <sup>1</sup> / <sub>4</sub> × 13D, 8 × 10D,  **T <sup>1</sup> / <sub>4</sub> × 10 <sup>1</sup> / <sub>2</sub> D, 16KDD,  **T <sup>1</sup> / <sub>4</sub> × 10 <sup>1</sup> / <sub>2</sub> D, 16KDD,  **T <sup>1</sup> / <sub>4</sub> × 10 <sup>1</sup> / <sub>2</sub> D, 16KDD,  **T <sup>1</sup> / <sub>4</sub> × 10 <sup>1</sup> / <sub>2</sub> D, 16KDD,  **T <sup>1</sup> / <sub>4</sub> × 10 <sup>1</sup> / <sub>2</sub> D, 16KDD,  **T <sup>1</sup> / <sub>4</sub> × 15D, SRA4D	<ul> <li>100 sheets (up to 10 mm in height)</li> <li>Thick Paper 1: 40 sheets</li> <li>Thick Paper 2-Thick Paper 3: 20 sheets</li> <li>Thick Paper 4: 16 sheets</li> </ul>

Paper type and weight	Paper size	Paper capacity	
52–300 g/m² (14 lb. Bond– 110 lb. Cover) Thin Paper–Thick Paper 4	Custom size*2:  Region A  Vertical: 90.0–320.0 mm  Horizontal: 148.0–457.2 mm*3, *4  Region B  Vertical: 3.55–12.59 inches  Horizontal: 5.83–18.00 inches*3, *4	<ul> <li>100 sheets (up to 10 mm in height)</li> <li>Thick Paper 1: 40 sheets</li> <li>Thick Paper 2-Thick Paper 3: 20 sheets</li> <li>Thick Paper 4: 16 sheets</li> </ul>	
OHP transparencies	A4DD, 8 <sup>1</sup> / <sub>2</sub> × 11DD	50 sheets	
Translucent paper	A3C, A4DC, B4 JISC, B5 JISDC	1 sheet	
Label paper (adhesive labels)	B4 JIS□, A4Ū□	30 sheets	
Envelopes	Paper sizes that can be detected automatically: $4^{1}/_{8} \times 9^{1}/_{2} \mathbb{D}$ , $3^{7}/_{8} \times 7^{1}/_{2} \mathbb{D}$ , C5 Env $\mathbb{D}$ , C6 Env $\mathbb{D}$ , DL Env $\mathbb{D}$	10 sheets	
Envelopes	*1 $4^{1}/_{8} \times 9^{1}/_{2}\Box$ , $3^{7}/_{8} \times 7^{1}/_{2}\Box$ , C5 Env $\Box$ , C6 Env $\Box$ , DL Env $\Box$	10 sheets	

- \*1 Select the paper size. For copier mode, see "Copying onto Regular Size Paper from the Bypass Tray", Copy/ Document Server. For printer mode, see page 134 "Specifying regular sizes using the control panel".
- \*2 Enter the paper size. For copier mode, see "Copying onto Custom Size Paper from the Bypass Tray", Copy/ Document Server. For printer mode, see page 135 "Specifying a custom size paper using the control panel".
- \*3 In printer or facsimile mode, the maximum horizontal length of the custom size is 600.0 mm (23.62 inches).
- \*4 Paper that has a horizontal length of 432 mm (17.1 inches) or more is prone to creasing, feed failures, and jamming.

#### Tray 3 (LCT)

Paper type and weight	Paper size	Paper capacity
52-300 g/m² (14 lb. Bond-	Region	1000 sheets × 2
110 lb. Cover) Thin Paper-Thick Paper 4	A4D	
	Region B	
	8 <sup>1</sup> / <sub>2</sub> × 11□	
52–300 g/m² (14 lb. Bond– 110 lb. Cover) Thin Paper–Thick Paper 4	*1	1000 sheets × 2
	Region	
	8 <sup>1</sup> / <sub>2</sub> × 11□	
	Region B	
	A4D	

<sup>\* 1</sup> To load paper any of the sizes specified above, contact your service representative.

#### Large capacity tray (LCT)

Paper type and weight	Paper size	Paper capacity
52–300 g/m² (14 lb. Bond– 110 lb. Cover) Thin Paper–Thick Paper 4	Region	1500 sheets
	A4D	
	Region B	
	8 <sup>1</sup> / <sub>2</sub> × 11 <sup>D</sup>	
52–300 g/m² (14 lb. Bond– 110 lb. Cover) Thin Paper–Thick Paper 4	*1	1500 sheets
	Region	
	B5 JIS□, 8 <sup>1</sup> / <sub>2</sub> × 11□	
	Region B	
	A4D, B5 JISD	

<sup>\*1</sup> To load paper any of the sizes specified above, contact your service representative.

#### **Paper Thickness**

Paper Thickness <sup>* 1</sup>	Paper weight
Thin Paper*2	52-59 g/m² (14-15 lb. Bond)

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Paper Thickness * 1	Paper weight
Plain Paper 1	60-74 g/m² (16-20 lb. Bond)
Plain Paper 2	75-81 g/m² (20 lb. Bond)
Middle Thick	82-105 g/m² (20-28 lb. Bond)
Thick Paper 1	106–169 g/m² (28 lb. Bond–90 lb. Index)
Thick Paper 2	170–220 g/m² (65–80 lb. Cover)
Thick Paper 3	221–256 g/m² (80 lb. Cover–140 lb. Index)
Thick Paper 4	257–300 g/m² (140 lb. Index–110 lb. Cover)

- \*1 Print quality will decrease if the paper you are using is close to the minimum or maximum weight. Change the paper weight setting to thinner or thicker.
- \*2 Depending on the type of thin paper, the edges may crease or the paper may be misfed.



- Certain types of paper, such as translucent paper or OHP transparencies, may produce noise when delivered. This noise does not indicate a problem and print quality is unaffected.
- The paper capacity described in the tables above is an example. Actual paper capacity might be lower, depending on the paper type.
- When loading paper, make sure the stack height does not exceed the limit mark of the paper tray.
- If multiple sheet feeding occurs, fan sheets thoroughly or load sheets one by one from the bypass tray.
- Flatten out curled sheets before loading them.
- Depending on the paper sizes and types, the copy/print speed may be slower than usual.
- When loading thick paper of 106–300 g/m<sup>2</sup> (28 lb. Bond–110 lb. Cover), see page 154 "Thick Paper".
- When loading envelopes, see page 155 "Envelopes".
- When copying or printing onto letterhead paper, the paper placing orientation is different depending on which function you are using. For details, see page 141 "Loading Orientation-fixed Paper or Two-sided Paper".
- If you load paper of the same size and same type in two or more trays, the machine automatically feeds from one of the trays in which [Yes] is selected for [Apply Auto Paper Select] when the first tray in use runs out of paper. This function is called Auto Tray Switching. This saves interrupting a copy run to replenish paper when making a large number of copies. You can specify the paper type of the paper trays under [Paper Type]. For details, see "Tray Paper Settings", Connecting the

Machine/ System Settings. For the setting procedure of the Auto Tray Switching function, see "General Features", Copy/ Document Server.

- When loading label paper:
  - We recommend that you use specified label paper.
  - It is recommended to place one sheet at a time.
  - Press [Bypass], and then select the appropriate paper thickness for [Paper Type].
- When loading OHP transparencies:
  - It is recommended to place one sheet at a time.
  - When copying onto OHP transparencies, see "Copying onto OHP Transparencies", Copy/ Document Server.
  - When printing on OHP transparencies from the computer, see page 135 "Specifying thick paper, thin paper, or OHP transparencies for paper type using the control panel".
  - Fan OHP transparencies thoroughly whenever you use them. This prevents OHP transparencies from sticking together, and from feeding incorrectly.
  - Remove copied or printed sheets one by one.
- When loading translucent paper:
  - When loading translucent paper, always use long grain paper, and set the paper direction according to the grain.
  - Translucent paper easily absorbs humidity and becomes curled. Remove curl in the translucent paper before loading.
  - · Remove copied or printed sheets one by one.
- When loading coated paper:
  - To print on coated paper: press the [User Tools/Counter] key, press [Tray Paper Settings], and then, for each tray's [Paper Type] be sure to specify [Paper Type] to [Coated Paper], and [Paper Thickness] to the appropriate paper thickness.
  - To print on high-gloss coated paper: press the [User Tools/Counter] key, press [Tray Paper Settings], and then, for each tray's [Paper Type], be sure to set [Paper Type] to [Coated Paper: Gloss].
  - · When loading coated paper or glossy paper, always fan the paper before using it.
  - If a paper jam occurs or if the machine makes a strange noise when feeding stacks of coated paper, feed the coated paper from the bypass tray one sheet at a time.

## Thick Paper

This section gives you various details about and recommendations concerning thick paper.

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When loading thick paper of  $106-300 \text{ g/m}^2$  (28 lb. Bond-110 lb. Cover), follow the recommendations below to prevent misfeeds and loss of image quality.

- Store all your paper in the same environment a room where the temperature is 20–25°C (68–77°F) and the humidity is 30–65%.
- When loading paper in Trays 1-4, be sure to load at least 20 sheets. Also, be sure to position the side fences flush against the paper stack.
- Jams and misfeeds can occur when printing on thick smooth paper. To prevent such problems, be
  sure to fan smooth paper thoroughly before loading them. If paper continues to become jammed or
  feed in together even after they are fanned, load them one by one from the bypass tray.
- When loading thick paper, set the paper direction according to its grain, as shown in the following diagram:

Direction of paper grain	Tray 1 or Tray 3 (LCT)	Trays 2–4	Large capacity tray (LCT)	Bypass tray
	Not recommended	<u> </u>	Not recommended	1111



- Select [Thick Paper 1], [Thick Paper 2], [Thick Paper 3], or [Thick Paper 4] as the paper thickness in [Tray Paper Settings].
- Even if thick paper is loaded as described above, normal operations and print quality might still not be possible, depending on the paper type.
- Prints might have prominent vertical creases.
- Prints might be noticeably curled. Flatten out prints if they are creased or curled.

#### **Envelopes**

This section gives you various details about and recommendations concerning envelopes.



- Do not use window envelopes.
- Misfeeds might occur depending on the length and shape of the flaps.
- Only envelopes that are at least 148 mm (5.9 inches) wide and whose flaps are open can be loaded in the D orientation.

- When loading envelopes in the  $\square$  orientation, load them with flaps fully open. Otherwise, they might not feed into the machine.
- Before loading envelopes, press down on them to remove any air from inside, flatten out all four
  edges. If they are bent or curled, flatten their leading edges (the edge going into the machine) by
  running a pencil or ruler across them.

#### In copier mode

The way to load envelopes varies depending on the orientation of the envelopes. When copying onto envelopes, load them according to the applicable orientation shown below:

#### How to load envelopes

How to load enve	elopes		
Orientation of envelopes	Exposure glass	Trays 2–4	Bypass tray
Side-opening envelopes D	• Flaps: open • Bottom side of envelopes: toward the left of the machine • Side to be scanned: face down	<ul> <li>Flaps: open</li> <li>Bottom side of envelopes: toward the right of the machine</li> <li>Side to be printed: face up</li> </ul>	Flaps: open     Bottom side of envelopes: toward the left of the machine     Side to be printed: face down
Side-opening envelopes D	Flaps: closed     Bottom side of envelopes: toward the back of the machine     Side to be scanned: face down	• Flaps: closed • Bottom side of envelopes: toward the back of the machine • Side to be printed: face up	Flaps: closed     Bottom side of envelopes: toward the back of the machine     Side to be printed: face down

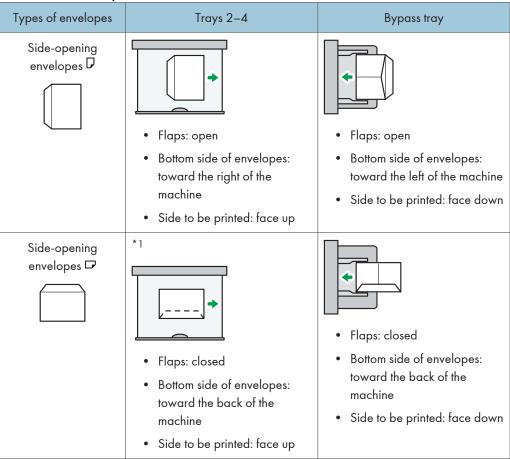
\* 1 You cannot load side-opening envelopes in the □ orientation in Trays 3 and 4.

When loading envelopes, specify the envelope size and thickness. For details, see page 77 "Copying onto Envelopes".

#### In printer mode

The way to load envelopes varies depending on the orientation of the envelopes. When printing onto envelopes, load them according to the applicable orientation shown below:

How to load envelopes



\* 1 You cannot load side-opening envelopes in the  $\square$  orientation in Trays 3 and 4.

When loading envelopes, select "Envelope" as the paper types using both [Tray Paper Settings] and printer driver and specify the thickness of envelopes. For details, see page 103 "Printing on Envelopes".

To print on envelopes that are loaded with their short edges against the machine body, rotate the print image by 180 degrees using the printer driver.

#### Recommended envelopes

For information about recommended envelopes, contact your local dealer.

For details about the sizes of envelopes you can load, see page 144 "Recommended Paper Sizes and Types".



- Load only one size and type of envelope at a time.
- The Duplex function cannot be used with envelopes.
- To get better output quality, it is recommended that you set the right, left, top, and bottom print margin, to at least 15 mm (0.6 inches) each.
- Output quality on envelopes may be uneven if parts of an envelope have differing thicknesses. Print one or two envelopes to check print quality.
- Copied or printed sheets are delivered to the internal tray even if you specified a different tray.
- Flatten out prints if they are creased or curled.
- Check the envelopes are not damp.
- High temperature and high humidity conditions can reduce print quality and cause envelopes to become creased.
- Depending on the environment, copying or printing on envelopes may wrinkle them even if they
  are recommended.
- Certain types of envelopes might come out creased, dirtied, or misprinted. If you are printing a solid color on an envelope, lines may appear where the overlapped edges of the envelope make it thicker.

#### 9

# **Adding Toner**

This section explains precautions when adding toner, how to send faxes or scanned documents when the toner has run out, and how to dispose of used toner.

## **MARNING**

Do not incinerate toner (new or used) or toner containers. Doing so risks burns. Toner will ignite
on contact with naked flame.

#### **WARNING**

Do not store toner (new or used) or toner containers anywhere near naked flames. Doing so
risks fire and burns. Toner will ignite on contact with naked flame.

#### **MARNING**

Do not use a vacuum cleaner to remove spilled toner (including used toner). Absorbed toner
may cause a fire or explosion due to electrical contact flickering inside the vacuum cleaner.
However, it is possible to use a vacuum cleaner that is explosion-proof and dust ignition-proof. If
toner is spilled on the floor, remove the spilled toner slowly using a wet cloth, so that the toner is
not scattered.

## **ACAUTION**

• Do not crush or squeeze toner containers. Doing so can cause toner spillage, possibly resulting in dirtying of skin, clothing, and floor, and accidental ingestion.

## **ACAUTION**

• Store toner (new or used), toner containers, and components that have been in contact with toner out of reach of children.

## **ACAUTION**

• If toner or used toner is inhaled, gargle with plenty of water and move into a fresh air environment. Consult a doctor if necessary.

## **ACAUTION**

If toner or used toner gets into your eyes, flush immediately with large amounts of water. Consult
a doctor if necessary.

If toner or used toner is swallowed, dilute by drinking a large amount of water. Consult a doctor
if necessary.

#### **ACAUTION**

 When removing jammed paper or replacing toner, avoid getting toner (new or used) on your clothing. If toner comes into contact with your clothing, wash the stained area with cold water. Hot water will set the toner into the fabric and make removing the stain impossible.

## **CAUTION**

 When removing jammed paper or replacing toner, avoid getting toner (new or used) on your skin. If toner comes into contact with your skin, wash the affected area thoroughly with soap and water.

## **ACAUTION**

When replacing a toner or waste toner container or consumables with toner, make sure that the
toner does not splatter. Put the waste consumables in a bag after they are removed. For
consumables with a lid, make sure that the lid is shut.

## 

- Always replace the toner cartridge when a notification appears on the machine.
- Fault may occur if you use toner other than the recommended type.
- When adding toner, do not turn off the main power. If you do, settings will be lost.
- Store toner where it will not be exposed to direct sunlight, temperatures above 35°C (95°F), or high humidity.
- Store toner horizontally.
- Do not shake the toner cartridge with its mouth down after removing it. Residual toner may scatter.
- Do not repeatedly install and remove toner cartridges. This will result in toner leakage.

Follow the instruction on the screen regarding how to replace a toner cartridge.

## **U**Note

- If "Toner Cartridge is almost empty." appears, the toner has almost run out. Have a replacement toner cartridge at hand.
- If depears when there is a lot of toner, follow the toner replacement instructions that appear on the screen. Pull out the cartridge, and then reinstall it.
- You can check the name of the required toner and the replacement procedure using the [LAdd Toner] screen.

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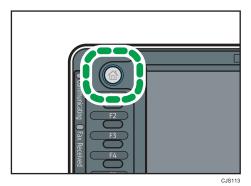
• For details about how to check contact number where you can order supplies, see "Inquiry", Maintenance and Specifications.

#### Sending Faxes or Scanned Documents When Toner Has Run Out

When the machine has run out of toner, the indicator on the display lights. Note that even if there is no toner left, you can still send faxes or scanned documents.



- If number of communications executed after the toner has run out and not listed in the automatically output Journal exceeds 200, communication is not possible.
- 1. Press the [Home] key on the top left of the control panel, and press the [Facsimile] icon or the [Scanner] icon on the [Home] screen.



2. Press [Exit], and then perform transmission operation.

The error message disappears.



• Any reports are not printed.

## **Disposing of Used Toner**

This section describes what to do with used toner.

Toner cannot be re-used.

Pack used toner containers in the container's box or a bag to prevent the toner from leaking out of the container when you dispose of it.

Region A (mainly Europe and Asia)

If you want to discard your used toner container, please contact your local sales office. If you discard it by yourself, treat it as general plastic waste material.

Region B (mainly North America)

Please see our local company website for information on the recycling of supply products, or you can recycle items according to the requirements of your local municipalities or private recyclers.

# 10. Troubleshooting

This chapter describes basic troubleshooting procedures.

# When a Status Icon Is Displayed

This section describes the status icons displayed when the machine requires the user to remove misfed paper, to add paper, or to perform other procedures.

Status Icon	Status
<b>¾</b> : Paper Misfeed icon	Appears when a paper misfeed occurs.
	For details about removing jammed paper, see "Removing Jammed Paper", Troubleshooting.
±: Original Misfeed icon	Appears when an original misfeed occurs.
	For details about removing jammed paper, see "Removing Jammed Paper", Troubleshooting.
🛓 : Load Paper icon	Appears when paper runs out.
	For details about loading paper, see "Loading Paper ", Paper Specifications and Adding Paper.
🛓 : Add Toner icon	Appears when toner runs out.
	For details about adding toner, see "Adding Toner", Maintenance and Specifications .
🛓 : Add Staple icon	Appears when staples run out.
	For details about adding staples, see "Adding Staples", Maintenance and Specifications .
☑ : Waste Toner Full icon	Appears when the waste toner bottle is full.
	For details about replacing the waste toner bottle, see "Replacing the Waste Toner Bottle", Maintenance and Specifications .
🖆 : Hole Punch Receptacle Full icon	Appears when the hole punch receptacle is full.
	For details about removing punch waste, see "Removing Punch Waste", Troubleshooting .
₹ : Service Call icon	Appears when the machine is malfunctioning or requires maintenance.

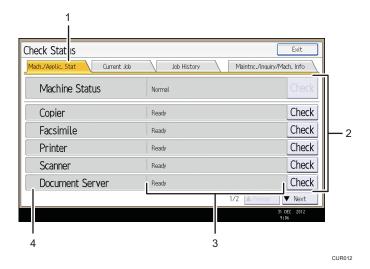
Status Icon	Status
☐ : Open Cover icon	Appears when one or more covers of the machine are
	open.

# 10

# When the Indicator Lamp for the [Check Status] Key Is Lit or Flashing

If the indicator lamp for the [Check Status] key lights up or flashes, press the [Check Status] key to display the [Check Status] screen. Check the status of each function in the [Check Status] screen.

#### [Check Status] screen



#### 1. [Mach./Applic. Stat] tab

Indicates the status of the machine and each function.

#### 2. [Check]

If an error occurs in the machine or a function, press [Check] to view details.

Pressing [Check] displays an error message or the corresponding function screen. Check the error message displayed on the function screen and take the appropriate action. For details about how to resolve the problems described in error messages, see "When Messages Appear", Troubleshooting.

#### 3. Messages

Displays a message that indicates the status of the machine and each function.

#### 4. Status icons

The status icons that can be displayed are described below:

- D: The function is performing a job.
- An error has occurred on the machine.
- ①: The function cannot be used because an error has occurred in the function or machine. This icon may also appear if the toner is running low.

The following table explains problems that cause the indicator lamp for the [Check Status] key to light or flash.

Problem	Causes	Solutions
Documents and reports do not print out.	The paper output tray is full.	Remove the prints from the tray.
Documents and reports do not print out.	There is no paper left.	Load paper. For details about loading paper, see "Loading Paper", Paper Specifications and Adding Paper.
An error has occurred.	A function which has the status "Error Occurred" in the [Check Status] screen is defective.	Press [Check] in the function which the error has occurred. Then check the displayed message, and take appropriate action. For details about error messages and their solutions, see "When Messages Appear", Troubleshooting.  You can use other functions normally.
The machine is unable to connect to the network.	A network error has occurred.	<ul> <li>Check that the machine is correctly connected to the network, and that the machine is correctly set. For details about how to connect the network, see "Interface Settings", Connecting the Machine/ System Settings .</li> <li>For details about connecting to the network, contact your administrator.</li> <li>If the indicator lamp is still lit even after trying to solve the problem as described here, contact your service representative.</li> </ul>

#### IC

# When the Machine Makes a Beeping Sound

The following table describes the meaning of the various beep patterns that the machine produces to alert users about left originals and other machine conditions.

Beep pattern	Meaning	Causes
Single short beep	Panel/screen input accepted.	A control panel or screen key was pressed.
Short, then long beep	Panel/screen input rejected.	An invalid key was pressed on the control panel or screen, or the entered password was incorrect.
Single long beep	Job completed successfully.	A Copier/Document Server Features job has finished.
Two long beeps	Machine has warmed up.	When the power is turned on or the machine exits Sleep mode, the machine has fully warmed up and is ready for use.
Five long beeps	Soft alert	An auto reset was performed through the simple screen of the Copier/ Document Server function, the Facsimile function, or the Scanner function.
Five long beeps repeated four times.	Soft alert	An original has been left on the exposure glass or paper tray is empty.
Five short beeps repeated five times.	Strong alert	The machine requires user attention because paper has jammed, the toner needs replenishing, or other problems have occurred.



- Users cannot mute the machine's beep alerts. When the machine beeps to alert users of a paper jam or toner request, if the machine's covers are opened and closed repeatedly within a short space of time, the beep alert might continue, even after normal status has resumed.
- You can select to enable or disable beep alerts. For details about Panel Key Sound, see "General Features", Connecting the Machine/ System Settings.

# When You Have Problems Operating the Machine

Problem	Causes	Solutions
When the machine is turned on, the only icon that appears on the home screen is the [Copier] icon.	Functions other than the copier function are not yet ready.	Wait a little longer.
The machine has just been turned on and the User Tools screen is displayed, but the User Tools menu has items missing.	Functions other than the copier function are not yet ready. Time required varies by function. Functions appear in the User Tools menu when they become ready for use.	Wait a little longer.
The indicator lamp remains lit and the machine does not enter Sleep mode even though the [Energy Saver] key was pressed.	This occurs in the following cases:  The ADF is open.  The machine is communicating with external equipment.  The hard disk is active.	<ul> <li>Close the ADF.</li> <li>Check if the machine is communicating with external equipment.</li> <li>Wait a little longer.</li> </ul>
The display is off. (Type 3, 4, and 5 models only)	The machine is in Low Power mode.	Touch the display panel or press one of the keys on the control panel to cancel Low Power mode.
The display is off.	The machine is in Sleep mode.	Press the [Energy Saver] key or the [Check Status] key to cancel Sleep mode.
Nothing happens when the [Check Status] key or the [Energy Saver] key is pressed.	The power is turned off.	Make sure the main power indicator is off, and then turn on the power.

Problem	Causes	Solutions
The power turns off automatically.	The Weekly Timer setting is set to [Main Power Off].	Change the Weekly Timer setting. For details about the Weekly Timer setting, see "Timer Settings", Connecting the Machine/ System Settings.
The user code entry screen is displayed.	Users are restricted by User Code Authentication.	For details about how to log in when User Code Authentication is enabled, see "When the Authentication Screen is Displayed", Getting Started.
The Authentication screen appears.	Basic Authentication, Windows Authentication, LDAP Authentication or Integration Server Authentication is set.	Enter your login user name and user password. For details about the Authentication screen, see "When the Authentication Screen is Displayed", Getting Started.
An error message remains, even if misfed paper is removed.	<ul> <li>When a misfeed message appears, it remains until you open and close the cover as required.</li> <li>Paper is still jammed in the tray.</li> </ul>	After removing misfed paper, fully open the front cover, and then close it. For details about removing jammed paper, see "Removing Jammed Paper", Troubleshooting .
An error message remains displayed even if the indicated cover is closed.	One or more covers that are not indicated are still open.	Close all the covers of the machine.
Original images are printed on the reverse side of the paper.	You may have loaded the paper incorrectly.	Load paper into the paper tray or tray 3 (LCT) with the print side up. Load paper into the Large Capacity Tray (LCT), or the bypass tray with the print side down.

Problem	Causes	Solutions
Misfeeds occur frequently.	Using curled paper often causes misfeeds, soiled paper edges, or slipped positions while performing staple or stack printing.	<ul> <li>Take the stiffness out of the paper with your hands to straighten out the curl.</li> <li>Load the paper up side down so that the curled edges face downward. For details about recommended paper, see "Recommended Paper", Paper Specifications and Adding Paper</li> <li>Lay cut paper on a flat surface to prevent paper from curling, and do not lean it against the wall. For details about the proper way to store paper, see "Paper Storage", Paper Specifications and Adding Paper</li> </ul>
Misfeeds occur frequently.	The tray's side or end fences may not be set properly.	<ul> <li>Remove misfed paper. For details about removing jammed paper, see "Removing Jammed Paper", Troubleshooting.</li> <li>Check that the side or end fences are set properly. For details about setting the side and end fences, see "Changing the Paper Size", Paper Specifications and Adding Paper.</li> </ul>

Problem	Causes	Solutions
Misfeeds occur frequently.	Paper of undetectable size has been loaded.	<ul> <li>Remove misfed paper. For details about removing jammed paper, see "Removing Jammed Paper", Troubleshooting.</li> <li>If you load a paper size that is not selected automatically, you need to specify the paper size with the control panel. For details about specifying paper size with the control panel, see "Changing to a Size That Is Not Automatically Detected", Paper Specifications and Adding Paper.</li> </ul>
Misfeeds occur frequently.	There is a foreign object on the finisher tray.	<ul> <li>Remove misfed paper. For details about removing jammed paper, see "Removing Jammed Paper", Troubleshooting.</li> <li>Do not place anything on the finisher tray.</li> </ul>
Cannot print in duplex mode.	You have selected a paper tray that is not set for duplex printing.	Change the setting for "Apply Duplex" in [System Settings] to enable duplex printing for the paper tray. For details about setting "Apply Duplex", see "Tray Paper Settings", Connecting the Machine/ System Settings.
Cannot print in duplex mode.	You have selected a paper type that cannot be used for duplex printing.	In [System Settings], select a paper type that can be used for duplex printing. For details about setting "Paper Type", see "Tray Paper Settings", Connecting the Machine/System Settings.
An error has occurred when the Address Book is changed from the display panel or Web Image Monitor.	The Address Book cannot be changed while deleting the multiple stored documents.	Wait a while, and then retry the operation.

Problem	Causes	Solutions
The Address Book cannot be changed from the display panel.	The Address Book cannot be changed while it is being backed up from Web Image Monitor or other tools running on the computer.	<ul> <li>Wait until the Address Book backup is complete, and then try to change the Address Book again.</li> <li>If an SC997 error occurs, press [Exit].</li> </ul>
Cannot use Web Image Monitor to print documents stored in Document Server.	When print volume limits are specified, users cannot print beyond their print volume limit. Print jobs selected by users who have reached their print volume limits will be canceled.	<ul> <li>For details about specifying print volume limits, see Security Guide .</li> <li>To view the status of a print job, see [Print Job History]. In Web Image Monitor, click [Job] on the [Status/Information] menu. And then click [Print Job History] in "Document Server".</li> </ul>
The function does not run or cannot be used.	If you are not able to carry out your job, it may be that the machine is being used by another function.	Wait until the current job is completed before trying again.  For details about Function  Compatibility, see "When Multiple Functions Cannot Be Executed  Simultaneously", Troubleshooting.
The function does not run or cannot be used.	The function cannot be performed while the Address Book is being backed up from Web Image Monitor or other tools running on the computer.	Wait a while. When the Address Book backup is complete, the function will be performed.
Paper is bent.	Paper may be bent when it is ejected from the finisher upper tray.	Change the output tray to the finisher shift tray.

## **U** Note

If you cannot make copies as you want because of paper type, paper size, or paper capacity
problems, use the recommended paper. For details about recommended paper, see page 144
"Recommended Paper Sizes and Types".

#### IU

#### When Multiple Functions Cannot Be Executed Simultaneously

If you are not able to carry out your job, it may be that the machine is being used by another function.

Wait until the current job is completed before trying again. In certain cases, you can carry out another job using a different function while the current job is being performed.

For details about Function Compatibility, see "Function Compatibility", Troubleshooting .

# Messages Displayed When Using the Copy/ Document Server Function

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 If you cannot make copies as you want because of the paper type, paper size or paper capacity problems, use recommended paper. For details about recommended paper, see page 144 "Recommended Paper Sizes and Types".

Message	Causes	Solutions
"Cannot delete the folder because it contains locked files. Please contact the file administrator."	The folder cannot be deleted because it contains a locked original.	Unlock the locked original to delete it. For details about locked files, see Security Guide .
"Cannot detect original size."	The original placed on the exposure glass is a nonstandard size.	<ul> <li>Place the original on the exposure glass again. Face the original down.</li> <li>If the machine cannot detect the size of the original, specify the size manually - do not use Auto Paper Select mode or the Auto Reduce/Enlarge function. For details about specifying the settings, see "Sizes Detectable with Auto Paper Select", Paper Specifications and Adding Paper</li> </ul>
"Cannot detect original size."	Original is not placed, or the original placed on the exposure glass is a nonstandard size.	<ul> <li>Place the original correctly.</li> <li>Specify the paper size.</li> <li>When placing an original directly on the exposure glass, the lifting/lowering action of the ADF triggers the automatic original size detection process. Lift the ADF by 30 degrees or more.</li> </ul>

Message	Causes	Solutions
"Cannot display preview of this page."	The image data may have been corrupted.	Press [Exit] to display the preview screen without a thumbnail.
		If the selected document contains several pages, press [Switch] on the "Display Page" area to change the page, and then a preview of the next page will appear.
"Cannot punch this paper size."	The Punch function cannot be used with paper size selected.	For details about paper, see "Specifications for Punch Unit (Internal Finisher SR3130)", "Specifications for Punch Unit (Finisher SR3140, Booklet Finisher SR3150)", or "Specifications for Punch Unit (Finisher SR3160, Booklet Finisher SR3170)", Maintenance and Specifications.
"Cannot staple paper of this size."	The Staple function cannot be used with paper size selected.	Select a proper paper size. For details about paper, see "Specifications for Internal Finisher SR3130", "Specifications for Finisher SR3140", "Specifications for Booklet Finisher SR3150", "Specifications for Finisher SR3160", or "Specifications for Booklet Finisher SR3170", Maintenance and Specifications.
"Check paper size."	An irregular paper size is set.	If you press the [Start] key, the copy will start using the selected paper.
"Duplex is not available with this paper size."	A paper size not available in Duplex mode has been selected.	Select a proper paper size. For details about paper, see "Specifications for the Main Unit", Maintenance and Specifications.
"Exceeded the maximum number of sheets that can be used. Copying will be stopped."	The number of pages the user is permitted to copy has been exceeded.	For details about how to check the number of copies available per user, see Security Guide .

Message	Causes	Solutions
"File being stored exceeded max. number of pages per file. Copying will be stopped."	The scanned originals have too many pages to store as one document.	Press [Exit], and then store again with an appropriate number of pages.
"Magazine or Booklet mode is not available due to mixed image mode."	You selected the "Magazine" or "Booklet" function for originals scanned using different functions, such as copy and printer.	Make sure originals for the "Magazine" or "Booklet" function are scanned using the same function.
"Maximum number of sets is n." (A figure is placed at n.)	The number of copies exceeds the maximum copy quantity.	You can change the maximum copy quantity from [Max. Copy Quantity] in [General Features] under [Copier / Document Server Features]. For details about Max. Copy Quantity, see "General Features", Copy/ Document Server.
"Memory is full. nn originals have been scanned. Press [Print] to copy scanned originals. Do not remove remaining originals."	The scanned originals exceed the number of pages that can be stored in memory.	Press [Print] to copy scanned originals and cancel the scanning data. Press [Clear Memory] to cancel the scanning data and not copy.
represents a changeable number.)		
"Press [Continue] to scan and copy remaining originals."	The machine checked if the remaining originals should be copied, after the scanned originals were printed.	Remove all copies, and then press [Continue] to continue copying. Press [Stop] to stop copying.
"Rotate Sort is not available with this paper size."	A size of paper for which Rotate Sort is not available is selected.	Select a proper paper size. For details about paper, see "Sort", Copy/ Document Server .

Message	Causes	Solutions
"Stapling capacity exceeded."	The number of sheets per set is over the staple capacity.	Check the stapler capacity. For details about the stapler capacity, see "Specifications for Internal Finisher SR3130", "Specifications for Finisher SR3140", "Specifications for Booklet Finisher SR3150", "Specifications for Finisher SR3160", or "Specifications for Booklet Finisher SR3170", Maintenance and Specifications.
"The selected folder is locked. Please contact the file administrator."	An attempt was made to edit or use a locked folder.	For details about locked folders, see Security Guide .



• If you set [Memory Full Auto Scan Restart] in [Input / Output] of User Tools to [On], even if the memory becomes full, the memory overflow message will not be displayed. The machine will make copies of the scanned originals first, and then automatically proceed to scan and to copy the remaining originals. In this case, the resulting sorted pages will not be sequential. For details about Memory Full Auto Scan Restart, see "Input / Output", Copy/ Document Server.

# Messages Displayed When Using the Facsimile Function

Message	Causes	Solutions
"Cannot find the specified path. Please check the settings."	The name of the computer or folder entered as the destination is wrong.	Check that the computer name and the folder name for the destination are correct.
"Error occurred, and transmission was cancelled."	<ul> <li>Original jammed during Immediate Transmission.</li> <li>A problem occurred in the machine, or noise occurred on the telephone line.</li> </ul>	Press [Exit], and then send the documents again.
"Functional problem occurred. Stopped processing."	The power was turned off while the machine was receiving a document by Internet Fax.	Even if you turn on the power immediately, depending on the mail server, the machine might not be able to resume reception of the Internet Fax if the timeout period has not expired. Wait until the mail server's timeout period has expired, and then resume reception of the Internet Fax. For details about reception of the Internet Fax, contact your administrator.
"Functional problems with facsimile. Data will be initialized."	There is a problem with the fax.	Record the code number shown on the screen, and then contact your service representative. Other functions can be used.
"Memory is full. Cannot scan more. Transmission will be stopped."	The memory is full.	If you press [Exit], the machine returns to standby mode and starts transmitting the stored pages.  Check the pages that have not been sent using the Communication Result
		Report, and then resend those pages.
"Put original back, check it and press the Start key."	Original jammed during Memory Transmission.	Press [Exit], and then send the documents again.

Message	Causes	Solutions
"Some page(s) are near blank."	The first page of the document is almost blank.	The original's blank side might have been scanned. Be sure to place your originals correctly. For details about determining the cause of blank pages, see "Detecting Blank Pages", Fax.



- Settings that can be confirmed in System Settings or Facsimile Features on the control panel can
  also be confirmed from Web Image Monitor. For details about how to confirm the settings from
  Web Image Monitor, see Web Image Monitor Help.
- If the paper tray runs out of paper, "There is no paper. Load paper." appears on the screen, asking you to add paper. If there is paper left in the other trays, you can receive documents as usual, even if the message appears on the screen. You can turn this function on or off with "Parameter Settings". For details about how to do this, see "Parameter Settings", Fax.

### When There Is a Problem Specifying the Network Settings

Message	Causes	Solutions
"Check whether there are any network problems." [13-10]	The alias telephone number you entered is already registered on the gatekeeper by another device.	<ul> <li>Check that the correct alias phone number is listed in [H.323 Settings] of [Facsimile Features]. For details about H.323 Settings, see "Initial Settings", Fax .</li> <li>For details about network problems, contact your administrator.</li> </ul>
"Check whether there are any network problems." [13-11]	Cannot access gatekeeper.	<ul> <li>Check that the correct gate keeper address is listed in [H.323 Settings] of [Facsimile Features]. For details about H.323 Settings, see "Initial Settings", Fax .</li> <li>For details about network problems, contact your administrator.</li> </ul>

Message	Causes	Solutions
"Check whether there are any network problems." [13-17]	Registering of user name is rejected by SIP server.	<ul> <li>Correct that the correct SIP Server IP Address and SIP User Name are listed in [SIP Settings] of [Facsimile Features]. For details about SIP Settings, see "Initial Settings", Fax .</li> <li>For details about network problems, contact your administrator.</li> </ul>
"Check whether there are any network problems." [13-18]	Cannot access SIP server.	<ul> <li>Check that the correct SIP Server IP Address is listed in [SIP Settings] of [Facsimile Features]. For details about SIP Settings, see "Initial Settings", Fax .</li> <li>For details about network problems, contact your administrator.</li> </ul>
"Check whether there are any network problems." [13-24]	The password registered for the SIP server is not the same as the password registered for this machine.	For details about network problems, contact your administrator.
"Check whether there are any network problems." [13-25]	In [Effective Protocol], the IP address is not enabled, or an incorrect IP address has been registered.	<ul> <li>Check that IPv4 in [Effective Protocol] is set to "Active" in [System Settings]. For details about effective protocol, see "Interface Settings", Connecting the Machine/ System Settings.</li> <li>Check that the correct IPv4 address is specified for the machine in [System Settings]. For details about IPv4 address, see "Interface Settings", Connecting the Machine/ System Settings.</li> <li>For details about network problems, contact your administrator.</li> </ul>

Message	Causes	Solutions
"Check whether there are any network problems." [13-26]	The "Effective Protocol" and "SIP Server IP Address" settings are different, or an incorrect IP address has been registered.	<ul> <li>Check that the correct IP address is specified for the machine in [System Settings]. For details about IP address, see "Interface Settings", Connecting the Machine/ System Settings.</li> <li>For details about network problems, contact your administrator.</li> </ul>
"Check whether there are any network problems." [14-01]	The DNS server, SMTP server, or folder specified for transfer to was not found, or the destination for Internet Fax around (not through) the SMTP server could not be found.	<ul> <li>Check that the following settings in [System Settings] are listed correctly.</li> <li>DNS server</li> <li>Server name and IP address for the SMTP Server</li> <li>For details about these settings, see "Interface Settings" or "File Transfer", Connecting the Machine/ System Settings.</li> <li>Check that the folder for transfer is correctly specified.</li> <li>Check that the computer in which the folder for transfer is specified is correctly operated.</li> <li>Check that the LAN cable is correctly connected to the machine.</li> <li>For details about network problems, contact the administrator of the destinations.</li> <li>For details about network problems, contact your administrator.</li> </ul>

Message	Causes	Solutions
"Check whether there are any network problems." [14-09]	E-mail transmission was refused by SMTP authentication, POP before SMTP authentication, or login authentication of the computer in which the folder for transfer is specified.	<ul> <li>Check that User Name and Password for the following settings in [System Settings] are listed correctly.</li> <li>SMTP Authentication</li> <li>POP before SMTP</li> <li>Fax E-mail Account</li> <li>For details about these settings, see "File Transfer", Connecting the Machine/ System Settings</li> <li>Check that the user ID and password for the computer with the folder for forwarding are correctly specified.</li> <li>Check that the folder for forwarding is correctly specified.</li> <li>Confirm that the computer with the folder for forwarding is properly working.</li> <li>For details about network problems, contact your administrator.</li> </ul>
"Check whether there are any network problems." [14-33]	E-mail addresses for the machine and the administrator are not registered.	<ul> <li>Check that the correct E-mail Address is listed in [Fax E-mail Account] of [System Settings]. For details about Fax E-mail Account, see "File Transfer", Connecting the Machine/ System Settings.</li> <li>For details about network problems, contact your administrator.</li> </ul>

Message	Causes	Solutions
"Check whether there are any network problems." [15-01]	No POP3/IMAP4 server address is registered.	<ul> <li>Check that the correct Server         Name or Server Address is listed         in [POP3 / IMAP4 Settings] of         [System Settings]. For details         about POP3 / IMAP4 Settings,         see "File Transfer", Connecting the         Machine/ System Settings.</li> <li>For details about network         problems, contact your         administrator.</li> </ul>
"Check whether there are any network problems." [15-02]	Cannot log in to the POP3/IMAP4 server.	<ul> <li>Check that the correct User Name and Password are listed in [Fax E-mail Account] of [System Settings]. For details about Fax E-mail Account, see "File Transfer", Connecting the Machine/ System Settings.</li> <li>For details about network problems, contact your administrator.</li> </ul>
"Check whether there are any network problems." [15-03]	No machine e-mail address is programmed.	<ul> <li>Check that the correct machine email address is specified in [System Settings]. For details about settings of e-mail address, see "File Transfer", Connecting the Machine/ System Settings.</li> <li>For details about network problems, contact your administrator.</li> </ul>

Message	Causes	Solutions
"Check whether there are any network problems." [15-11]	Cannot find the DNS server or POP3/IMAP4 server.	<ul> <li>Check that the following settings in [System Settings] are listed correctly.</li> <li>IP address of the DNS Server</li> <li>the server name or IP address of the POP3/IMAP4 server</li> <li>the port number of the POP3/IMAP4 server</li> <li>Reception Protocol</li> <li>For details about these settings, see "Interface Settings" or "File Transfer", Connecting the Machine/ System Settings.</li> <li>Check that the LAN cable is correctly connected to the machine.</li> <li>For details about network problems, contact your administrator.</li> </ul>
"Check whether there are any network problems." [15-12]	Cannot log in to the POP3/IMAP4 server.	<ul> <li>Check that the following settings in [System Settings] are listed correctly.</li> <li>the user name and password for [Fax E-mail Account]</li> <li>the user name and password for POP before SMTP authentication</li> <li>For details about these settings, see "File Transfer", Connecting the Machine/ System Settings .</li> <li>For details about network problems, contact your administrator.</li> </ul>



- Settings that can be confirmed in System Settings or Facsimile Features on the control panel can
  also be confirmed from Web Image Monitor. For details about how to confirm the settings from
  Web Image Monitor, see Web Image Monitor Help.
- If the paper tray runs out of paper, "There is no paper. Load paper." appears on the screen, asking you to add paper. If there is paper left in the other trays, you can receive documents as usual, even if the message appears on the screen. You can turn this function on or off with "Parameter Settings". For details about how to do this, see "Parameter Settings", Fax.
- If "Check whether there are any network problems." appears, the machine is not correctly connected to the network or the settings of the machine are not correct. If you do not need to connect to a network, you can specify the setting so this message is not displayed, and then the [Check Status] key no longer lights. For details about how to do this, see "Parameter Settings", Fax 
   If you reconnect the machine to the network, be sure to set "Display" by configuring the appropriate User Parameter.

#### When the Remote Fax Function Cannot Be Used

Message	Causes	Solutions
"Authentication with remote machine failed. Check remote machine's auth. settings."	User authentication on the main machine has failed.	For details about user authentication, see Security Guide .
"Authentication with remote machine failed. Check remote machine's auth. settings."	User Code Authentication is set on the device connected via the remote fax function.	The remote fax function does not support User Code Authentication. Disable the User Code Authentication on the main machine.
"Authentication with remote machine failed. Check remote machine's auth. settings."	The user does not have permission to use the function on the main machine.	For details about how to set permissions, see Security Guide .

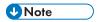
Message	Causes	Solutions
"Check whether there are any network problems." [16-00]	<ul> <li>An IP address has not been registered for the main machine.</li> <li>A network is not connected properly.</li> </ul>	<ul> <li>Check that the correct IP address is specified for the machine in [System Settings]. For details about the IP address of the main machine, contact your administrator.</li> <li>For details about network problems, contact your administrator.</li> </ul>
"Connection with the remote machine has failed. Check the remote machine status."	A network error occurred while using the remote fax function.	<ul> <li>Check that the main machine supports the remote fax function.</li> <li>Check that the main machine is working normally.</li> <li>Check that the correct IP address or host name is set for the main machine in [System Settings]. For details about these settings, contact your administrator.</li> <li>Check that the LAN cable is correctly connected to the machine.</li> <li>For details about network problems, contact your administrator.</li> </ul>
"Connection with the remote machine has failed. Check the remote machine status."	The main machine's power is off.	Turn on the main machine's power.
"Connection with the remote machine has failed. Check the remote machine status."	A timeout error occurred while an attempt was made to connect the device via remote fax function.	<ul> <li>Check that the LAN cable is correctly connected to the machine.</li> <li>Check that the main machine is working correctly.</li> <li>For details about connection with main machine, see "Sending/Receiving Documents Using a Remote Machine (Remote Fax)", Fax .</li> </ul>

Message	Causes	Solutions
"Connection with the remote machine has failed. There is a problem with the remote machine structure. Contact the administrator."	The settings or machine configuration for using the remote fax function to connect to the main machine are incorrect.	For details about the settings and machine configuration for using the remote fax function to connect to a main machine, contact your administrator.
"Transfer error has occured. Check the status of the remote machine."	A network error occurred during transfer.	<ul> <li>Check that the correct IP address or host name is set for the main machine in [System Settings]. For details about these settings, contact your administrator.</li> <li>Check that the main machine is working correctly.</li> <li>Check that the LAN cable is correctly connected to the machine.</li> <li>For details about transmission, contact your administrator.</li> </ul>
"The HDD of the remote machine is full."	The hard disk became full after using the remote fax function to scan an original.	Delete unnecessary files.

# Messages Displayed When Using the Printer Function

This section describes the principal messages that appear on the display panel, error logs or reports. If other messages appear, follow their instructions.

#### Messages Displayed on the Control Panel When Using the Printer Function



• Before turning off the power, see page 57 "Turning On/Off the Power".

Message	Causes	Solutions
"Hardware Problem: Ethernet"	An error has occurred in the Ethernet interface.	Turn off the power, and then back on again. If the message appears again, contact your service representative.
"Hardware Problem: HDD"	An error has occurred in the hard disk.	Turn off the power, and then back on again. If the message appears again, contact your service representative.
"Hardware Problem: USB"	An error has occurred in the USB interface.	Turn off the power, and then back on again. If the message appears again, contact your service representative.
"Hardware Problem: Wireless Card" (A "wireless LAN board" or "Bluetooth interface unit" is referred to as a "wireless card".)	The wireless LAN board can be accessed, but an error was detected.	Turn off the power, and then confirm the wireless LAN board is inserted correctly. After confirmation, turn on the power again. If the message appears again, contact your service representative.
"Hardware Problem: Wireless Card" (A "wireless LAN board" or "Bluetooth interface unit" is referred to as a "wireless card".)	The Bluetooth interface unit was connected while the machine was turned on.  The Bluetooth interface unit was removed while the machine was turned on.	Turn off the power, and then confirm the Bluetooth interface unit is inserted correctly. After confirmation, turn on the power again. If the message appears again, contact your service representative.

Message	Causes	Solutions
"Load following paper in n. To cancel job, press [Job Reset]."  (A figure is placed at n.)	The printer driver settings are incorrect or the tray does not contain paper of the size selected in the printer driver.	Check that the printer driver settings are correct, and then load paper of the size selected in the printer driver into the input tray. For details about how to change the paper size, see "Changing the Paper Size", Paper Specifications and Adding Paper.
"Paper in staple tray. Open cover and remove paper."	If printing is stopped before it is finished, paper may remain in the finisher.	Remove the paper remaining in the finisher.
"Paper size and type are mismatched. Select another tray from the following and press [Continue]. To cancel job, press [Job Reset]. Paper size and type can also be changed in User Tools."	The printer driver settings are incorrect or the tray does not contain paper of the size or type selected in the printer driver.	<ul> <li>Check that the printer driver settings are correct, and then load paper of the size selected in the printer driver into the input tray. For details about how to change the paper size, see "Changing the Paper Size", Paper Specifications and Adding Paper.</li> <li>Select the tray manually to continue printing, or cancel a print job. For details about how to select the tray manually, or cancel a print job, see "If an Error Occurs with the Specified Paper Size and Type", Print.</li> </ul>
"Paper size of n is mismatched. Select another tray from the following and press [Continue]. Paper type can also be changed in User Tools."	The size of the paper in the tray does not match the paper size specified in the printer driver.	Select a tray containing paper that is the same size as the specified paper size.
(A tray name is placed at n.)		
"Parallel I/F board has a problem."	An error has occurred in the IEEE 1284 interface board.	Turn off the power, and then back on again. If the message appears again, contact your service representative.

#### When using direct print from a memory storage device

Message	Causes	Solutions
"Exceeded the limit value for total data size of the selected files. Cannot select more files."	<ul> <li>The size of the selected file exceeds 1 GB.</li> <li>The total size of the selected files exceeds 1 GB.</li> </ul>	Files or groups of files larger than 1 GB cannot be printed.  • When the total size of the multiple files that are selected exceeds 1 GB, select files separately.  • When the size of the selected file exceeds 1 GB, print from a memory storage device using a function other than the Direct printing function.  You cannot select files of different formats at the same time.

Message	Causes	Solutions
"Unable to access the specified memory storage device."	<ul> <li>An error occurred when the machine accessed the memory storage device or a file stored on the memory storage device.</li> <li>An error occurred when the user used the Direct printing function to print from a memory storage device.</li> </ul>	Save the file to a different memory storage device, and then try to print again.

# Messages Printed on the Error Logs or Reports When Using the Printer Function

This section describes likely causes of and possible solutions for the error messages that are printed on the error logs or reports.

#### When print jobs are canceled

Message	Causes	Solutions
"91: Error"	Printing was canceled by the auto job cancel function due to a command error.	Check that the data is valid.
"An error occurred while processing an Unauthorized Copy Prevention job. The job was cancelled."	You tried to store a file in the Document Server when the [Unauthorized Copy Prevention] was specified.	On the printer driver, select a job type other than [Document Server] in "Job Type:" or deselect [Unauthorized Copy Prevention].
"An error occurred while processing an Unauthorized Copy Prevention job. The job was cancelled."	The [Enter User Text:] field on the [Unauthorized Copy Prevention for Pattern Details] screen is blank.	On the printer driver's [Detailed Settings] tab, click [Effects] in "Menu:". Select [Unauthorized Copy Prevention], and then click [Details] to display [Unauthorized Copy Prevention for Pattern Details]. Enter text in [Enter User Text:].

Message

Causes

Solutions

#### When there is a problem with the print settings

Message	Causes	Solutions
"Booklet/Half Fold Error"	The job was canceled because you specified invalid settings for saddle stitching or half fold.	Check the settings for saddle stitching or half fold.
"Classification Code is incorrect."	The classification code has not been entered, or the classification code has been entered incorrectly.	Enter the correct classification code.

Message	Causes	Solutions
"Classification Code is incorrect."	The classification code is not supported with the printer driver.	Select [Optional] for classification code. For details about how to specify classification code settings, see "Configuring Classification Codes", Print
"Duplex has been cancelled."	Duplex printing was canceled.	<ul> <li>Select the proper paper size for the duplex function. For details about paper, see "Specifications for the Main Unit", Maintenance and Specifications.</li> <li>Change the setting for "Apply Duplex" in [System Settings] to enable duplex printing for the paper tray. For details about setting "Apply Duplex", see "Tray Paper Settings", Connecting the Machine/ System</li> </ul>
		Settings .
"Exceeded max. pages. Collate is incomplete."	The number of pages exceeds the maximum number of sheets that you can use Collate with.	Reduce the number of pages to print.
"Exceeded the maximum number of multi-sheet fold (Half Fold)."	The maximum number of multi-sheet folds (Half Fold) was exceeded.	For details about the maximum number of multi-sheet folds (Half Fold), see "Fold", Print .
"Output tray has been changed."	The output tray was changed because the paper size of the specified output tray is limited.	Specify the proper output tray.

Message	Causes	Solutions
"Print overrun."	Images were discarded while printing.	PCL 6  Select a lower resolution on the printer driver. For details about how to change the resolution setting, see the printer driver Help.
		PostScript 3
		Select a lower resolution on the printer driver. For details about how to change the resolution setting, see the printer driver Help.
"Punch has been cancelled."	Punch printing was canceled.	Check the paper orientation, print orientation, and then punch position. Certain settings can produce print results that might not be as expected.
"Staple has been cancelled."	Stapling printing was canceled.	Check the paper orientation, paper quantity, print orientation, and staple position. Certain settings can produce print results that might not be as expected.

## When documents cannot be stored in the Document Server

Message	Causes	Solutions
"Cannot store data of this size."	The paper size exceeded the capacity of the Document Server.	Reduce the paper size of the file that you want to send to a size that the Document Server can store. Custom size files can be sent but not stored afterward.
"Document Server is not available to use. Cannot store."	You cannot use the Document Server function.	For details about using Document Server function, contact your administrator.
		For details about how to set permissions, see Security Guide.
"Exceeded max. capacity of Document Server. Cannot store."	The hard disk became full after a file was stored.	Delete some of the files stored in the Document Server or reduce the size that you want to send.

Message	Causes	Solutions
"Exceeded max. number of files of Document Server. Cannot store."	The maximum file capacity of the Document Server was exceeded.	Delete some of the files stored in the Document Server.
"Exceeded max. number of files. (Auto)"	While using the error job store function to store Normal Print jobs as Hold Print files, the maximum file capacity for file storage or Hold Print file management (automatic) was exceeded.	Delete Hold Print files (automatic) or unneeded files stored in the machine.
"Exceeded max. number of pages of Document Server. Cannot store."	The maximum page capacity of the Document Server was exceeded.	Delete some of the files stored in the Document Server or reduce the number of pages that you want to send.
"Exceeded max. number of pages. (Auto)"	While using the error job store function to store Normal Print jobs as Hold Print files, the maximum page capacity was exceeded.	Delete unneeded files stored in the machine.  Reduce the number of pages to print.
"The print job has been cancelled because capture file(s) could not be stored: Exceeded max. memory."	The hard disk became full after a file was stored.	Delete the files stored in the Document Server or reduce the file size to be sent.
"The print job has been cancelled because capture file(s) could not be stored: Exceeded max. number of files."	The maximum file capacity of the Document Server was exceeded.	Delete the files stored in the Document Server.
"The print job has been cancelled because capture file(s) could not be stored: Exceeded max. number of pages per file."	The maximum page capacity of the Document Server was exceeded.	Delete some of the files stored in the Document Server or reduce the number of pages that you want to send.

Message	Causes	Solutions
"The specified folder in Document Server is locked. Cannot store."	The specified folder is locked.	Unlock the folder or specify another folder number that can be used. For details about locked folders, see Security Guide .

## When there is not enough free hard disk space

Message	Causes	Solutions
"HDD is full."	When printing with the PostScript 3 printer driver, the hard disk capacity for fonts and forms has been exceeded.	Delete unneeded forms or fonts registered in the machine.
"HDD is full."	The hard disk became full while printing a Sample Print, Locked Print, Hold Print, or Stored Print file.	Delete unneeded files stored in the machine.  Alternatively, reduce the data size of the Sample Print, Locked Print, Hold Print, or Stored Print file.
"HDD is full. (Auto)"	The hard disk became full while using the error job store function to store Normal Print jobs as Hold Print files.	Delete unneeded files stored in the machine.  Alternatively, reduce the data size of the Temporary Print file and/or the Stored Print file.

## When there is not enough memory

Message	Causes	Solutions
"84: Error"	There is no work area available for image processing.	Decrease the number of files sent to the machine.
"92: Error"	Printing was canceled because [Job Reset] or the [Stop] key was selected on the machine's control panel.	Perform the print operation again if necessary.

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## When there is a problem with a parameter

Message	Causes	Solutions
"86: Error"	Parameters of the control code are invalid.	Check the print settings.

## When the user lacks privileges to perform an operation

Message	Causes	Solutions
"No response from the server. Authentication has failed."	A timeout occurred while connecting to the server for LDAP authentication or Windows Authentication.	Check the status of the server.
"Printing privileges have not been set for this document."	The PDF document you have tried to print has no privileges to print.	Contact the owner of the document.
"You do not have a privilege to use this function. This job has been cancelled."	The entered login user name or login password is not correct.	Check that the user name and password are correct.
"You do not have a privilege to use this function. This job has been cancelled."	The logged in user is not allowed to use the selected function.	For details about how to set permissions, see Security Guide .
"You do not have a privilege to use this function. This operation has been cancelled."	The logged in user does not have the privileges to register programs or change the paper tray settings.	For details about how to set permissions, see Security Guide .

# When a user cannot be registered

Message	Causes	Solutions
"Auto-registration of user information has failed."	Automatic registration of information for LDAP Authentication or Windows Authentication failed because the Address Book is full.	For details about automatic registration of user information, see Security Guide .
"Information for user authentication is already registered for another user."	The user name for LDAP or Integration Server authentication was already registered in a different server with a different ID, and a duplication of the user name occurred due to a switching of domains (servers), etc	For details about user authentication, see Security Guide .

#### When other errors occur

Message	Causes	Solutions
"85: Error"	The specified graphics library is unavailable.	Check that the data is valid.
"98: Error"	The machine could not access Hard disk correctly.	Turn off the power, and then back on again. If the message appears frequently, contact your service representative.
"99: Error"	This data cannot be printed. The specified data is either corrupt or it cannot be printed from a memory storage device using the Direct printing function.	Check that the data is valid. For details about the kinds of data that can be printed from a memory storage device using the Direct printing function, see "Direct Printing from a Memory Storage Device", Print.

Message	Causes	Solutions
"Command Error"	An RPCS command error occurred.	<ul> <li>Check using the following procedure:</li> <li>Check if the communication between the computer and the machine is working correctly.</li> <li>Check if the correct printer driver is being used.</li> <li>Check if the machine's memory size is set correctly in the printer driver.</li> <li>Check that the printer driver is the most up-to-date version available.</li> </ul>
"Compressed Data Error."	The printer detected corrupt compressed data.	<ul> <li>Check the connection between the computer and the printer.</li> <li>Check that the program you used to compress the data is functioning correctly.</li> </ul>
"Data storage error."	You tried to print a Sample Print, Locked Print, Hold Print, or Stored Print file, or to store a file in the Document Server when the hard disk was malfunctioning.	Contact your service representative.
"Error has occurred."	A syntax error, etc., occurred.	Check that the PDF file is valid.
"Exceeded max. number of files to print for temporary / stored jobs."	While printing a Sample Print, Locked Print, Hold Print, or Stored Print file, the maximum file capacity was exceeded.	Delete unneeded files stored in the machine.
"Exceeded max. number of pages to print for temporary / stored jobs."	While printing a Sample Print, Locked Print, Hold Print, or Stored Print file, the maximum page capacity was exceeded.	Delete unneeded files stored in the machine.  Reduce the number of pages to print.

Message	Causes	Solutions
"Failed to obtain file system."	PDF direct printing could not be performed because the file system could not be obtained.	Turn off the power, and then back on again. If the message appears again, contact your service representative.
"File system is full."	PDF file does not print out because the capacity of the file system is full.	Delete all unnecessary files from the hard disk, or decrease the file size sent to the machine.
"I/O buffer overflow."	An input buffer overflow occurred.	<ul> <li>In [Printer Features], under [Host Interface], select [I/O Buffer], and then set the maximum buffer size to a larger value.</li> <li>Reduce the number of files being sent to the machine.</li> </ul>
"Insufficient Memory"	A memory allocation error occurred.	PCL 6  On the printer driver's [Detailed Settings] tab, click [Print Quality] in "Menu:", and then select [Raster] in the "Vector/Raster:" list. In some cases, it will take a long time to complete a print job.
"Memory Retrieval Error"	A memory allocation error occurred.	Turn off the power, and then back on again. If the message appears again, replace the RAM. For details about replacing the RAM, contact your service representative.

If printing does not start, contact your service representative.



• The contents of errors may be printed on the Configuration Page. Check the Configuration Page in conjunction with the error log. For details about how to print the Configuration Page, see "List / Test Print", Print.

# Messages Displayed When Using the Scanner Function

#### Messages Displayed on the Control Panel When Using the Scanner Function

This section describes likely causes of and possible solutions for the error messages that appear on the control panel. If a message not described here appears, act according to the message.

Message	Causes	Solutions
"Cannot find the specified path. Please check the settings."	The destination computer name or folder name is invalid.	Check whether the computer name and the folder name for the destination are correct.
"Cannot find the specified path. Please check the settings."	An antivirus program or a firewall is preventing the machine connecting to your computer.	<ul> <li>Antivirus programs and firewalls can prevent client computers from establishing connection with this machine.</li> <li>If you are using anti-virus software, add the program to the exclusion list in the application settings. For details about how to add programs to the exclusion list, see the anti-virus software Help.</li> <li>To prevent a firewall blocking the connection, register the machine's IP address in the firewall's IP address exclusion settings. For details about the procedure for excluding an IP address, see your operating system's Help.</li> </ul>
"Entered user code is not correct. Please re-enter."	You have entered an incorrect user code.	Check the authentication settings, and then enter a correct user code.
"Exceeded max. number of alphanumeric characters for the path."	The maximum number of specifiable alphanumeric characters in a path has been exceeded.	The maximum number of characters which can be entered for the path is 256. Check the number of characters you entered, and then enter the path again.

Message	Causes	Solutions
"Exceeded max. number of alphanumeric characters."	The maximum enterable number of alphanumeric characters has been exceeded.	Check the maximum number of characters which can be entered, and then enter it again. For details about the maximum enterable number of characters, see "Values of Various Set Items for Transmission/Storage / Delivery Function", Scan .
"Programmed. Cannot program the destination(s) that is not programmed in the address book."	The destinations selected while registering to the program contain a folder destination for which one of the following destinations is set:  manually entered destination, delivery server destination, WSD destination, or DSM destination	WSD destinations and DSM destinations cannot be registered to the program because they cannot be registered in the address book. For manually entered and delivery server destinations, register the destinations in the address book, and then try to register them to the program again.
"Scanner journal is full. Please check Scanner Features."	"Print & Delete Scanner Journal" in [Scanner Features] is set to [Do not Print: Disable Send], and Scanner Journal is full.	Print or delete Scanner Journal. For details about Scanner Features, see "General Settings", Scan .
"The entered file name contains invalid character(s). Enter the file name again using any of the following 1 byte characters. " 0 to 9 ", " A to Z ", " a to z ", """	The file name contains a character that cannot be used.	Check the file name set at the time of scanning. For details about characters that can be used in file names, see "Specifying the File Name", Scan.
"The entered file name contains invalid character(s). Enter the file name again using any of the following 1 byte characters. " O to 9 ", " A to Z ", " a to z ", " ""	The file name contains a character that cannot be used.	Check the file name specified at the time of scanning. The file name specified in the Sending Scan Files to Folders function cannot contain the following characters:  \( / : * ? " <>    The file name cannot start or end with a period "."

Message	Causes	Solutions
"The program is recalled. Cannot recall the destination(s) for which access privileges are required."	The program contains a destination for which the currently logged-in user does not have permission to view.	For details about how to set permissions, see Security Guide .
"The program is recalled. Cannot recall the destination(s) that is deleted from the address book."	The destination stored in the program could not be called because it was deleted from the address book.	Enter the destination directly to send data separately.
"The program is recalled. Cannot recall the folder destination(s) with protection code(s)."	Destinations registered in the program contain a folder destination for which the protection code is set.	A destination for which the protection code is set cannot be called by the program. Cancel the protection code setting or send scanned files to the destination separately.

### When documents cannot be scanned properly

Message	Causes	Solutions
"All the pages are detected as blank. No file was created."	No PDF file was created because all the pages of the scanned original were detected as blank when [On] is specified for [Delete Blank Page] in [OCR Settings].	Check whether the original is set upside down. Change [OCR Scanned PDF: Blank Page Sensitivity] in [Scanner Features] to "Sensitivity Level 1".
"Check original's orientation."	Documents may sometimes not be scanned depending on a combination of items such as the specified scaling factor and document size.	Change the orientation of the original, and then try to scan the original again.

Message	Causes	Solutions
"Exceeded max. data capacity."  "Check scanning resolution, then press Start key again."	The scanned data exceeded maximum data capacity.	Specify the scan size and resolution again. Note that it may not be possible to scan very large originals at a high resolution. For details about the settings for scan function, see "Relationship between Resolution and Scan Size", Scan .
"Exceeded max. data capacity."  "Check the scanning resolution, then reset n original(s)."  ("n" in the message represents a changeable number.)	The scanned original exceeded maximum data capacity.	Specify the scan size and resolution again. Note that it may not be possible to scan very large originals at a high resolution. For details about the settings for scan function, see "Relationship between Resolution and Scan Size", Scan.
"Exceeded max. data capacity."  "Check the resolution and the ratio and then press the Start key again."	The data being scanned is too large for the scale ratio specified in [Specify Size].	Reduce the resolution or [Specify Size] value, and then try to scan the original again.
"Exceeded max. number of files which can be used in Document Server at the same time."	The maximum number of files that can be stored in the Document Server has been exceeded.	Check the files stored by the other functions, and then delete unneeded files. For details about how to delete files, see "Deleting Stored Documents", Copy/ Document Server.
"Not all of the image will be scanned."	If the scaling factor specified in [Specify Reproduction Ratio] is too large, part of the image may be lost.	Reduce the scaling factor in [Specify Reproduction Ratio], and then try to scan the original again.  If displaying the entire image is not necessary, press the [Start] key to start scanning with the current scaling factor.

Message	Causes	Solutions
"Not all of the image will be scanned."	Using [Specify Reproduction Ratio] to scale down a large document may cause part of the image to be lost.	Specify a large size in [Specify Size], and then try to scan the original again.  If displaying the entire image is not necessary, press the [Start] key to start scanning with the current scaling factor.
"The size of the scanned data is too small."  "Check the resolution and the ratio and then press the Start key again."	The data being scanned is too small for the scale ratio specified in [Specify Size].	Specify a higher resolution or a large size in [Specify Size], and then try to scan the original again.

#### When documents cannot be scanned because the memory is full

Message	Causes	Solutions
"Memory is full. Cannot scan. The scanned data will be deleted."	Because of insufficient hard disk space, the first page could not be scanned.	<ul> <li>Try one of the following measures:</li> <li>Wait for a while, and then retry the scan operation.</li> <li>Reduce the scan area or scanning resolution. For details about changing scan area and scanning resolution, see "Scan Settings" of Various Scan Settings, Scan.</li> <li>Delete unneeded stored files. For details about how to delete stored files, see "Deleting a Stored File", Scan.</li> </ul>
"Memory is full. Do you want to store scanned file?"	Because there is not enough free hard disk space in the machine for storing in the Document Server, only some of the pages could be scanned.	Specify whether to use the data or not.

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Message	Causes	Solutions
"Memory is full. Scanning has been cancelled. Press [Send] to send the scanned data, or press [Cancel] to delete."	Because there is not enough free hard disk space in the machine for delivering or sending by e-mail while storing in the Document Server, only some of the pages could be scanned.	Specify whether to use the data or not.

#### When data transmission fails

Message	Causes	Solutions
"Authentication with the destination has failed. Check settings. To check the current status, press [Scanned Files Status]."	The entered user name or password was invalid.	<ul> <li>Check that the user name and password are correct.</li> <li>Check that the ID and password for the destination folder are correct.</li> <li>A password of 128 or more characters may not be recognized.</li> </ul>
"Exceeded max. E-mail size. Sending E-mail has been cancelled. Check [Max. E- mail Size] in Scanner Features."	The file size per page has reached the maximum email size specified in [Scanner Features].	Change the scanner features settings as follows:  Increase the e-mail size limit in [Max. E-mail Size].  Change the [Divide & Send E-mail] setting to [Yes (per Page)] or [Yes (per Max. Size)]. For details about these settings, see "Send Settings", Scan.
"Sending the data has failed. The data will be resent later."	A network error has occurred and a file was not sent correctly.	Wait until sending is retried automatically after the preset interval. If sending fails again, contact your administrator.

Message	Causes	Solutions
"Transmission has failed. Insufficient memory in the destination hard disk. To check the current status, press [Scanned Files Status]."	Transmission has failed. There was not enough free space on the hard disk of the SMTP server, FTP server, or client computer at the destination.	Allocate sufficient space.
"Transmission has failed. To check the current status, press [Scanned Files Status]."	While a file was being sent, a network error occurred and the file could not be sent correctly.	If the same message appears again after scanning again, the cause could be a mixed network, or else network settings were changed during WSD scanner transmission. For details about network error, contact your administrator.

#### When data cannot be sent because a currently used file is selected

Message	Causes	Solutions
"Selected file is currently in use. File name cannot be changed."	You cannot change the name of a file whose status is "Waiting" or that is being edited with DeskTopBinder.	Cancel transmission ("Waiting" status cleared) or the DeskTopBinder setting, and then change the file name.
"Selected file is currently in use. Password cannot be changed."	You cannot change the password of a file whose status is "Waiting" or that is being edited with DeskTopBinder.	Cancel transmission ("Waiting" status cleared) or the DeskTopBinder setting, and then change the password.
"Selected file is currently in use. User name cannot be changed."	You cannot change the sender's name whose status is "Waiting" or that is being edited with DeskTopBinder.	Cancel transmission ("Waiting" status cleared) or the DeskTopBinder setting, and then change the user name.

Message	Causes	Solutions
"Some of selected files are currently in use. They could not be deleted."	You cannot delete a file which is waiting to be transmitted ("Waiting" status displayed) or whose information is being changed with DeskTopBinder.	Cancel transmission ("Waiting" status cleared) or the DeskTopBinder setting, and then delete the file.

### When data cannot be sent because there are too many documents or pages

Message	Causes	Solutions
"Exceeded max. number of pages per file. Do you want to store the scanned pages as 1 file?"	The file being stored has exceeded the maximum number of pages for one file.	Specify whether to store the data or not. Scan the pages that were not scanned, and then store them as a new file. For details about storing files, see "Storing and Saving the Scanned Documents", Scan.
"Exceeded max. number of stored files. Cannot send the scanned data as capturing files is unavailable."	Too many files are waiting to be delivered.	Try again after they have been delivered.
"Exceeded max. page capacity per file. Press [Send] to send the scanned data, or press [Cancel] to delete."	The number of scanned pages exceeded the maximum page capacity.	Select whether to send the data that has already been scanned.
"Exceeded maximum number of file to store. Delete all unnecessary files."	Too many files are waiting to be delivered.	Try again after they have been delivered.

#### When the WSD scanner function cannot be used

Message	Causes	Solutions
"Cannot communicate with PC. Contact the administrator."	WSD (Device) protocol or WSD (Scanner) protocol is disabled.	For details about how to enable or disable the WSD protocol, see Security Guide .
"Cannot start scanning because communication was failed."	Scan Profile is not set on the client computer.	Set Scan Profile. For details about how to do this, see "Creating a New Scan Profile", Scan .
"Cannot start scanning because communication was failed."	The [Take no action] setting has been selected on the client computer, forcing the client computer to remain inactive when it receives scan data.	Open scanner properties, click the [Events] tab, and then select [Start this program] as the computer's response on receipt of scan data. For details, see your operating system's Help.
"Cannot start scanning. Check the setting(s) on the PC."	The Scan Profile might be incorrectly configured.	Check the Scan Profile configuration.
"Could not send the data because the PC timed out before it was sent."	A time out occurred when using WSD Scanner. Time outs occur when too much time passes between scanning an original and sending its data. The followings are likely causes of time outs:  Too many originals per set.  Misfed originals.  Transmission of other jobs.	<ul> <li>Reduce the number of originals, and then scan again.</li> <li>Remove any misfed original, and then scan again.</li> <li>Use Scanner Journal to check there are no jobs awaiting transmission, and then scan again.</li> </ul>

### When documents cannot be stored on a memory storage device

Message	Causes	Solutions
"Cannot write on the memory storage device because remaining free space is insufficient."	The memory storage device is full and scan data cannot be saved. Even if the memory storage device appears to have sufficient free space, data might not be saved if the maximum number of files that can be saved is exceeded.	Replace the memory storage device.  If the document is scanned as single-page or divided multiple pages, data already written to the memory storage device is saved as is. Replace the memory storage device, and then press [Retry] to save the remaining data, or press [Cancel] to redo the scan.
"Cannot write on the memory storage device because the device is write-protected."	The memory storage device is write-protected.	Unlock the write-protection on the memory storage device.
"Cannot write on the memory storage device. Check the memory storage device and machine settings."	The memory storage device is faulty, or the file name contains a character that cannot be used.	<ul> <li>Check to see if the memory storage device is defective.</li> <li>Check the memory storage device. It might be unformatted, or its format might be incompatible with this machine.</li> <li>Check the file name set at the time of scanning. For details about the characters that can be used in file names, see "Specifying the File Name", Scan.</li> </ul>
"Exceeded max. page capacity per file. Press [Write] to write the scanned data to the memory storage device, or press [Cancel] to delete."	The scan could not be completed because the maximum number of pages that can be scanned by this machine was exceeded during writing to the memory storage device.	Reduce the number of documents to be written to the memory storage device, and then try again.

Message	Causes	Solutions
"Memory is full. Press [Write] to write the current scanned data to the memory storage device, or press [Cancel] to delete."	The scan could not be completed because there was insufficient hard disk memory at the time of saving to the memory storage device.	Select whether or not to save the scanned document to the memory storage device.

### Messages Displayed on the Client Computer

This section describes likely causes of and possible solutions for the main error messages displayed on the client computer when using the TWAIN driver. If a message not described here appears, act according to the message.

Message	Causes	Solutions
"Any of Login User Name, Login Password or Driver Encryption Key is incorrect."	The entered login user name, password, or driver encryption key was invalid.	Check your login user name, login password, or driver encryption key, and then enter them correctly. For details about login user name, login password, and driver encryption key, see Security Guide .
"Authentication succeeded. However, the access privileges for scanner function has been denied."	The logged in user name does not have permission for scanner function.	For details about how to set permissions, see Security Guide .
"Cannot add any more scanning mode."	The maximum number of registerable scan modes has been exceeded.	The maximum number of modes that can be stored is 100. Delete unneeded modes.
"Cannot detect the paper size of the original. Specify the scanning size."	The set original was misaligned.	<ul> <li>Place the original correctly.</li> <li>Specify the scan size.</li> <li>When placing an original directly on the exposure glass, the lifting/lowering action of the ADF triggers the automatic original size detection process. Lift the ADF by 30 degrees or more.</li> </ul>

Message	Causes	Solutions
"Cannot specify any more scanning area."	The maximum number of registerable scan areas has been exceeded.	The maximum number of scanning areas that can be stored is 100. Delete unneeded scanning areas.
"Clear Misfeed(s) in ADF."	A paper misfeed has occurred inside the ADF.	<ul> <li>Remove jammed originals, and then insert them again. For details about jammed paper, see     "Removing Jammed Paper",     Troubleshooting .</li> <li>When a misfeed occurs, replace the jammed originals.</li> <li>Check whether the originals are</li> </ul>
		suitable to be scanned by the machine.
"Error has occurred in the scanner driver."	An error has occurred in the driver.	Check whether the network cable is connected correctly to the client computer.
		Check whether the Ethernet board of the client computer is recognized correctly by Windows.
		Check whether the client computer can use the TCP/IP protocol.
"Error has occurred in the scanner."	The application-specified scan conditions have exceeded the setting range of the machine.	Check whether the scanning settings made with the application exceed the setting range of the machine.
"Fatal error has occurred in the scanner."	An unrecoverable error has occurred on the machine.	An unrecoverable error has occurred in the machine. Contact your service representative.
"Insufficient memory. Close all other applications, then restart scanning."	Memory is insufficient.	Close all the unnecessary     applications running on the client     computer.
		Uninstall the TWAIN driver, and then reinstall it after restarting the computer.

Message	Causes	Solutions
"Insufficient memory. Reduce the scanning area."	Scanner memory is insufficient.	<ul> <li>Reset the scan size.</li> <li>Lower the resolution.</li> <li>Set with no compression. For details about the settings, see TWAIN driver Help.</li> <li>The problem may be due to the following cause:</li> <li>Scanning cannot be performed if large values are set for brightness when using halftone or high resolution. For details about the relationship between scan settings, see "Relationship between Resolution and Scan Size", Scan.</li> <li>If a misfeed occurs, you might not scan an original. Remove the misfeed, and then scan the original again.</li> </ul>
"Invalid Winsock version. Please use version 1.1 or higher."	You are using an invalid version of Winsock.	Install the operating system of the computer or copy Winsock from the operating system CD-ROM.
"No response from the scanner."	The machine or client computer is not connected to the network correctly.	<ul> <li>Check whether the machine or client computer is connected to the network correctly.</li> <li>Disable the client computer's own firewall. For details about firewall, see Windows Help.</li> </ul>
"No response from the scanner."	The network is crowded.	Wait for a while, and then try to reconnect.

Message	Causes	Solutions
"Scanner is in use for other function. Please wait."	A function of the machine other than the Scanner function is being used such as the Copier function.	<ul> <li>Wait for a while, and then reconnect.</li> <li>Cancel the job that is being processed. Press the [Stop] key. Follow the instructions in the message that appears and exit the function that is running.</li> </ul>
"Scanner is not available on the specified device."	The TWAIN scanner function cannot be used on this machine.	Contact your service representative.
"Scanner is not ready. Check the scanner and the options."	The ADF cover is open.	Check whether the ADF cover is closed.
"The name is already in use. Check the registered names."	You tried to register a name that is already in use.	Use another name.

#### When there is a problem connecting to the scanner

Message	Causes	Solutions
"Cannot connect to the scanner. Check the network Access Mask settings in User Tools."	An access mask is set.	For details about an access mask, contact your administrator.
"Cannot find "XXX" scanner used for the previous scan. "YYY" will be used instead." ("XXX" and "YYY" indicate scanner names.)	The main power of the previously used scanner is not set to "On".	Check whether the main power of the scanner used for the previous scan has been turned on.

Message	Causes	Solutions
"Cannot find "XXX" scanner used for the previous scan. "YYY" will be used instead." ("XXX" and "YYY" indicate scanner names.)	The machine is not connected to the network correctly.	<ul> <li>Check that the previously used scanner is connected to the network correctly.</li> <li>Cancel the personal firewall of the client computer. For details about firewall, see Windows Help.</li> <li>Use an application such as telnet to make sure SNMPv1 or SNMPv2 is set as the machine's protocol. For details about how to check this, see "Remote Maintenance Using telnet", Connecting the Machine/ System Settings .</li> <li>Select the scanner used for the previous scan.</li> </ul>
"Communication error has occurred on the network."	A communication error has occurred on the network.	Check whether the client computer can use the TCP/IP protocol.
"Scanner is not available. Check the scanner connection status."	The machine's power is off.	Turn on the power.
"Scanner is not available. Check the scanner connection status."	The machine is not connected to the network correctly.	<ul> <li>Check whether the machine is connected to the network correctly.</li> <li>Deselect the personal firewall function of the client computer. For details about firewall, see Windows Help.</li> <li>Use an application such as telnet to make sure SNMPv1 or SNMPv2 is set as the machine's protocol. For details about how to check this, see "Remote Maintenance Using telnet", Connecting the Machine/ System Settings .</li> </ul>

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Message	Causes	Solutions
"Scanner is not available. Check the scanner connection status."	Network communication is not available because the machine's IP address could not be obtained from the host name. If only "IPv6" is set to [Active], the IPv6 address might not be obtained.	<ul> <li>Check whether the machine's host name is specified in the Network Connection Tool. For the WIA driver, check the [Network Connection] tab in the properties.</li> <li>Use Web Image Monitor to set "LLMNR" of "IPv6" to [Active].</li> <li>In Windows XP, IPv6 address cannot be obtained from the host name. Specify the machine's IPv6 address in the Network Connection Tool.</li> </ul>

#### 10

# When Other Messages Appear

Message	Causes	Solutions
"Cannot connect with the wireless card. Turn the main power switch off, then check the card."  (A "wireless LAN board" or "Bluetooth interface unit" is referred to as a "wireless card".)	<ul> <li>The wireless LAN board was not inserted when the machine was turned on.</li> <li>The wireless LAN board was pulled out after the machine was turned on.</li> <li>The settings are not updated although the unit is detected.</li> </ul>	Turn off the power, and then confirm the wireless LAN board is inserted correctly. After confirmation, turn on the power again. If the message appears again, contact your service representative.
"Cannot connect with the Bluetooth interface. Check the Bluetooth interface."	The Bluetooth interface unit was installed while the machine was turned on.  The Bluetooth interface unit was removed while the machine was turned on.	Turn off the power, and then confirm that the Bluetooth interface unit was installed correctly. After confirmation, turn on the power again. If the message appears again, contact your service representative.
"Clean the scanning glass. (Located next to the exposure glass.)"	The scanning glass or guide plate of the ADF is dirty.	Clean them. See "Maintaining Your Machine", Maintenance and Specifications .
"Following output tray is full. Remove paper."	The output tray is full.	Remove paper from the output tray to resume printing. If paper is destined for the finisher shift tray, to prevent paper from falling off the tray press the [Stop] key to suspend printing, and then remove the paper. Press [Continue] on the display panel to resume printing.

#### When There Is a Problem Scanning or Storing Originals

Message	Causes	Solutions
"Cannot detect original size. Select scan size."	The machine failed to detect the size of the original.	<ul> <li>Place the original correctly.</li> <li>Specify the scan size, and then place the originals again. For details about the settings for when fax function is being used, see "Scan Settings", Fax.</li> <li>When placing an original directly</li> </ul>
		on the exposure glass, the lifting/ lowering action of the ADF triggers the automatic original size detection process. Lift the ADF by 30 degrees or more.

Message	Causes	Solutions
"Captured file exceeded max. number of pages per file. Cannot send the scanned data."	The maximum number of pages per file has been exceeded.	Reduce the number of pages in the transmitted file, and then resend the file. For details about the maximum number of pages per file, see "Storage Function", Scan.
"Original(s) is being scanned for a different function."	Another function of the machine is being used.	Cancel the job in progress. Press [Exit], and then press the [Stop] key. Follow the instructions in the message that appears and exit the function that is running.

#### When the Home Screen Cannot Be Edited

Message	Causes	Solutions
"The image data size is not valid. See the manual for required data."	The image data size is not valid.	For details about file size for shortcut image, see "Displaying the Image on the [Home] Screen", Convenient Functions.
"The format of the image data is not valid. See the manual for required data."	The file format of the shortcut image to be added is not supported.	The file format of shortcut images to be added must be PNG. Specify the image again.

### When the Address Book Is Updated

Message	Causes	Solutions
"Updating the destination list has failed. Try again?"	A network error has occurred.	<ul> <li>Check whether the server is connected.</li> <li>Antivirus programs and firewalls can prevent client computers from establishing connection with this machine.</li> <li>If you are using anti-virus software, add the program to the exclusion list in the application settings. For details about how to add programs to the exclusion list, see the anti-virus software Help.</li> <li>To prevent a firewall blocking the connection, register the machine's IP address in the firewall's IP address exclusion settings. For details about the procedure for excluding an IP address, see your operating system's Help.</li> </ul>
"Updating the destination list Please wait. Specified destination(s) or sender's name has been cleared."	The destination list is being updated from the network using Web Image Monitor.	Wait until the message disappears. Do not turn off the power while this message is displayed. Depending on the number of destinations to be updated, there may be some delay before you can resume operation.  Operation is not possible while this message is displayed.
"Updating the destination list Please wait. Specified destination(s) or sender's name has been cleared."	A specified destination or sender's name was cleared when the destination list in the delivery server was updated.	Specify the destination or sender's name again.

#### When Data Cannot Be Sent Due to a Problem with the Destination

Message	Causes	Solutions
"Some invalid destination(s) contained. Do you want to select only valid destination(s)?"	The specified group contains fax destinations, e-mail destinations, and/or folder destinations, either of which are incompatible with the specified transmission method.	In the message that appears at each transmission, press [Select].
"SMTP authentication E-mail address and Administrator E-mail address mismatch."	The SMTP authentication e- mail address and the administrator's e-mail address do not match.	For details about how to set SMTP authentication, see "File Transfer", Connecting the Machine/ System Settings .

# When the Machine Cannot Be Operated Due to a Problem with the User Certificate

Message	Causes	Solutions
"The destination cannot be selected because its encryption certificate is not currently valid."	The user certificate (destination certificate) has expired.	A new user certificate must be installed. For details about the user certificate (destination certificate), see Security Guide .
"The group destination cannot be selected because it contains a destination with a encryption certificate that is not currently valid."	The user certificate (destination certificate) has expired.	A new user certificate must be installed. For details about the user certificate (destination certificate), see Security Guide.
"Transmission cannot be performed because the encryption certificate is not currently valid."	The user certificate (destination certificate) has expired.	A new user certificate must be installed. For details about the user certificate (destination certificate), see Security Guide .

Message	Causes	Solutions
"XXX cannot be YYY because the device certificate used for the S/ MIME signature is not currently valid."  (XXX and YYY indicate the user action.)	The device certificate (S/MIME) has expired.	A new device certificate (S/MIME) must be installed. For details about how to install a device certificate (S/MIME), see Security Guide .
"XXX cannot be YYY because there is a problem with the device certificate used for the S/MIME signature. Check the device certificate."  (XXX and YYY indicate the	There is no device certificate (S/MIME), or the certificate is invalid.	For details about the device certificate (S/MIME), see Security Guide .
user action.)		
"XXX cannot be YYY because the Digital Signature's device certificate is not currently valid."  (XXX and YYY indicate the user action.)	The device certificate (PDF with digital signature or PDF/A with digital signature) has expired.	A new device certificate (PDF with digital signature or PDF/A with digital signature) must be installed. For details about how to install a device certificate (PDF with digital signature or PDF/A with digital signature), see Security Guide .
"XXX cannot be YYY because there is a problem with the Digital Signature's device certificate. Check the device certificate." (XXX and YYY indicate the user action.)	There is no device certificate (PDF with digital signature or PDF/A with digital signature), or the certificate is invalid.	A new device certificate (PDF with digital signature or PDF/A with digital signature) must be installed. For details about how to install a device certificate (PDF with digital signature or PDF/A with digital signature), see Security Guide .

#### **U** Note

• If a fax or an e-mail cannot be sent and a message appears which states that there is a problem with the device certificate or user certificate, a new certificate must be installed. For details about how to install a new certificate, see Security Guide.

### When Problems Occur While Logging In

Message	Causes	Solutions
"Authentication has failed."	The entered login user name or login password is not correct.	For details about the correct login user name and login password, see Security Guide .
"Authentication has failed."	The machine cannot perform authentication.	For details about authentication, see Security Guide.

#### When the User Lacks Privileges to Perform an Operation

Message	Causes	Solutions
"You do not have the privileges to use this function."	The logged in user name does not have permission for the selected function.	For details about how to set permissions, see Security Guide .
"The selected file(s) contained file(s) without access privileges. Only file(s) with access privileges will be deleted."	You have tried to delete files without the authority to do so.	To check your access permission for stored documents, or to delete a document you do not have permission to delete, see Security Guide .

#### When the LDAP Server Cannot Be Used

Message	Causes	Solutions
"Connection with LDAP server has failed. Check the server status."	A network error has occurred and connection has failed.	Try the operation again. If the message is still shown, the network may be busy.  Check the settings for LDAP server in [System Settings]. For details about settings for LDAP server, see "Programming the LDAP server",  Connecting the Machine/ System Settings.

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Message	Causes	Solutions
"Exceeded time limit for LDAP server search. Check the server status."	A network error has occurred and connection has failed.	Try the operation again. If the message is still shown, the network may be busy.
		• Check that the correct settings for LDAP server are listed in [Administrator Tools] of [System Settings]. For details about LDAP server, see "Programming the LDAP server", Connecting the Machine/ System Settings.
"LDAP server authentication has failed. Check the settings."	A network error has occurred and connection has failed.	Make settings correctly for the user name and the password for LDAP server authentication.

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# Operating Instructions **Driver Installation Guide**

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# 1. Introduction

This chapter explains the software included on the supplied CD-ROM.

## Start Installer

To connect this machine to a client computer and use its printer, scanner, and fax functions, the software included on the provided CD-ROM must be installed on the client computer.

The installer starts automatically when you insert the provided CD-ROM into the CD-ROM drive of a client computer running under Windows or Windows Server. You can then install the various software included on the CD-ROM.

The contents (display item) of the installer are as follows:

### Quick Install

Installs the PCL 6 printer driver, and configures the Standard TCP/IP port to establish a connection with a network printer.

For details, see page 14 "Quick Install".

### **PCL Printer Drivers**

Installs the PCL 6 and/or PCL 5c printer drivers.

For details about installing the driver, see page 16 "Installing the Printer Driver for a Network Connection" or page 29 "Installing the Printer Driver for a Local Connection".

## PostScript 3 Printer Driver

Installs the PostScript 3 printer driver.

For details about installing the driver, see page 16 "Installing the Printer Driver for a Network Connection" or page 29 "Installing the Printer Driver for a Local Connection".

#### LAN-Fax Driver

This software enables you to fax documents directly from your computer. Address Book and LAN-Fax Cover Sheet Editor will also be installed.

For details about installing the driver, see page 45 "Installing the LAN-Fax Driver".

#### **TWAIN Driver**

This software enables you to utilize image data from other TWAIN compliant applications.

For details about installing the driver, see page 43 "Installing the TWAIN Driver".

## Font Manager

This software enables you to use screen fonts.

For details about installing the software, see page 41 "Installing Font Manager".

### Select Language

Changes the interface language.

## **Browse This CD-ROM**

Browses the contents of this CD-ROM.

### Exit

Quits Installer.



- Manage Printers permission is required to install the driver. Log on as an Administrators group member.
- Auto Run might not work automatically with certain OS settings. If this is the case, double-click
   "Setup.exe", located on the CD-ROM root directory, or click [Run SETUP.EXE] in the [AutoPlay] dialog box.
- If you want to cancel Auto Run, hold down the left [Shift] key while inserting the CD-ROM. Keep the [Shift] key held down until the computer stops reading the CD-ROM.

## 1

# Software and Utilities Included on the CD-ROM

This section explains the software and utilities CD-ROM provided with this machine.



- For the latest information on the corresponding operating system, see "Readme.txt" file in the DRIVERS folder.
- For the latest information on Windows terminal service, Citrix Presentation Server, and Citrix Xen App, see the manufacturer's Web site.

## **Printer Drivers**

Printing requires installation of a printer driver for your operating system. The following drivers are included on the CD-ROM.

	Printer Language		
Operating System*1	PCL 5c	PCL 6	PostScript 3
Windows XP *2	ОК	ОК	ОК
Windows Vista *3	ОК	ОК	ОК
Windows 7 *4	ОК	ОК	ОК
Windows 8 *5	ОК	ОК	ОК
Windows Server 2003 *6	OK	ОК	ОК
Windows Server 2008 *7	ОК	ОК	ОК
Windows Server 2012 *8	OK	ОК	ОК
Mac OS X *9	_	_	ОК

- \*1 Windows operating system supports both versions (32/64 bit)
- \*2 Microsoft Windows XP Professional Edition/Microsoft Windows XP Home Edition
- \*3 Microsoft Windows Vista Ultimate/Microsoft Windows Vista Enterprise/Microsoft Windows Vista Business/ Microsoft Windows Vista Home Premium/Microsoft Windows Vista Home Basic
- \*4 Microsoft Windows 7 Home Premium/Microsoft Windows 7 Professional/Microsoft Windows 7 Ultimate/ Microsoft Windows 7 Enterprise
- \*5 Microsoft Windows 8/Microsoft Windows 8 Pro/Microsoft Windows 8 Enterprise

- \*6 Microsoft Windows Server 2003 Standard Edition/Microsoft Windows Server 2003 Enterprise Edition/ Microsoft Windows Server 2003 R2 Standard Edition/Microsoft Windows Server 2003 R2 Enterprise Edition
- \*7 Microsoft Windows Server 2008 Standard/Microsoft Windows Server 2008 Enterprise/Microsoft Windows Server 2008 R2 Standard/Microsoft Windows Server 2008 R2 Enterprise
- \*8 Microsoft Windows Server 2012 Foundation/Microsoft Windows Server 2012 Essentials/Microsoft Windows Server 2012 Standard
- \*9 Mac OS X 10.5 or later

## **PCL** printer drivers

Two kinds of PCL printer driver (PCL 5c and PCL 6) are included. These drivers allow your computer to communicate with this machine via a printer language.

## Adobe® PostScript® printer driver and PPD files

Adobe PostScript printer driver allows the computer to communicate with the printer using a printer language. PPD files allow the printer driver to enable specific printer functions.



- Some applications may require installation of the PCL 5c printer driver. In this case, you can install PCL 5c without having to install PCL 6.
- For details about installing the driver, see page 16 "Installing the Printer Driver for a Network Connection" or page 29 "Installing the Printer Driver for a Local Connection".

## Supported languages

The languages supported in each printer driver are as follow:

	Printer Language			
Supported languages	PCL 5c *1	PCL 6 *2	PostScript 3 *2	PPD (Mac OS X)
English	0	0	0	0
German	0	0	0	0
French	0	0	0	0
Italian	0	0	0	0
Spanish	0	0	0	0
Dutch	0	0	0	0
Swedish	0	0	0	0
Norwegian	0	0	0	0

	Printer Language			
Supported languages	PCL 5c *1	PCL 6 *2	PostScript 3 *2	PPD (Mac OS X)
Danish	0	0	0	0
Finnish	0	0	Δ	Δ
Hungarian	0	0	Δ	Δ
Czech	0	0	Δ	Δ
Polish	0	0	Δ	Δ
Portuguese	0	0	Δ	Δ
Russian	0	0	Δ	Δ
Catalan	0	0	Δ	Δ
Turkish	0	0	Δ	Δ
Brazilian Portuguese	Δ	0	Δ	Δ
Greek	Δ	0	Δ	Δ

## O: Supported

 $\Delta$ : Supported, but the printer language is displayed in English

- \* 1 The PCL 5c printer driver does not support Brazilian Portuguese and Greek. Use the English version of the driver.
- \*2 The PCL 6 and PostScript 3 printer drivers use the same interface language as the one specified by your operating system. However, the PostScript 3 printer will be displayed in English if your operating system uses one of the following languages: Finnish, Hungarian, Czech, Polish, Portuguese, Russian, Catalan, Turkish, Brazilian Portuguese, Greek.

## **TWAIN Driver**

This driver is required to scan an original using a scanner. To use the machine as a network TWAIN scanner, this driver must be installed.

## File path

The driver is included in the following folder on the CD-ROM:

\X86\DRIVERS\TWAIN

## System requirements

Hardware

1

PC/AT-compatible machines that support the following operating system properly

Operating system \*1

Windows XP/Vista/7/8

Windows Server 2003/2003 R2/2008/2008 R2/2012

- \* 1 TWAIN scanner runs on a 64-bit operating system, but is not compatible with 64-bit applications. Use it with 32-bit applications.
- Display resolution
   800 × 600 pixels, 256 colors or higher

## Supported languages

The TWAIN driver uses the same interface language as the one specified by your operating system.



• For details about installing the driver, see page 43 "Installing the TWAIN Driver".

## LAN-Fax Driver

This driver is required to use LAN-Fax functions.

## File path

The driver is included in the following folder on the CD-ROM:

• 32-bit driver

\X86\DRIVERS\LAN-FAX\XP\_VISTA

64-bit driver

\X64\DRIVERS\LAN-FAX\X64

## System requirements

Hardware

PC/AT-compatible machines that support the following operating system properly

Operating systems

Windows XP/Vista/7/8

Windows Server 2003/2003 R2/2008/2008 R2/2012

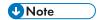
• Display

VGA 640 × 480 pixels or more

## Supported languages

The interface language is supported in the language specified when installing driver.

1



• For details about installing the driver, see page 45 "Installing the LAN-Fax Driver".

## Font Manager

For installing new screen fonts, or organizing and managing fonts already in the system. For details about Font Manager, see the manual on the CD-ROM.

## File path

The software is included in the following folder on the CD-ROM:

\FONTMAN\DISK1



• For details about installing the software, see page 41 "Installing Font Manager".

## For Mac OS X Users

If you are using Mac OS X, the following limitations apply to each function:

- When using the scanner function, the TWAIN driver cannot be used.
- When using the fax function, the LAN-Fax driver cannot be used.
- When using the printer function, use the printer driver for Mac OS X.
   For details, see page 55 "Installing the Printer Driver Under Mac OS X".

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# 2. Installing the Printer Driver

This chapter explains how to install and configure the printer drivers for use on the Windows operating system. Installing procedures on Windows 7 is shown as an example except where indicated.

# **Confirming the Connection Method**

This machine supports network and local connection.

Before installing the printer driver, check how the machine is connected. Follow the driver installation procedure that is appropriate to the connection method.

## **Network Connection**

This machine can be used as a Windows printing port or network printer.

## Using the Windows printing port

Network connections can be established through Ethernet and Wireless LAN.

Available ports are determined based on the combination of Windows operating system version and connection method used.

## Windows XP, Windows Server 2003/2003 R2

Connection Method	Available Ports	
• Ethernet	Standard TCP/IP port	
Wireless LAN	IPP port	
	LPR port	
	SmartDeviceMonitor for Client port	

## Windows Vista/7, Windows Server 2008/2008 R2

Connection Method	Available Ports
<ul><li>Ethernet</li><li>Wireless LAN</li></ul>	<ul> <li>Standard TCP/IP port</li> <li>IPP port</li> <li>LPR port</li> <li>WSD port</li> <li>SmartDeviceMonitor for Client port</li> </ul>

## Windows 8, Windows Server 2012

Connection Method	Available Ports
Ethernet	Standard TCP/IP port
Wireless LAN	IPP port
	LPR port
	WSD port



• For details about how to install the printer driver for each type of port, see page 16 "Installing the Printer Driver for the Selected Port".

## Using as a network printer

This machine can be used as a remote printer using the Windows or NetWare print server function.

Client OS	Using Server
Windows XP	Windows XP print server
• Windows Server 2003/2003 R2	Windows Vista print server
	Windows 7 print server
	Windows 8 print server
	<ul> <li>Windows Server 2003/2003 R2 print server</li> </ul>
	<ul> <li>Windows Server 2008/2008 R2 print server</li> </ul>
	Windows Server 2012 print server
	<ul> <li>NetWare print server (using IPv4 only)</li> </ul>
	NetWare file server (using IPv4 only)
Windows Vista	Windows XP print server
• Windows 7	Windows Vista print server
• Windows 8	Windows 7 print server
• Windows Server 2008/2008 R2	Windows 8 print server
Windows Server 2012	<ul> <li>Windows Server 2003/2003 R2 print server</li> </ul>
	Windows Server 2008/2008 R2 print server
	Windows Server 2012 print server





• For details about how to install the printer driver to print server, see page 25 "Using as a Network Printer".

## **Local Connection**

Local connections can be established via USB, parallel and Bluetooth connections.



For details about how to install the printer driver for each method of connections, see page 29
 "Installing the Printer Driver for a Local Connection".

## **Quick Install**

You can install the printer drivers easily from the CD-ROM provided with this machine.

Using Quick Install, the PCL 6 printer driver is installed under network environment, and the Standard TCP/IP port will be set.



- Manage Printers permission is required to install the drivers. Log on as an Administrators group member.
- 1. Quit all applications. (Do not close this manual.)
- 2. Insert the provided CD-ROM into the computer's CD-ROM drive.

If the [AutoPlay] dialog box appears, click [Run SETUP.EXE].

If you are using a computer that is running Windows 8 or Windows Server 2012, click the drive and CD-ROM names when these appear in the upper right corner of the screen, and then click [Run SETUP.EXE].

3. Select an interface language, and then click [OK].

For details about the languages supported in the printer drivers, see page 6 "Supported languages".

- 4. Click [Quick Install].
- 5. The software license agreement appears in the [License Agreement] dialog box. After reading the agreement, click [I accept the agreement.], and then click [Next].
- 6. Click [Next].
- 7. Select the machine model you want to use in the [Select Printer] dialog box.
- 8. Click [Install].
- 9. Configure the user code, default printer, and shared printer as necessary.
- 10. Click [Continue].

The installation starts.

If the [User Account Control] dialog box appears, and then click [Yes] or [Continue].

11. Click [Finish].

When you are prompted to restart your computer, restart it by following the instructions that appear.

12. Click [Exit] in the first window of the installer, and then take out the CD-ROM.



 The [Auto Play] dialog box is displayed only for a few seconds under Windows 8 and Windows Server 2012. If the [AutoPlay] dialog box disappears, use the following procedure to replay the CD-ROM:

- 1. On the Charm Bar, click [Search], and then click [Computer].
- 2. Double-click the CD-ROM drive in which the provided CD-ROM is set, and then click "Setup.exe".

# Installing the Printer Driver for a Network Connection

This section describes the installation procedure of the printer drivers for network connection.



 Manage Printers permission is required to install the driver. Log on as an Administrators group member.



- If the [User Account Control] dialog box appears during the driver installation procedure, click [Yes] or [Continue].
- If the [Windows Security] dialog box appears during the driver installation procedure, click [Install this driver software anyway].
- A message appears if there is a newer version of the printer driver already installed. If there is, you cannot install the printer driver using Auto Run. If you still want to install the printer driver, use [Add Printer]. See page 51 "Messages Displayed When Installing the Printer Driver".

## Installing the Printer Driver for the Selected Port

Describes the driver installation procedure for each printer port. See the installation procedure for the printer port you are using.

## 

 To use the SmartDeviceMonitor for Client port, you must first download SmartDeviceMonitor for Client from the manufacturer's Web site and install it on your computer. Contact your local dealer for information on downloading SmartDeviceMonitor for Client. For details about SmartDeviceMonitor for Client, see "Software that You Can Download", Getting Started.

Port Type	Printer Driver Type	Reference
Standard TCP/IP port	PCL PS3	page 17 "Using the Standard TCP/IP port"
IPP port	PCL PS3	page 18 "Using the IPP port"
LPR port	PCL PS3	page 19 "Using the LPR port"
WSD port	PCL PS3	page 20 "Using the WSD port"
SmartDeviceMonitor for Client port	PCL PS3	page 23 "Using the SmartDeviceMonitor for Client port"

## Using the Standard TCP/IP port

PCL PS3

- 1. Quit all applications. (Do not close this manual.)
- 2. Insert the provided CD-ROM into the computer's CD-ROM drive.

If the [AutoPlay] dialog box appears, click [Run SETUP.EXE].

If you are using a computer that is running Windows 8 or Windows Server 2012, click the drive and CD-ROM names when these appear in the upper right corner of the screen, and then click [Run SETUP.EXE].

3. Select an interface language, and then click [OK].

For details about the languages supported in the printer drivers, see page 6 "Supported languages".

- 4. Click [PCL Printer Drivers] or [PostScript 3 Printer Driver].
- 5. The software license agreement appears in the [License Agreement] dialog box. After reading the agreement, click [I accept the agreement.], and then click [Next].

If installing the PostScript 3 printer driver, proceed to step 7.

- 6. Select a printer driver you want to use, and then click [Next].
- 7. Select [Specify a new port], and then click [Next].
- 8. Select [Standard TCP/IP Port], and then click [Next].
- 9. Click [Next].
- 10. Enter the machine name or IP address, and then click [Next].

When the device type selection appears, select "RICOH Network Printer C model".

- 11. Click [Finish].
- 12. Select the [Printer Name:] check box of the machine model you want to use.
- 13. Configure the user code, default printer, and shared printer as necessary.
- 14. Click [Continue].

The installation starts.

15. Click [Finish].

Select one of the options to restart the computer either now or later, and then click [Finish].



- The [Auto Play] dialog box is displayed only for a few seconds under Windows 8 and Windows Server 2012. If the [AutoPlay] dialog box disappears, use the following procedure to replay the CD-ROM:
  - 1. On the Charm Bar, click [Search], and then click [Computer].

Double-click the CD-ROM drive in which the provided CD-ROM is set, and then click "Setup.exe".

## Using the IPP port





- To print via IPP-SSL, use the SmartDeviceMonitor for Client port.
- Installation of the certificate is especially necessary for users who want to print via IPP-SSL from Windows Vista/7/8 or Windows Server 2008/2008 R2/2012. For details, consult your administrator.
- If a certificate authority issues a certificate that must be authenticated by an intermediate certificate
  authority, and the certificate is installed on this machine, an intermediate certificate must be
  installed on the client computer. Otherwise, validation by the certificate authority will not be
  performed correctly.
- If validation cannot be performed properly, a warning message informing you that installation is not possible might appear when you try to add a printer using IPP-SSL under Windows Vista/7/8 or Windows Server 2008/2008 R2/2012. To enable authentication from the client computer, install the intermediate certificate on the client computer, and then reestablish connection.
- Intermediate certificates cannot be installed on this machine.
- 1. Quit all applications. (Do not close this manual.)
- 2. On the [Start] menu, click [Devices and Printers].

If you are using a computer that is running Windows 8 or Windows Server 2012, click [Search] on the Charm Bar, and then click [Control Panel]. When the [Control Panel] window appears, click [View devices and printers].

3. Click [Add a printer].

If you are using a computer that is running Windows 8 or Windows Server 2012, proceed to Step 5.

- 4. Click [Add a network, wireless or Bluetooth printer].
- 5. Click [The printer that I want isn't listed].
- 6. In the [Select a shared printer by name] box, enter "http://(machine's IP address or host name)/printer (or ipp)" as the printer's address, and then click [Next].
- 7. Click [Have Disk...].
- 8. Insert the provided CD-ROM into the computer's CD-ROM drive.

If the [AutoPlay] dialog box appears, click [Close].

9. Click [Browse...], and then specify a location for the INF file.

If the CD-ROM drive is D, the source files of the printer driver are stored in the following locations:

- PCL 5c
  - 32-bit driver D:\X86\DRIVERS\PCL5C\XP\_VISTA\(Language)\DISK1
  - 64-bit driver D:\X64\DRIVERS\PCL5C\X64\(Language)\DISK1
- PCI 6
  - 32-bit driver D:\X86\DRIVERS\PCL6\XP\_VISTA\MUI\DISK1
  - 64-bit driver D:\X64\DRIVERS\PCL6\X64\MUI\DISK1
- PostScript 3
  - 32-bit driver D:\X86\DRIVERS\PS\XP VISTA\MUI\DISK1
  - 64-bit driver D:\X64\DRIVERS\PS\X64\MUI\DISK1

For details about the languages supported in the printer drivers, see page 6 "Supported languages".

- 10. Click [Open].
- 11. Click [OK] to close the [Install From Disk] window.
- 12. Select the manufacturer and model name of the machine you want to use, and then click [OK].

The installation starts.

- 13. Follow the instructions that appear. Modify settings such as printer name and default printer configuration, as necessary. You can also print a test page.
- 14. Click [Finish].

If a check box for setting the machine as a default printer appears, configure as necessary.

## Using the LPR port

PCL PS3

- 1. Quit all applications. (Do not close this manual.)
- 2. Insert the provided CD-ROM into the computer's CD-ROM drive.

If the [AutoPlay] dialog box appears, click [Run SETUP.EXE].

If you are using a computer that is running Windows 8 or Windows Server 2012, click the drive and CD-ROM names when these appear in the upper right corner of the screen, and then click [Run SETUP.EXE].

3. Select an interface language, and then click [OK].

For details about the languages supported in the printer drivers, see page 6 "Supported languages".

4. Click [PCL Printer Drivers] or [PostScript 3 Printer Driver].

5. The software license agreement appears in the [License Agreement] dialog box. After reading the agreement, click [I accept the agreement.], and then click [Next].

If installing the PostScript 3 printer driver, proceed to step 7.

- 6. Select a printer driver you want to use, and then click [Next].
- 7. Select [Specify a new port], and then click [Next].
- 8. Select [LPR Port], and then click [Next].
- Enter the machine name or IP address in the [Name or address of server providing lpd:] box.
- 10. Enter "lp" in the [Name of printer or print queue on that server:] box, and then click [OK].
- 11. Select the [Printer Name:] check box of the machine model you want to use.
- 12. Configure the user code, default printer, and shared printer as necessary.
- 13. Click [Continue].

The installation starts.

14. Click [Finish].

Select one of the options to restart the computer either now or later, and then click [Finish].



- The [Auto Play] dialog box is displayed only for a few seconds under Windows 8 and Windows Server 2012. If the [AutoPlay] dialog box disappears, use the following procedure to replay the CD-ROM:
  - 1. On the Charm Bar, click [Search], and then click [Computer].
  - 2. Double-click the CD-ROM drive in which the provided CD-ROM is set, and then click "Setup.exe".

## Using the WSD port



## **Important**

- The WSD port can be used under Windows Vista/7/8, or Windows Server 2008/2008 R2/2012.
- You can connect to the printer only if both the printer and computer are on the same network segment, or "Network discovery" is enabled. For details, see Windows Help.

## Windows Vista, Windows Server 2008

- 1. Quit all applications. (Do not close this manual.)
- 2. On the [Start] menu, click [Network].
- 3. Right-click the machine's icon, and then click [Install].

- 4. Click [Locate and install driver software (recommended)].
- 5. Click [Browse my computer for driver software (advanced)].
- 6. Insert the provided CD-ROM into the computer's CD-ROM drive.

If the [AutoPlay] dialog box appears, click [Close].

7. Click [Browse...], and then specify the location of the INF file.

If the CD-ROM drive is D, the source files of the printer driver are stored in the following locations:

- PCL 5c
  - 32-bit driver D:\X86\DRIVERS\PCL5C\XP\_VISTA\(Language)\DISK1
  - $64-bit\ driver\ D: \ X64\ DRIVERS\ PCL5C\ X64\ (Language)\ DISK1$
- PCL 6
  - 32-bit driver D:\X86\DRIVERS\PCL6\XP\_VISTA\MUI\DISK1
  - 64-bit driver D:\X64\DRIVERS\PCL6\X64\MUI\DISK1
- PostScript 3
  - 32-bit driver D:\X86\DRIVERS\PS\XP\_VISTA\MUI\DISK1
  - 64-bit driver D:\X64\DRIVERS\PS\X64\MUI\DISK1

For details about the languages supported in the printer drivers, see page 6 "Supported languages".

- 8. Click [Next].
- 9. Click [Close].

If installation is successful, the icon of the printer connected to the WSD port will appear in the window for configuring printers.



- The port name that follows "WSD" uses random character strings. It cannot be changed freely.
- To stop the installation, click [Cancel] before the installation is complete. When re-installing the WSD Port, right-click the printer's icon in the [Network] window, and then click [Uninstall].

## Windows 7/8, Windows Server 2008 R2/2012

- 1. Quit all applications. (Do not close this manual.)
- On the [Start] menu, click [Computer].

If you are using a computer that is running Windows 8 or Windows Server 2012, click [Search] on the Charm Bar, and then click [Computer].

- 3. Click [Network].
- 4. Right-click the machine's icon, and then click [Install].

5. On the [Start] menu, click [Devices and Printers].

If you are using a computer that is running Windows 8 or Windows Server 2012, click [Search] on the Charm Bar, and then click [Control Panel]. When the [Control Panel] window appears, click [View devices and printers].

- 6. Click [Add a printer].
- 7. Click [Add a local printer].
- 8. Check the [Use an existing port:] check box, and select WSD port.
- 9. Click [Next].
- 10. Click [Have Disk...].
- 11. Insert the provided CD-ROM into the computer's CD-ROM drive.

If the [AutoPlay] dialog box appears, click [Close].

12. Click [Browse...], and then specify the location of the INF file.

If the CD-ROM drive is D, the source files of the printer driver are stored in the following locations:

PCL 5c

32-bit driver D:\X86\DRIVERS\PCL5C\XP\_VISTA\(Language)\DISK1 64-bit driver D:\X64\DRIVERS\PCL5C\X64\(Language)\DISK1

PCL 6

32-bit driver D:\X86\DRIVERS\PCL6\XP\_VISTA\MUI\DISK1 64-bit driver D:\X64\DRIVERS\PCL6\X64\MUI\DISK1

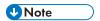
PostScript 3

32-bit driver D:\X86\DRIVERS\PS\XP\_VISTA\MUI\DISK1 64-bit driver D:\X64\DRIVERS\PS\X64\MUI\DISK1

For details about the languages supported in the printer drivers, see page 6 "Supported languages".

- 13. Click [Open].
- 14. Click [OK] to close the [Install From Disk] window.
- Select the manufacturer and model name of the machine you want to use, and then click [Next].
- 16. Follow the instructions that appear. Modify settings such as printer name, default printer, and printer sharing configuration, as necessary. You can also print a test page.
- 17. Click [Finish].

If installation is successful, the icon of the printer connected to the WSD port will appear in the window for configuring printers.



To stop installation of the selected driver, click [Cancel] before the installation is complete. When
re-installing the WSD Port, right-click the machine's icon in the [Network] window, and then click
[Uninstall].

## Using the SmartDeviceMonitor for Client port

PCL PS3

To use this function, you must first download SmartDeviceMonitor for Client from the manufacturer's Web site and install it on your computer. Contact your local dealer for information on downloading SmartDeviceMonitor for Client.

- 1. Quit all applications. (Do not close this manual.)
- 2. Insert the provided CD-ROM into the computer's CD-ROM drive.

If the [AutoPlay] dialog box appears, click [Run AUTORUN.EXE].

3. Select an interface language, and then click [OK].

For details about the languages supported in the printer drivers, see page 6 "Supported languages".

- 4. Click [PCL Printer Drivers] or [PostScript 3 Printer Driver].
- 5. The software license agreement appears in the [License Agreement] dialog box. After reading the agreement, click [I accept the agreement.], and then click [Next].

If installing the PostScript 3 printer driver, proceed to step 7.

- 6. Select a printer driver you want to use, and then click [Next].
- 7. Select [Specify a new port], and then click [Next].
- 8. Select [SmartDeviceMonitor], and then click [Next].
- 9. To configure port settings using TCP/IP, click [TCP/IP], and then click [Search].

To configure port settings using IPP, proceed to step 11.

10. Select the machine you want to use, and then click [OK].

Only machines that respond to a broadcast from the computer appear. To use a machine not listed here, click [Specify Address], and then enter the IP address or host name of the machine.

Proceed to step 16.

- 11. To configure port settings using IPP, click [IPP].
- 12. In the [Printer URL] box, enter "http://machine's IP address/printer" as the machine's address.

If the server authentication is issued, enter "https://machine's IP address/printer" to enable SSL (a protocol for encrypted communication). Example IP address: 192.168.15.16

http://192.168.15.16/printer

https://192.168.15.16/printer

You can enter "http://machine's IP address/ipp" as the machine's address.

 Enter a name for identifying the machine in the [IPP Port Name] box. Use a name different from the one of any existing ports.

If a name is not specified here, the address entered in the [Printer URL] box becomes the IPP port name.

14. Click [Detailed Settings] to make necessary settings.

For details about the settings, see SmartDeviceMonitor for Client Help.

- 15. Click [OK].
- 16. Select the [Printer Name:] check box of the machine model you want to use.
- 17. Configure the user code, default printer, and shared printer as necessary.
- 18. Click [Continue].

The installation starts.

19. Click [Finish].

Select one of the options to restart the computer either now or later, and then click [Finish].

## Changing the port settings for SmartDeviceMonitor for Client

Follow the procedure below to change the SmartDeviceMonitor for Client settings, such as TCP/IP protocol.

## Windows XP, Windows Server 2003/2003 R2

- 1. On the [Start] menu, click [Printers and Faxes].
- 2. Click the icon of the machine you want to use. On the [File] menu, click [Properties].
- 3. Click the [Ports] tab, and then click [Configure Port].

The [Port Configuration:] window appears.

## Windows Vista, Windows Server 2008:

- 1. On the [Start] menu, click [Control Panel].
- 2. Click [Printer].
- Right-click the icon of the machine you want to use, and then click [Properties].
- 4. Click the [Ports] tab, and then click [Configure Port].

The [Port Configuration:] window appears.

## Windows 7, Windows Server 2008 R2:

1. On the [Start] menu, click [Devices and Printers].

2

- 2. Right-click the icon of the machine you want to use, and then click [Printer properties].
- Click the [Ports] tab, and then click [Configure Port].
   The [Port Configuration:] window appears.



- User, proxy, and timeout settings can be configured for IPP.
- For details about these settings, see SmartDeviceMonitor for Client Help.

## Using as a Network Printer

Describes the driver installation procedure for each print server. See the installation procedure for the print server you are using.

Server OS	Client OS	Printer Driver Type	Reference
Windows Server	Windows	PCL PS3	page 25 "Using Windows print server"
NetWare	Windows	PCL PS3	page 26 "Using NetWare print server"

## Using Windows print server

PCL PS3

- 1. Quit all applications. (Do not close this manual.)
- 2. Insert the provided CD-ROM into the computer's CD-ROM drive.

If the [AutoPlay] dialog box appears, click [Run SETUP.EXE].

If you are using a computer that is running Windows 8 or Windows Server 2012, click the drive and CD-ROM names when these appear in the upper right corner of the screen, and then click [Run SETUP.EXE].

3. Select an interface language, and then click [OK].

For details about the languages supported in the printer drivers, see page 6 "Supported languages".

- 4. Click [PCL Printer Drivers] or [PostScript 3 Printer Driver].
- The software license agreement appears in the [License Agreement] dialog box. After reading the agreement, click [I accept the agreement.], and then click [Next].

If installing the PostScript 3 printer driver, proceed to step 7.

6. Select a printer driver you want to use, and then click [Next].

- 7. Select [Specify a new port], and then click [Next].
- 8. Select [Network Printer], and then click [Next].
- Double-click the computer name you want to use as a print server in the [Browse for Printer] window.
- 10. Select the machine you want to use, and then click [OK].
- 11. Select the [Printer Name:] check box of the machine model you want to use.
- 12. Configure the user code, default printer, and shared printer as necessary.
- 13. Click [Continue].

The installation starts.

14. Click [Finish].

Select one of the options to restart the computer either now or later, and then click [Finish].



- The [Auto Play] dialog box is displayed only for a few seconds under Windows 8 and Windows Server 2012. If the [AutoPlay] dialog box disappears, use the following procedure to replay the CD-ROM:
  - 1. On the Charm Bar, click [Search], and then click [Computer].
  - 2. Double-click the CD-ROM drive in which the provided CD-ROM is set, and then click "Setup.exe".
- If you print with a print server connected to the machine using the SmartDeviceMonitor for Client port, Recovery Printing and Parallel Printing cannot be used from the client computer.
- If you print under a print server, notification functions of SmartDeviceMonitor for Client may not be used with the client computer.

## Using NetWare print server

PCL PS3

- 1. Quit all applications. (Do not close this manual.)
- 2. Insert the provided CD-ROM into the computer's CD-ROM drive.

If the [AutoPlay] dialog box appears, click [Run AUTORUN.EXE].

3. Select an interface language, and then click [OK].

For details about the languages supported in the printer drivers, see page 6 "Supported languages".

4. Click [PCL Printer Drivers] or [PostScript 3 Printer Driver].

The software license agreement appears in the [License Agreement] dialog box. After reading the agreement, click [I accept the agreement.], and then click [Next].

If installing the PostScript 3 printer driver, proceed to step 7.

- 6. Select a printer driver you want to use, and then click [Next].
- 7. Select [Specify a new port], and then click [Next].
- 8. Select [Network Printer], and then click [Next].
- 9. Double-click the name of the NetWare file server on the network tree.

The created queue is displayed.

- 10. Select the print queue, and then click [OK].
- 11. Check that the port of the selected printer is displayed in [Port :].
- 12. Click [Continue].

The installation starts.

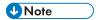
- 13. Click [Finish] in the [Select Program] dialog box.
- 14. After the installation is completed, select one of the options to restart the computer either now or later, and then click [Finish].

Restart the computer to complete installation.

- 15. After restarting the computer, on the [Start] menu, select [Printers and Faxes].
- 16. Right-click the machine's icon, and then click [Properties].
- 17. Click the [NetWare Settings] tab.
- 18. Clear the [Form Feed] and [Enable Banner] check boxes.

Do not select these check boxes since they are automatically selected by the printer driver. If you select the check boxes, the printer may not print correctly.

19. Click [OK].



 The protocol is set to inactive as default. Enable the protocol on the control panel or Web Image Monitor.

## Notes when using NetWare

#### Form Feed

Do not use NetWare to configure form feed. Form feed is controlled by the printer driver on Windows. If NetWare form feed is configured, the printer may not print properly.

Follow the procedure below to disable form feed according to the operating system used:

 Clear the [Form feed] check box on the [NetWare Settings] tab in the printer properties dialog box.

## **Banner Page**

Do not use NetWare to configure banner page.

Follow the procedure below to disable banner page according to the operating system used:

 Clear the [Enable banner] check box on the [NetWare Settings] tab in the printer properties dialog box.

## When using the PostScript 3 Printer Driver

Follow the procedure below to set up the PostScript 3 printer driver.

- 1. On the [Start] menu, select [Properties].
- 2. Right-click the printer's icon, and then click [Printer properties].
- 3. Click the [Device Settings] tab.
- 4. Select [No] on the [Send CTRL-D Before Each Job:] and [Send CTRL-D After Each Job:], and then click [Apply].
- 5. Click [OK].

## **Printing after Resetting the Printer**

Printer to print server connection requires 30–40 seconds to resume after the printer is reset. During this period, jobs may be accepted (depending on NetWare specifications) but not printed.

To print after resetting the printer as the remote printer, check on the print server that the remote printer is disconnected, or wait for two minutes before trying to print.

## 2

# Installing the Printer Driver for a Local Connection

This section describes the installation procedure of the printer drivers for USB, parallel, or Bluetooth connection.



 Manage Printers permission is required to install the driver. Log on as an Administrators group member.



- If the [User Account Control] dialog box appears in driver installation procedure, click [Yes] or [Continue].
- If the [Windows Security] dialog box appears in driver installation procedure, click [Install this driver software anyway].
- A message appears if there is a newer version of the printer driver already installed. If there is, you
  cannot install the printer driver using Auto Run. If you still want to install the printer driver, use [Add
  Printer]. See page 51 "Messages Displayed When Installing the Printer Driver".

## **USB** Connection

This section explains how to install the printer drivers using USB.

Before installing, check that only the operating system is running on the computer and no print jobs are in progress.

If the printer driver has already been installed, and plug and play is enabled, the icon of the printer connected to the "USB" port is added to the [Printers], [Printers and Faxes], or [Devices and Printers] window.

If the printer driver is not installed, follow the plug-and-play instructions of the machine to install it from the CD-ROM provided with this machine.



To disable Auto Run, press the left Shift key when inserting the CD-ROM into the drive and keep it
pressed until the computer finishes reading from the CD-ROM.

## Windows XP, Windows Server 2003/2003 R2

- 1. Quit all applications. (Do not close this manual.)
- 2. Check that the power of the machine is off.

Connect the machine and computer using the USB cable.

Connect the USB cable firmly.

4. Turn on the power of the machine.

Found New Hardware Wizard starts, and USB Printing Support is installed automatically.

- 5. Select [No, not this time], and then click [Next].
- 6. Click [Install from a list or specific location [Advanced]], and then click [Next].
- 7. Insert the provided CD-ROM into the computer's CD-ROM drive.

If Auto Run starts, click [Cancel] and then [Exit].

- 8. Select the [Search removable media (floppy, CD-ROM...)] check box under [Search for the best driver in these locations.], and then click [Next].
- 9. Select the name of the machine whose driver you want to install.

Check the location where the source files of the printer driver is stored.

If the CD-ROM drive is D, the source files are stored in the following locations:

PCL 5c

```
32-bit driver D:\X86\DRIVERS\PCL5C\XP_VISTA\(Language)\DISK1 64-bit driver D:\X64\DRIVERS\PCL5C\X64\(Language)\DISK1
```

PCL 6

```
32-bit driver D:\X86\DRIVERS\PCL6\XP_VISTA\MUI\DISK1 64-bit driver D:\X64\DRIVERS\PCL6\X64\MUI\DISK1
```

PostScript 3

```
32-bit driver D:\X86\DRIVERS\PS\XP_VISTA\MUI\DISK1 64-bit driver D:\X64\DRIVERS\PS\X64\MUI\DISK1
```

For details about the languages supported in the printer drivers, see page 6 "Supported languages".

10. Click [Next].

The installation starts.

11. Click [Finish].

If the printer driver has already been installed and plug and play is enabled, the icon of the printer connected to the "USB001" port is added to the [Printers], [Printers and Faxes], or [Devices and Printers] window.

The number after "USB" varies depending on the number of printers connected.

## Windows Vista, Windows Server 2008

1. Quit all applications. (Do not close this manual.)

- 2. Check that the power of the machine is off.
- 3. Connect the machine and computer using a USB cable.

Connect the USB cable firmly.

4. Turn on the power of the machine.

Found New Hardware Wizard starts, and USB Printing Support is installed automatically.

- 5. In the [Found New Hardware] window, click [Locate and install driver software (recommended)].
- 6. Insert the provided CD-ROM into the computer's CD-ROM drive.

If the [AutoPlay] dialog box appears, click [Close].

7. Select the name of the machine whose driver you want to install.

Check the location where the source files of the printer driver is stored.

If the CD-ROM drive is D, the source files are stored in the following locations:

- PCL 5c

  - 64-bit driver D:\X64\DRIVERS\PCL5C\X64\(Language)\DISK1
- PCL 6
  - 32-bit driver D:\X86\DRIVERS\PCL6\XP\_VISTA\MUI\DISK1
  - 64-bit driver D:\X64\DRIVERS\PCL6\X64\MUI\DISK1
- PostScript 3
  - 32-bit driver D:\X86\DRIVERS\PS\XP\_VISTA\MUI\DISK1
  - 64-bit driver D:\X64\DRIVERS\PS\X64\MUI\DISK1

For details about the languages supported in the printer drivers, see page 6 "Supported languages".

8. Click [Next].

The installation starts.

9. Click [Close].

If the printer driver has already been installed and plug and play is enabled, the icon of the printer connected to the "USB001" port is added to the [Printers], [Printers and Faxes], or [Devices and Printers] window.

The number after "USB" varies depending on the number of printers connected.

## Windows 7/8, Windows Server 2008 R2/2012

- 1. Quit all applications. (Do not close this manual.)
- 2. Check that the power of the machine is off.

3. Connect the machine and computer using a USB cable.

Connect the USB cable firmly.

4. Turn on the power of the machine.

Found New Hardware Wizard starts, and USB Printing Support is installed automatically.

5. Click [Devices and Printers] from the [Start] menu.

If you are using a computer that is running Windows 8 or Windows Server 2012, click [Search] on the Charm Bar, and then click [Control Panel]. When the [Control Panel] window appears, click [View devices and printers].

- 6. Double-Click the icon of machine you want to use in the [Unspecified] category.
- 7. Click the [Hardware] tab.
- 8. Click [Properties].
- 9. Click the [General] tab.
- 10. Click [Change settings].
- 11. Click [Driver] tab.
- 12. Click [Update Driver...].
- 13. Click [Browse my computer for driver software].
- 14. Insert the provided CD-ROM into the computer's CD-ROM drive.

If the [AutoPlay] dialog box appears, click [Close].

15. Click [Browse], and then select the printer driver location.

If the CD-ROM drive is D, the source files of the printer driver are stored in the following locations:

PCL 5c

32-bit driver D:\X86\DRIVERS\PCL5C\XP\_VISTA\(Language)\DISK1 64-bit driver D:\X64\DRIVERS\PCL5C\X64\(Language)\DISK1

PCL 6

32-bit driver D:\X86\DRIVERS\PCL6\XP\_VISTA\MUI\DISK1

64-bit driver D:\X64\DRIVERS\PCL6\X64\MUI\DISK1

PostScript 3

 $32\text{-bit driver D:} X86\DRIVERS\PS\XP\_VISTA\MUI\DISK1$ 

64-bit driver D:\X64\DRIVERS\PS\X64\MUI\DISK1

For details about the languages supported in the printer drivers, see page 6 "Supported languages".

16. Click [Next].

The installation starts.

## 17. Click [Close].

If the printer driver has already been installed and plug and play is enabled, the icon of the printer connected to the "USB001" port is added to the [Printers], [Printers and Faxes], or [Devices and Printers] window.

The number after "USB" varies depending on the number of printers connected.

## **Parallel Connection**

- 1. Quit all applications. (Do not close this manual.)
- 2. Insert the provided CD-ROM into the computer's CD-ROM drive.

If the [AutoPlay] dialog box appears, click [Run SETUP.EXE].

If you are using a computer that is running Windows 8 or Windows Server 2012, click the drive and CD-ROM names when these appear in the upper right corner of the screen, and then click [Run SETUP.EXE].

3. Select an interface language, and then click [OK].

For details about the languages supported in the printer drivers, see page 6 "Supported languages".

- 4. Click [PCL Printer Drivers] or [PostScript 3 Printer Driver].
- 5. The software license agreement appears in the [License Agreement] dialog box. After reading the agreement, click [I accept the agreement.], and then click [Next].

If installing the PostScript 3 printer driver, proceed to step 7.

- 6. Select a printer driver you want to use, and then click [Next].
- 7. Select [Specify a new port], and then click [Next].
- 8. Select [Local Port], and then click [Next].
- 9. Enter a port name, and then click [OK].
- 10. Select the [Printer Name:] check box of the machine model you want to use.
- 11. Configure the user code, default printer, and shared printer as necessary.
- 12. Click [Continue].

The installation starts.

13. Click [Finish].

Select one of the options to restart the computer either now or later, and then click [Finish].



 The [Auto Play] dialog box is displayed only for a few seconds under Windows 8 and Windows Server 2012. If the [AutoPlay] dialog box disappears, use the following procedure to replay the CD-ROM:

- 1. On the Charm Bar, click [Search], and then click [Computer].
- 2. Double-click the CD-ROM drive in which the provided CD-ROM is set, and then click "Setup.exe".

## **Bluetooth Connection**



• The Bluetooth unit and the wireless LAN unit cannot be used simultaneously.

## Supported profiles and restrictions

## **Supported Profiles**

- SPP (Serial Port Profile)
- HCRP (Hardcopy Cable Replacement Profile)
- BIP (Basic Imaging Profile)

## Restrictions on SPP, HCRP

- A maximum of two Bluetooth adaptor or Bluetooth-equipped computers can be connected at the same time using the Bluetooth interface: one by SPP, one by HCRP.
- When connecting more than one Bluetooth adaptor or Bluetooth-equipped computer at the same time, the first device that establishes connection is selected. When selecting the connection between the other devices, cancel the first established connection.
- SPP connection does not support bidirectional communications.
- HCRP connection supports bidirectional communications.

#### Restrictions on BIP

- PostScript 3 must be installed on the printer to connect via BIP.
- Only one Bluetooth adaptor or Bluetooth-equipped computer can be connected via BIP.
- Only JPEG images can be printed using BIP.
- User codes are disabled for BIP.
- · You cannot print if print functions are restricted.
- Some printers do not support BIP.

## Adding a Bluetooth printer

If your computer is running SP1 or an earlier version of Windows XP, there are additional applications that you must install. For details about these, see the Help supplied with your Bluetooth device.



To connect to a Bluetooth printer, your computer must have a Bluetooth device installed. Make sure
a Bluetooth device is installed on your computer.

## Windows XP, Windows Server 2003/2003 R2

- 1. Quit all applications. (Do not close this manual.)
- 2. On the [Start] menu, click [Printers and Faxes].
- 3. Click [Add a printer].
- 4. Click [Next].
- 5. Click [Bluetooth Printer], and then click [Next].

The computer begins searching for available Bluetooth printers.

If a new printer is discovered, the [Found New Hardware Wizard] window appears. To ignore a discovered device and continue searching, click [Cancel]. The computer resumes searching for other available Bluetooth printers.

- 6. Click [No, I will not connect], and then click [Next].
- 7. Click [Install from a list or specific location (Advanced)], and then click [Next].
- 8. Insert the CD-ROM provided with this machine into your computer's CD-ROM drive, select the [Search removable media (floppy, CD-ROM...)] check box, and then click [Next].
- 9. If the [Hardware Installation] window appears, click [Continue].
- 10. If the installation was successful, click [Finish].
- 11. Select [Test Print], and then click [Next].
- 12. Click [Finish].



- Actual Bluetooth printer operations will vary according to your Bluetooth device and/or Bluetoothinstalled computer. For details, see the Help supplied with your Bluetooth device and/or Bluetoothequipped computer.
- After printing the test page, check it. If there is a problem with the test page, click [Troubleshooting]
  in the test print window. If there is no problem with the test page, click [Close] to close the window.

## Windows Vista, Windows Server 2008

- 1. Quit all applications. (Do not close this manual.)
- 2. On the [Start] menu, click [Control Panel].
- 3. In the "Hardware and Sound" area, click [Printers].
- 4. In the top part of the window, click [Add a printer].

In the [Add Printer] window, select [Add a network, wireless or Bluetooth printer], and then click [Next].

The computer begins searching for available Bluetooth devices.

From the list of discovered devices, select the machine you want to use, and then click [Next].

All discovered wireless printers appear in the list of discovered printers, not only Bluetooth printers. Make sure the machine you select is a Bluetooth printer.

- Insert the CD-ROM provided with this machine into your computer's CD-ROM drive, and then click [Browse my computer for driver software (advanced)] on the [Found New Hardware] display.
- 8. In the [Found New Hardware] window, select the printer driver you want to use, and then click [Next].

The installation starts.

- 9. If the [Windows Security] window appears, click [Install this driver software anyway].
- 10. Click [Close].
- If you want to change the printer name, enter the new name in the [Printer Name Settings] window.
- 12. If you want to print a test page, click [Printing Test Page] on the "Test Print" page.

  Otherwise, click [Finish].



After printing the test page, check it. If there is a problem with the test page, click [Troubleshooting]
in the test print window. If there is no problem with the test page, click [Close] to close the window.

### Windows 7/8, Windows Server 2008 R2/2012

- 1. Quit all applications. (Do not close this manual.)
- 2. On the [Start] menu, click [Devices and Printers].

If you are using a computer that is running Windows 8 or Windows Server 2012, click [Search] on the Charm Bar, and then click [Control Panel]. When the [Control Panel] window appears, click [View devices and printers].

- 3. Click [Add a printer].
- 4. Click [Add a network, wireless or Bluetooth printer].

The computer begins searching for available Bluetooth devices.

- From the list of discovered devices, select the machine you want to use, and then click [Next].
- 6. If you want to change the printer name, enter the new name in the [Printer Name:], and then click [Next].

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- 7. To share the printer, configure the necessary settings, and then click [Next].
- 8. If you want to print a test page, click [Print a test page] on the "Test Print" page.

  Otherwise, click [Finish].



• After printing the test page, check it. If there is a problem with the test page, click [Troubleshooting] in the test print window. If there is no problem with the test page, click [Close] to close the window.

# **Configuring Option Settings for the Printer**

When bidirectional communication works correctly, your computer obtains information about option, paper size and paper feed direction settings from the machine automatically. Bidirectional communication also allows you to monitor machine status.

When bidirectional communication is disabled, you have to set up option, paper size and paper feed direction settings on your computer manually.



 Manage Printers permission is required to enable bidirectional communication or to configure the option settings. Log on as an Administrators group member.

## **Conditions for Bidirectional Communication**

To support bidirectional communication, the following conditions must be met:

## When connected with parallel cables

- The computer must support bidirectional communication.
- The interface cable must support bidirectional communication.
- The machine must be connected to the computer using the standard parallel cables and parallel connectors.

## When connected with the network

- The Standard TCP/IP port must be used.
- In addition to the above, one of the following conditions must also be met:
  - The TCP/IP protocol or the IPP protocol is used. (When using the IPP protocol, the IPP port name must include the IP address.)

### When connected with USB

- The machine must be connected to the computer's USB port using the USB interface cable.
- The computer must support bidirectional communication.
- [Enable bidirectional support] must be selected, and [Enable printer pooling] must not be selected on the [Ports] tab with the printer driver.



- The PCL 6 and PostScript 3 printer drivers support bidirectional communication and automatic printer status updates.
- To obtain printer information automatically using the bidirectional communication function of the PCL 6 or PostScript 3 printer driver, you must select the [Automatically Update Printer Information] check box on the [Accessories] tab in the printer driver's properties window.

 The PCL 5c printer driver supports bidirectional communication. You can update the printer status manually.

#### If Bidirectional Communication is Disabled

This section describes how to set up option, paper size and paper feed direction settings on your computer manually.

### 1. Open the printer window.

- Windows XP, Windows Server 2003:
  - On the [Start] menu, select [Printers and Faxes].
- Windows Vista, Windows Server 2008:
  - On the [Start] menu, select [Control Panel], and then click [Printers] in [Hardware and Sound] category.
- Windows 7, Windows Server 2008 R2:
  - On the [Start] menu, select [Devices and Printers].
- Windows 8, Windows Server 2012:
  - Click [Search] on the Charm Bar, and then click [Control Panel]. When the [Control Panel] window appears, click [View devices and printers].

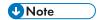
### 2. Open the printer properties dialog box.

- Windows XP/Vista, Windows Server 2003/2008:
  - Right-click the machine's icon, and then click [Properties].
- Windows 7/8, Windows Server 2008 R2/2012:
   Right-click the machine's icon, and then click [Printer properties].

#### 3. Click the [Accessories] tab.

If options in the [Accessories] tab are disabled, bidirectional connection is enabled. In this case, no change is necessary for option settings.

- 4. Select options installed from the [Options] area, and then make the necessary settings.
- 5. Click [Change Input Tray Settings...].
- 6. In [Input Tray:] select which trays to use, and then, in [Paper Size:] select the size of the paper that you want to load in each tray.
  - Click [Modify Input Tray/Paper Size] to apply the setting for each tray.
- 7. Click [OK].
- 8. Click [OK] to close the printer properties window.



For details about making option settings for the machine using a Mac OS X, see page 58
 "Configuring Option Settings for the Printer Under Mac OS X".

# **Installing Font Manager**

### 

- Manage Printers permission is required to install Font Manager. Log on as an Administrators group member.
- The operating systems compatible with Font Manager are Windows XP/Vista.
- 1. Quit all applications. (Do not close this manual.)
- 2. Insert the provided CD-ROM into the computer's CD-ROM drive.

If the [AutoPlay] dialog box appears, click [Run SETUP.EXE].

If you are using a computer that is running Windows 8 or Windows Server 2012, click the drive and CD-ROM names when these appear in the upper right corner of the screen, and then click [Run SETUP.EXE].

- 3. Select an interface language, and then click [OK].
- 4. Click [Font Manager].
- 5. Follow the instructions on the display.



- The [Auto Play] dialog box is displayed only for a few seconds under Windows 8 and Windows Server 2012. If the [AutoPlay] dialog box disappears, use the following procedure to replay the CD-ROM:
  - 1. On the Charm Bar, click [Search], and then click [Computer].
  - 2. Double-click the CD-ROM drive in which the provided CD-ROM is set, and then click "Setup.exe".

# 3. Installing the Scanner Driver

This chapter explains how to install the TWAIN driver on a client computer. Installing procedures on Windows 7 is shown as an example except where indicated.

# Installing the TWAIN Driver

To use the network TWAIN scanner, you must install the TWAIN driver on a client computer.

- 1. Quit all applications. (Do not close this manual.)
- 2. Insert the provided CD-ROM into the computer's CD-ROM drive.

If the [AutoPlay] dialog box appears, click [Run SETUP.EXE].

If you are using a computer that is running Windows 8 or Windows Server 2012, click the drive and CD-ROM names when these appear in the upper right corner of the screen, and then click [Run SETUP.EXE].

- Select an interface language, and then click [OK].
   For details about the languages supported in the TWAIN driver, see page 7 "TWAIN Driver".
- 4. Click [TWAIN Driver].
- 5. The installer of the TWAIN driver starts. Follow the instructions.



- The [Auto Play] dialog box is displayed only for a few seconds under Windows 8 and Windows Server 2012. If the [AutoPlay] dialog box disappears, use the following procedure to replay the CD-ROM:
  - 1. On the Charm Bar, click [Search], and then click [Computer].
  - Double-click the CD-ROM drive in which the provided CD-ROM is set, and then click "Setup.exe".
- Before you start the installation, check the system requirements for the TWAIN driver. For details
  about the system requirements, see page 5 "Software and Utilities Included on the CD-ROM".
- When the installation is complete, a message about restarting the client computer may appear. In this case, restart the client computer.
- After the installation is complete, a folder with the name of the machine in use is added in [Programs] or [All Programs] on the [Start] menu. Help can be displayed from here.
- Notes on using the network TWAIN scanner are provided in "Readme.txt". Be sure to read them before use.

### Installing a TWAIN-Compliant Application on the Same Client Computer

To use this machine as a network TWAIN scanner, a TWAIN-compliant application, such as DeskTopBinder, must be installed on the client computer.

You can download DeskTopBinder from the manufacturer's Web site and then install it on the client computer. For details about DeskTopBinder, see "Software that You Can Download", Getting Started.

# 4. Installing the Facsimile Driver

This chapter explains how to install and configure the LAN-Fax driver on a client computer. Installing procedures on Windows 7 is shown as an example except where indicated.

# Installing the LAN-Fax Driver

Address Book and LAN-Fax Cover Sheet Editor are installed with the LAN-Fax Driver. Address Book helps you edit LAN-Fax transmission destinations. LAN-Fax Cover Sheet Editor helps you edit LAN-Fax cover sheets.



- Manage Printers permission is required to install the drivers. Log on as an Administrators group member.
- In an IPv6 environment, you cannot use the Standard TCP/IP port. Use the SmartDeviceMonitor for Client port.

### Specifying the Same Port as the Printer Driver

If a port name that is the same as one that is already in use by the existing driver is specified, the LAN-FAX driver installation may fail. If the printer driver is already installed, make sure that the port numbers of the LAN-FAX driver and the printer driver match.

- 1. Quit all applications. (Do not close this manual.)
- 2. Insert the provided CD-ROM into the computer's CD-ROM drive.

If the [AutoPlay] dialog box appears, click [Run SETUP.EXE].

If you are using a computer that is running Windows 8 or Windows Server 2012, click the drive and CD-ROM names when these appear in the upper right corner of the screen, and then click [Run SETUP.EXE].

- Select an interface language, and then click [OK].
   For details about the languages supported in the LAN-Fax driver, see page 8 "LAN-Fax Driver".
- 4. Click [LAN-Fax Driver].
- 5. The software license agreement appears in the [License Agreement] dialog box. After reading the agreement, click [I accept the agreement.], and then click [Next].
- 6. Click [Next].
- Select the same port as the one selected in the printer driver from the [Select from the port list].
- 8. Configure the user code, default printer, and shared printer as necessary.

9. Click [Continue].

The installation starts.

10. Click [Finish].



- The [Auto Play] dialog box is displayed only for a few seconds under Windows 8 and Windows Server 2012. If the [AutoPlay] dialog box disappears, use the following procedure to replay the CD-ROM:
  - 1. On the Charm Bar, click [Search], and then click [Computer].
  - 2. Double-click the CD-ROM drive in which the provided CD-ROM is set, and then click "Setup.exe".

### Specifying the Port When Installing the LAN-FAX Driver

To specify a port that is different from the printer driver when installing the LAN-FAX driver, see the installation procedure of the printer driver.

If places where the procedure or description differs depending on the driver to be installed, replace the corresponding procedure or description accordingly, and install the driver.

Installation procedures	Corresponding items to replace
page 17 "Using the Standard TCP/IP port"	1, 2
page 18 "Using the IPP port"	3
page 19 "Using the LPR port"	1, 2
page 20 "Using the WSD port"	3
page 23 "Using the SmartDeviceMonitor for Client port"	1, 2

### List of Items to Replace

No. Items to be replaced		Procedure/description in the printer driver	Procedure/description in the LAN-Fax driver	
1	The name of the button that starts the installation procedure	Click [PCL Printer Drivers] or [PostScript 3 Printer Driver].	Click [LAN-Fax Driver].	

No.	Items to be replaced	Procedure/description in the printer driver	Procedure/description in the LAN-Fax driver	
2	The procedures in the [Install Printer Driver] dialog box  Select the check box of the machine model you want to use.		Select [Printer Name : <lan-fax generic="">].</lan-fax>	
3	The destination folder in which the driver files are stored	The destination folder is written in the description.	The LAN-FAX driver is installed in the following folder:  • 32-bit driver  X86\DRIVERS\LAN-FAX\XP_VISTA \DISK1\LANG\ (Language)  • 64-bit driver  X64\DRIVERS\LAN-FAX \X64\DISK1\LANG\	

### **U** Note

- Manage Printers permission is required to set the properties for the LAN-Fax driver. Log on as an Administrators group member.
- The method for selecting the LAN-Fax driver will vary according to your operating system. For details, see Windows Help.

### **Setting Print Properties**

This section explains how to make settings such as paper size or resolution.

### 1. Open the printer window.

- Windows XP, Windows Server 2003/2003 R2:
   On the [Start] menu, select [Printers and Faxes].
- Windows Vista, Windows Server 2008:

On the [Start] menu, select [Control Panel], and then click [Printers] in [Hardware and Sound] category.

- Windows 7, Windows Server 2008 R2:
  - On the [Start] menu, select [Devices and Printers].
- Windows 8, Windows Server 2012:

Click [Search] on the Charm Bar, and then click [Control Panel]. When the [Control Panel] window appears, click [View devices and printers].

### 2. Open the printer properties dialog box.

- Windows XP/Vista, Windows Server 2003/2003 R2/2008:
   Right-click the [LAN-Fax Generic] icon, and then click [Properties].
- Windows 7/8, Windows Server 2008 R2/2012:
   Right-click the [LAN-Fax Generic] icon, and then click [Printer properties].

### 3. To set the following properties.

- Document Size:
- Orientation:
- Input Tray:
- Resolution:
- · Spool Data in EMF Format

### 4. Click [OK].

### Configuring Option Settings for the Facsimile

#### 1. Open the printer windows.

- Windows XP, Windows Server 2003/2003 R2:
  - On the [Start] menu, select [Printers and Faxes].
- Windows Vista, Windows Server 2008:
  - On the [Start] menu, select [Control Panel], and then click [Printers] in [Hardware and Sound] category.
- Windows 7, Windows Server 2008 R2:
  - On the [Start] menu, select [Devices and Printers].
- Windows 8, Windows Server 2012:
  - Click [Search] on the Charm Bar, and then click [Control Panel]. When the [Control Panel] window appears, click [View devices and printers].

### 2. Open the printer properties dialog box.

- Windows XP/Vista, Windows Server 2003/2003 R2/2008:
   Right-click the [LAN-Fax Generic] icon, and then click [Properties].
- Windows 7/8, Windows Server 2008 R2/2012:
   Right-click the [LAN-Fax Generic] icon, and then click [Printer properties].
- 3. Click the [Accessories] tab, and then make the settings for the option configuration.
- 4. Select the check boxes for the installed optional units.
- 5. Click [Apply].

Option configuration settings are complete.

6. Click [OK].

### [Accessories] tab

The [Accessories] tab contains the following items besides option configuration items.

#### Misc

Enable Email

Check this when using Internet Fax with the LAN-Fax function.

- Prohibit manual destination entry
  - Select this check box when manual destination entry is set as prohibited from the machine.
- · No. of Entries to Fix Destination
  - Specify the number of entries to fix the destinations when to enter destinations directly. You can enter a value between 1 and 15.

4

• Check Destination

Select the check box to confirm the destinations before sending.

#### **IP-Fax**

To use IP-Fax, select the [Enable IP-Fax] check box, and then specify the protocol in [Valid protocol:].



- If the options on this machine are not configured as instructed, LAN-Fax functions may fail.
- If this machine is connected to a network, configuration of each option installed on the machine will be performed automatically. If the settings do not match the installed optional units, click [Load from Device].

# 5. Troubleshooting

This chapter provides solutions for driver installation and USB connection problems.

# Messages Displayed When Installing the Printer Driver

This section describes what to do if a message appears when installing the printer driver.

Message number 58 or 34 indicates that the printer driver cannot be installed using Auto Run. Install the printer driver using Add Printer Wizard.

Message number 58 appears if there is a newer version of the printer driver already installed.

### 1. Open the printer window.

- Windows XP, Windows Server 2003/2003 R2:
  - On the [Start] menu, select [Printers and Faxes].
- Windows Vista, Windows Server 2008:
  - On the [Start] menu, select [Control Panel], and then click [Printers] in [Hardware and Sound] category.
- Windows 7, Windows Server 2008 R2:
  - On the [Start] menu, select [Devices and Printers].
- Windows 8, Windows Server 2012:
  - Click [Search] on the Charm Bar, and then click [Control Panel]. When the [Control Panel] window appears, click [View devices and printers].

#### 2. Click [Add a printer].

#### 3. Follow the instructions in Add Printer Wizard.

If the CD-ROM drive is D, the source files of the printer driver are stored in the following locations:

- PCL 5c
  - 32-bit driver D:\X86\DRIVERS\PCL5C\XP\_VISTA\(Language)\DISK1
  - 64-bit driver D:\X64\DRIVERS\PCL5C\X64\(Language)\DISK1
- PCL 6
  - 32-bit driver D:\X86\DRIVERS\PCL6\XP\_VISTA\MUI\DISK1
  - 64-bit driver D:\X64\DRIVERS\PCL6\X64\MUI\DISK1
- PostScript 3
  - 32-bit driver D:\X86\DRIVERS\PS\XP\_VISTA\MUI\DISK1
  - 64-bit driver D:\X64\DRIVERS\PS\X64\MUI\DISK1

For details about the languages supported in the printer drivers, see page 6 "Supported languages".

4. Specify a port.



 Available ports vary according to your Windows operating system or the type of interface. For details, see page 11 "Confirming the Connection Method".

#### 5

# If USB Connection Fails

This section describes how to troubleshoot a problem related to USB connections.

Problem	Causes	Solutions
The machine is not automatically recognized.	The USB cable is not connected properly.	Disconnect the USB cable from the computer, and then turn off the main power switch. Turn on the main power switch again. When the machine has fully booted up, reconnect the USB cable.
Windows has already configured the USB settings.	Check whether the computer has identified the machine as an unsupported device.	Open Windows' Device Manager, and then, under [Universal Serial Bus controllers], remove any conflicting devices. Conflicting devices have a [!] or [?] icon by them. Take care not to accidentally remove required devices. For details, see Windows Help.
The machine does not recognize the USB connection even when a USB cable is inserted.	If the USB cable is connected while the machine is off, the machine might not recognize the USB connection.	Press the operation switch, and then disconnect the USB cable from the computer. When the machine has returned to the ready condition, reconnect the USB cable.

# 6. Installing the Printer Driver Under Mac OS X

This chapter explains how to install and configure the printer drivers for use on the Mac OS X operating system.

# **Installing the PPD Files**

To print using the printer specific features under Mac OS X, install the PPD files.



- You need an administrator name and a password (phrase). For details, consult your network administrator.
- For the latest information on the corresponding operating system, see the "Readme.txt" file in the DRIVERS folder.
- 1. Quit all applications. (Do not close this manual.)
- 2. Insert the provided CD-ROM into the computer's CD-ROM drive.
- 3. Double-click the CD-ROM drive icon.
- 4. Double-click the [Mac OS X] folder.
- 5. Double-click the [(brand name)] folder.
- 6. Double-click the [Mac OS X 10.5 or later] folder.
- 7. Double-click the [MacOSX PPD Installer] folder.
- 8. Double-click the package file icon.
- 9. Follow the instructions on the screen.



- The PPD files will be automatically installed in the following location:
- \Library\Printers\PPDs\Contents\Resources\

# Registering the Printer

To use the machine, the printer must be registered in the printer list.

Make sure the machine and computer are connected and turned on, and perform the following procedure.

For how to connect the machine to the computer, see "Connecting the Machine", Connecting the Machine/ System Settings.



- When printing with a USB connection to a Macintosh computer, the printer language does not change automatically. Use the control panel on this machine to change the printer language to [Auto Detect] or [PS] before printing.
- The operating procedure under Mac OS X differs depending on the version of the operating system. Consult the procedure described in this manual, and make the necessary settings according to the manual of each version.

### **USB** Connection



- Make sure the computer and the printer are connected using the USB cable, and the power of the
  devices are turned on beforehand.
- 1. Start System Preferences.
- 2. Click [Print & Fax] or [Print & Scan].
- 3. Click the [+] button.
- 4. Click [Default].
- 5. Select the printer that has "USB" indicated in the [Kind] column.
- 6. Select the printer you are using from the [Print Using:] or [Use:] pop-up menu.

If the printer you are using is not selected in [Print Using:] or [Use:], select its manufacturer, [Select a driver to use...], or [Select Printer Software...] in the pop-up menu, and then select the PPD file of the printer. For the location of the PPD files, see page 55 "Installing the PPD Files".

7. Click [Add].

If the option settings need to be configured, click [Configure...] in the dialog box that appears, and then configure the option settings.

8. Quit System Preferences.

### **Network Connection**

- 1. Start System Preferences.
- 2. Click [Print & Fax] or [Print & Scan].
- 3. Click the [+] button.
- 4. Click [Default].
- 5. 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.).

6. Select the printer you are using from the [Print Using:] or [Use:] pop-up menu.

If the printer you are using is not selected in [Print Using:] or [Use:], select its manufacturer, [Select a driver to use...], or [Select Printer Software...] in the pop-up menu, and then select the PPD file of the printer. For the location of the PPD files, see page 55 "Installing the PPD Files".

7. Click [Add].

If the option settings need to be configured, click [Configure...] in the dialog box that appears, and then configure the option settings.

8. Quit System Preferences.

# Configuring Option Settings for the Printer Under Mac OS X

This section explains how to configure the printer driver.

- 1. Start System Preferences.
- 2. Click [Print & Fax] or [Print & Scan].
- Select the printer you are using, and then click [Options & Supplies...].
- 4. Click [Driver], and then configure settings as needed.
- 5. Click [OK].
- 6. Quit System Preferences.



• If the option you want to select is not displayed, PPD files may not be set up correctly. To complete the setup, check the name of the PPD file displayed in the dialog box.

# 7. Appendix

# **Updating or Deleting the Driver**

### 

- Administrator permission is required to update or delete the driver in use. Log on as an Administrators group member.
- For driver updates, select a driver that is compatible with the printer and driver type you are using.
   An error may result if you select a driver that is not compatible with the printer and driver type.



- If the [User Account Control] dialog box appears, click [Yes] or [Continue].
- If the [Windows Security] dialog box appears, click [Install this driver software anyway].

### **Updating the Driver**

### Printer driver / LAN-Fax driver

You can download the most recent version of the driver from the manufacturer's Web site. Download the latest driver, and then perform the following procedure.

- 1. Open the printer window.
  - Windows XP, Windows Server 2003:
     On the [Start] menu, select [Printers and Faxes].
  - Windows Vista, Windows Server 2008:
    - On the [Start] menu, select [Control Panel], and then click [Printers] in [Hardware and Sound] category.
  - Windows 7, Windows Server 2008 R2:
    - On the [Start] menu, select [Devices and Printers].
  - Windows 8, Windows Server 2012:

    Click [Search] on the Charm Bar, and then click [Control Panel]. Wh
    - Click [Search] on the Charm Bar, and then click [Control Panel]. When the [Control Panel] window appears, click [View devices and printers].
- 2. Open the printer properties dialog box.
  - Windows XP/Vista, Windows Server 2003/2008:
     Right-click the machine's icon, and then click [Properties].
  - Windows 7/8, Windows Server 2008 R2/2012:

7

Right-click the machine's icon, and then click [Printer properties].

- 3. Click the [Advanced] tab.
- 4. Click [New Driver...], and then click [Next].
- 5. Click [Have Disk...].
- 6. Click [Browse...], and then select the driver location.
- 7. Click [OK].
- Select the machine model, and then click [Next].
   The driver update starts.
- 9. Click [Finish].
- 10. Click [OK] to close the printer properties window.
- 11. Restart the computer.

### PPD files(Mac OS X), TWAIN driver

You can download the most recent version of the drivers from the manufacturer's Web site.

Delete the old version of the driver first, and then install the new driver. For details about how to delete the driver, see page 60 "Deleting the Driver".

### Deleting the Driver

### Printer driver / LAN-Fax driver

### Windows XP, Windows Server 2003/2003 R2

- 1. On the [Start] menu, click [Printers and Faxes].
- 2. Right-click the icon of the machine you want to delete, and then click [Delete].
- 3. Click [Server Properties] on the [File] menu.
- 4. Click the [Drivers] tab.
- 5. Select the driver you want to delete, and then click [Remove].
- 6. Click [Yes].
- 7. Click [Close] to close the print server properties window.

#### Windows Vista, Windows Server 2008

- On the [Start] menu, select [Control Panel], and then click [Printers] in [Hardware and Sound] category.
- 2. Right-click the icon of the machine you want to delete, and then click [Delete].

- On the [File] menu, point to [Run as administrator], and then click [Server Properties...].
- 4. Click the [Drivers] tab.
- 5. Select the driver you want to delete, and then click [Remove...].
- 6. Select [Remove driver and driver package.], and then click [OK].
- 7. Click [Yes].
- 8. Click [Delete].
- 9. Click [OK].
- 10. Click [Close] to close the print server properties window.

### Windows 7/8, Windows Server 2008 R2/2012

- 1. On the [Start] menu, click [Devices and Printers].
  - If you are using a computer that is running Windows 8 or Windows Server 2012, click [Search] on the Charm Bar, and then click [Control Panel]. When the [Control Panel] window appears, click [View devices and printers].
- 2. Right-click the icon of the machine you want to delete, and then click [Remove Device].
- 3. Click [Yes].
- 4. Click any machine icon, and then click [Print server properties].
- Click the [Drivers] tab.
- 6. Click the [Change Driver Settings] button if it is displayed.
- 7. Select the driver you want to delete, and then click [Remove...].
- 8. Select [Remove driver and driver package.], and then click [OK].
- 9. Click [Yes].
- 10. Click [Delete].
- 11. Click [OK].
- 12. Click [Close] to close the print server properties window.

### PPD files(Mac OS X)

- 1. Start System Preferences.
- 2. Click [Print & Fax] or [Print & Scan].
- 3. Select the printer you want to delete, click the [-] button.

### TWAIN driver

#### 1. Start uninstaller.

• Windows XP, Windows Server 2003/2003 R2:

On the [Start] menu, select [Control Panel], and then click [Add or Remove Programs].

• Windows Vista/7, Windows Server 2008/2008 R2:

On the [Start] menu, select [Control Panel], and then click [Uninstall a program].

• Windows 8, Windows Server 2012:

Click [Search] on the Charm Bar, and then click [Control Panel]. When the [Control Panel] window appears, click [Uninstall a program].

#### 2. Remove the TWAIN driver.

- Windows XP, Windows Server 2003/2003 R2:
  - 1. Select the driver you want to delete.
  - 2. Click [Change/Remove].
- Windows Vista/7/8, Windows Server 2008/2008 R2 /2012:
  - 1. Select the driver you want to delete.
  - 2. Click [Uninstall/Change] or [Uninstall].

### 3. Quit uninstaller.

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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 Home Premium

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Microsoft® Windows® 7 Enterprise

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 Microsoft<sup>®</sup> Windows Server<sup>®</sup> 2008 R2 Enterprise

 The product names of Windows Server 2012 are as follows: Microsoft<sup>®</sup> Windows Server<sup>®</sup> 2012 Foundation Microsoft<sup>®</sup> Windows Server<sup>®</sup> 2012 Essentials Microsoft<sup>®</sup> Windows Server<sup>®</sup> 2012 Standard

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# PCL 6/5c Printer Driver Installation Guide

This manual assumes that you are familiar with general Windows procedures and practices. If you are not, see the documentation that comes with Windows for details.

# | Important

- ☐ Before starting this installation, close all documents and applications. In a network environment, confirm that users who are logged on are disconnected. Be sure to do this when it will create the least interference with other users.
- ☐ After installing a printer driver, you must restart the computer.

### **●** Note

- ☐ Available operating systems are as follows: Windows XP/Vista/7/8, Windows Server 2003/2003 R2/2008/2008 R2/2012.
- ☐ If the "plug and play" function is started, click [Cancel] in the [Found New Hardware Wizard] dialog box, and then insert the CD-ROM. The [Found New Hardware Wizard] dialog box appears depending on the system version of the Windows XP/Vista/7/8, Windows Server 2003/2003 R2/2008/2008 R2/2012.

# Installing the PCL 6/5c Printer Driver

Auto Run starts the installer automatically when you load the CD-ROM in the CD-ROM drive.

Two kinds of PCL printer drivers, PCL 6 and PCL 5c, are provided with this machine. We recommend PCL 6 as your first choice.

TCP/IP requires the following:

- This machine must be connected to the network through the network interface cable.
- This machine must be turned on.
- The TCP/IP protocol must be configured.
- An IP address must be allocated to this machine and to the computer.

### **Important**

- ☐ Installing a printer driver by Auto Run requires Administrators permission. When you install a printer driver by Auto Run, log on using an account that has Administrators permission.
- ☐ When updating the printer driver by installing the latest version, you should uninstall that of former version, if any.

If you want to cancel Auto Run, hold down the **[Shift]** key while inserting the CD-ROM. Keep the **[Shift]** key held down until the computer has finished accessing the CD-ROM.

- 1 Close all applications that are running.
- **2** Insert the CD-ROM into the CD-ROM drive.

Auto Run will start the installer.

In Windows 8 or Windows Server 2012, click the drive and CD-ROM names when these appear in the upper right corner of the screen, and then click [Run SETUP.EXE].

Select a language to change the interface language, and then click [OK].

The following languages are available: Deutsch (German), English (English), Espanol (Spanish), Francais (French), Italiano (Italian), Nederlands (Dutch), Chinese Simplified (Simplified Chinese)

Default interface language is English.

- 4 Click [PCL Printer Drivers].
- The software license agreement appears in the [License Agreement] dialog box. After reading through all of the contents, click [laccept the agreement.] to agree with the License Agreement, and then click [Next >].
- Select the printer driver you want to install when the [Select Program] dialog box appears, and then click [Next >].
- **7** Follow the instructions on the screen.

- **●** Note
  - ☐ Auto Run might not automatically work with certain OS settings. In this case, launch "Setup.exe" located on the CD-ROM root directory.
  - ☐ The [Auto Play] dialog box is displayed only for a few seconds under Windows 8 and Windows Server 2012. If the [Auto Play] dialog box disappears, use the following procedure to replay the CD-ROM:
    - 1. On the Charm Bar, click [Search], and then click [Computer].
    - 2. Double-click the CD-ROM drive in which the provided CD-ROM is set, and then click "Setup.exe".

### **Setting up options**

### **Important**

- ☐ If the machine is equipped with certain options, you should set up the options with the printer driver.
- ☐ Changing the printer settings requires Manage Printers permission. Members of the Administrators and Power Users groups have Manage Printers permission by default. When you set up options, log on using an account that has Manage Printers permission.

When setting up options, you should access the printer properties dialog box from Windows. You cannot set up options by accessing the printer properties dialog box from an application.

The following procedure is based on Windows 7 as an example.

1 On the [Start] menu, click [Devices and Printers].

The [Devices and Printers] window appears.

In Windows Vista or Windows Server 2008, on the **[Start]** menu, click **[Control Panel]**, and then click **[Printer]** in "Hardware and Sound".

In Windows XP, on the [Start] menu, click [Printers and Faxes].

In Windows 8 or Windows Server 2012, click **[Search]** on the Charm Bar, and then click **[Control Panel]**. When the **[Control Panel]** window appears, click **[View devices and printers]**.

- 2 Click to select the name of the printer you want to use.
- Right-click the name of the printer you want to use, and then click [Printer properties].

The printer properties dialog box appears.

In Windows XP, Vista, or Windows Server 2008, right-click the name of the printer you want to use, and then click [Properties].

- 4 Click the [Accessories] tab.
- Select options you have installed from the [Options] group.
- 6 Click [OK].

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# **Symbols**

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 machine's display panel.

Indicates the names of keys on the machine's control panel.

# **Notes for Users**

This supplement provides notes and corrections for the manuals provided with this machine.

#### ❖ Read This First

Topic	Error		Corrections
4. Appendix > Specifications > Noise emission > Complete system > Copying	Type 1: 70.1 dB(A) Type 2: 70.1 dB(A) Type 3: 72.2 dB(A) Type 4: 73.3 dB(A) Type 5: 73.3 dB(A)		Type 1: <u>71.0</u> dB(A) Type 2: <u>71.1</u> dB(A) Type 3: <u>71.9</u> dB(A) Type 4: <u>72.4</u> dB(A) Type 5: <u>73.2</u> dB(A)
4. Appendix > Specifications > Noise emission > Sound power level (Main unit only / Complete system) > Stand-by	Main unit only > Type 1: 32.1 dB(A) Type 2: 32.2 dB(A) Type 3: 31.4 dB(A) Type 4: 31.5 dB(A) Type 5: 32.2 dB(A)	Complete system > Type 1: 35.0 dB(A) Type 2: 35.0 dB(A) Type 3: 35.0 dB(A) Type 4: 35.0 dB(A) Type 5: 35.0 dB(A)	Main unit only / Complete system > Type 1-Type 5: 35 dB(A) or less
4. Appendix > Specifications > Noise emission > Sound pressure level (Main unit only / Complete system) > Stand-by	Main unit only > Type 1: 19.1 dB(A) Type 2: 19.4 dB(A) Type 3: 18.6 dB(A) Type 4: 19.3 dB(A) Type 5: 19.3 dB(A)	Complete system > Type 1: 29.0 dB(A) Type 2: 29.0 dB(A) Type 3: 29.0 dB(A) Type 4: 29.0 dB(A) Type 5: 29.0 dB(A)	Main unit only / Complete system > Type 1-Type 5: 20 dB(A) or less

## ❖ Paper Specifications and Adding Paper

Topic	Additional information	
Recommended Paper > Recommended Paper Size and Types	<ul> <li>• After continuous printing of A5 , envelopes or other smaller custom paper sizes, printing on different sized paper may require a wait of up to 1 minute for adjustments.</li> </ul>	

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# Operating Instructions Security Guide

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# **Functions That Require Options**

The following functions require certain options and additional functions.

- Detect Data Security for Copying Copy Data Security Unit
- Viewing Web pages on the display (Browser function)
   Browser unit

For details about other functions that require options, see "Functions Requiring Optional Configurations", Getting Started.

# **Main Software Names**

Product name	Names in the text
DeskTopBinder Lite and DeskTopBinder Professional * 1	DeskTopBinder
ScanRouter EX Professional *1 and ScanRouter EX Enterprise *1	the ScanRouter delivery software

<sup>\* 1</sup> This product is no longer sold.

## Ī

# 1. Getting Started

This chapter describes the precautions to take when using the machine's security features and how to configure the administrator settings.

# Before Configuring the Security Function Settings



- If the security settings are not configured, the data in the machine is vulnerable to attack.
- To prevent this machine being stolen or willfully damaged, etc., install it in a secure location.
- Purchasers of this machine must make sure that people who use it do so appropriately, in
  accordance with operations determined by the machine administrator and supervisor. If the
  administrator or supervisor does not make the required security settings, there is a risk of security
  breaches by users.
- Before setting this machine's security features and to ensure appropriate operation by users, administrators must read the Security Guide completely and thoroughly, paying particular attention to the section entitled "Before Configuring the Security Function Settings".
- Administrators must inform users regarding proper usage of the security functions.
- If this machine is connected to a network, its environment must be protected by a firewall or similar.
- For protection of data during the communication stage, apply the machine's communication security functions and connect it to devices that support security functions such as encrypted communication.
- Administrators should routinely examine the machine's logs to check for irregular and unusual events.

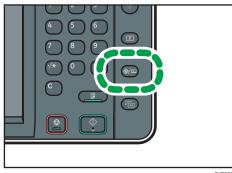
# **Before Using This Machine**

This section explains how to enable encryption of transmitted data and configure the administrator account. If you want a high level of security, make the following setting before using the machine.

1. Turn the machine on.

For details about turning on the main power, see "Turning On/Off the Power", Getting Started.

2. Press the [User Tools/Counter] key.



CJS03

- 3. Press [System Settings].
- 4. Press [Interface Settings].
- 5. Specify IPv4 Address.

For details on how to specify the IPv4 address, see "Interface Settings", Connecting the Machine/ System Settings.

- 6. Press [File Transfer] in [System Settings].
- 7. Press [Administrator's E-mail Address], and then specify the e-mail address of the administrator of this machine.
- 8. Create and install the device certificate from the control panel.

For information on how to install the device certificate, see page 124 "Protecting the Communication Path via a Device Certificate".

As the e-mail address for the device certificate, enter the address specified in Step 7.

9. Change the administrator's user name and password.

For details about specifying administrators' user names and passwords, see page 18 "Registering and Changing Administrators".

10. Connect the machine to the general usage network environment.



To enable higher security, see page 264 "Additional Information for Enhanced Security"

# **Administrators and Users**

This section explains the terms "administrator", "supervisor", "user", and "owner" as used in this manual.

#### **Administrator**

There are four types of administrators for the machine: user administrator, machine administrator, network administrator, and file administrator.

Their main role is to specify the settings for operating the machine. Their access privileges depend on the administrator type. Administrators cannot perform normal operations, such as copying and printing.

## Supervisor

There is only one supervisor. The supervisor can specify each administrator's password. For normal operations, a supervisor is not required, because administrators specify their own passwords.

#### User

Users are people using the machine for normal operations, such as copying and printing.

#### Owner

A user who has registered files in the machine under the copier, printer, or other functions is called an owner.

# **Administrators**

Administrators manage user access to the machine and various other important functions and settings.

When an administrator controls limited access and settings, first select the machine's administrator and enable the authentication function before using the machine. When the authentication function is enabled, the login user name and login password are required in order to use the machine. The role of administrator for this machine is divided into four categories according to their function: user administrator, machine administrator, network administrator, and file administrator. Sharing administrator tasks eases the burden on individual administrators while at the same time limiting unauthorized operations by an administrator. Multiple administrator roles can be assigned to one administrator and one role can also be shared by more than one administrator. A supervisor can also be set up, who can then change the administrators' passwords.

Administrators cannot use functions such as copying and printing. To use these functions, the administrator must be authenticated as the user.

For instructions on registering the administrator, see page 18 "Registering and Changing Administrators", and for instructions on changing the administrator's password, see page 25 "Supervisor". For details on Users, see page 29 "Users".



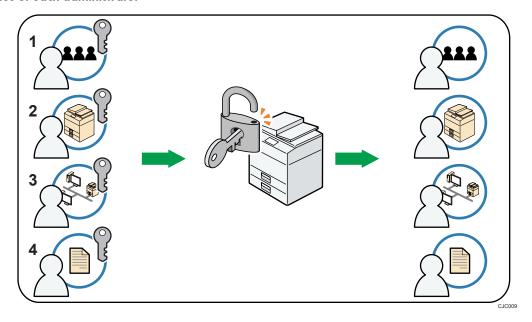
If user authentication is not possible because of a problem with the hard disk or network, you can
use the machine by accessing it using administrator authentication and disabling user
authentication. Do this if, for instance, you need to use the machine urgently.

# **Configuring Administrator Authentication**

Administrator authentication requires the login user name and password for verifying administrators attempting to specify the machine's settings or access them from a network. When registering an administrator, you cannot use a login user name already registered in the Address Book. Administrators are handled differently from the users registered in the Address Book. Windows authentication, LDAP authentication and Integration Server Authentication are not performed for an administrator, so an administrator can log in even if the server is unreachable due to a network problem. Each administrator is identified by a login user name. One person can act as more than one type of administrator if multiple administrator privileges are granted to a single login user name. For instructions on registering the administrator, see page 18 "Registering and Changing Administrators".

You can specify the login user name, login password, and encryption password for each administrator. The encryption password is used for encrypting data transmitted via SNMPv3. It is also used by applications such as SmartDeviceMonitor for Admin/Device Manager NX Lite that use SNMPv3. Administrators are limited to managing the machine's settings and controlling user access, so they cannot use functions such as copying and printing. To use these functions, the administrator must register as a user in the Address Book and then be authenticated as the user. Specify administrator authentication, and then specify user authentication. For details about specifying authentication, see page 31 "Configuring User Authentication".

#### Roles of each administrator



#### 1. User administrator

This is the administrator who manages personal information in the Address Book.

A user administrator can register/delete users in the Address Book or change users' personal information.

Users registered in the Address Book can also change and delete their own information.

If any of the users forget their password, the user administrator can delete it and create a new one, allowing the user to access the machine again.

#### 2. Machine administrator

This is the administrator who mainly manages the machine's default settings. You can set the machine so that the default for each function can only be specified by the machine administrator. By making this setting, you can prevent unauthorized people from changing the settings and allow the machine to be used securely by its many users.

#### 3. Network administrator

This is the administrator who manages the network settings. You can set the machine so that network settings such as the IP address and settings for sending and receiving e-mail can only be specified by the network administrator.

By making this setting, you can prevent unauthorized users from changing the settings and disabling the machine, and thus ensure correct network operation.

#### 4. File administrator

This is the administrator who manages permission to access stored files. You can specify passwords to allow only registered users with permission to view and edit files stored in Document Server. By making this setting, you can prevent data leaks and tampering due to unauthorized users viewing and using the registered data.



- Administrator authentication can also be specified via Web Image Monitor. For details, see Web
  Image Monitor Help.
- You can specify User Code Authentication without specifying administrator authentication.

## **Specifying Administrator Privileges**

To specify administrator authentication, set "Administrator Authentication Management" to [On]. If this setting is enabled, administrators will be able to configure only settings allocated to them.

To log in as an administrator, use the default login user name and login password.

When you log in as an administrator, the default login user name is "admin". The password is not configured by default.

For details about logging in and logging out with administrator authentication, see page 22 "Administrator Login Method" and page 24 "Administrator Logout Method".

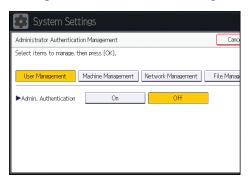
## 

- If you have enabled "Administrator Authentication Management", make sure not to forget the
  administrator login user name and login password. If an administrator login user name or login
  password is forgotten, a new password must be specified using the supervisor's privilege. For
  details on supervisor privileges, see page 25 "Supervisor".
- 1. Press the [User Tools/Counter] key.

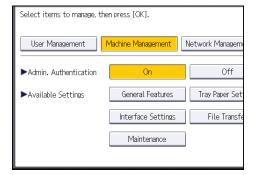
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [▼Next].
- 5. Press [Administrator Authentication Management].



Press [User Management], [Machine Management], [Network Management], or [File Management] to select which settings to manage.



- 7. Set "Admin. Authentication" to [On].
  - "Available Settings" appears.
- 8. Select the settings to manage from "Available Settings".



The selected settings will be unavailable to users.

The available settings depend on the administrator type.

To specify administrator authentication for more than one category, repeat Steps 6 to 8.

- 9. Press [OK].
- 10. Press the [User Tools/Counter] key.

# Registering and Changing Administrators

If administrator authentication has been specified, we recommend only one person take each administrator role.

The sharing of administrator tasks eases the burden on individual administrators while also restricting unauthorized operations by a single administrator. You can register up to four login user names (Administrators 1-4) to which you can grant administrator privileges.

An administrator's privileges can only be changed by an administrator with the relevant privileges.

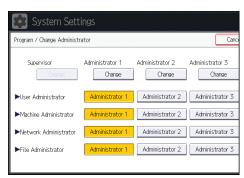
Be sure to assign all administrator privileges so that each administrator privilege is associated with at least one administrator.

For details about logging in and logging out with administrator authentication, see page 22 "Administrator Login Method" and page 24 "Administrator Logout Method".

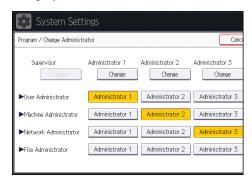
- 1. Log in as an administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [▼Next].
- 5. Press [Program / Change Administrator].



6. In the line for the administrator whose privilege you want to specify, press [Administrator 1], [Administrator 2], [Administrator 3] or [Administrator 4], and then press [Change].



When allocating administrators' privileges to one person each, select one administrator under each category as shown below.



To combine the privileges of multiple administrators, assign multiple administrators to a single administrator.

For example, to assign machine administrator privilege and user administrator privilege to [Administrator 1], press [Administrator 1] in the lines for the machine administrator and the user administrator.

- 7. Press [Change] for "Login User Name".
- 8. Enter the login user name, and then press [OK].
- 9. Press [Change] for "Login Password".
- 10. Enter the login password, and then press [OK].

Follow the password policy to strengthen the login password.

For details about the password policy and how to specify it, see page 253 "Specifying the Extended Security Functions".

- 11. Re-enter the login password for confirmation, and then press [OK].
- 12. Press [Change] for "Encryption Password".
- 13. Enter the encryption password, and then press [OK].

- 14. Re-enter the encryption password for confirmation, and then press [OK].
- 15. Press [OK] twice.

You will be automatically logged out.



• For the characters that can be used for login user names and passwords, see page 20 "Usable characters for user names and passwords".

## Usable characters for user names and passwords

The following characters can be used for login user names and passwords. Names and passwords are case sensitive.

- Upper case letters: A to Z (26 characters)
- Lower case letters: a to z (26 characters)
- Numbers: 0 to 9 (10 characters)
- Symbols: (space)!"#\$%&'()\*+,-./:;<=>?@[\]^\_`{|}~(33 characters)

## Login user name

- · Cannot contain spaces, colons or quotation marks.
- Cannot be comprised of numbers only or cannot be left blank.
- Can be up to 32 characters long.

#### Login password

- The maximum password length for administrators and supervisors is 32 characters; for users it
  is 128 characters.
- Make passwords using a combination of capitals, small letters, numbers, and symbols. The
  more characters, the harder it is for others to guess.
- If the password's complexity and minimum length have been configured in [Password Policy] in [Extended Security], only passwords meeting the requirements can be specified. For details about specifying the password policy, see "Password Policy" in page 253 "Specifying the Extended Security Functions".

# Using Web Image Monitor to Configure Administrator Authentication

Using Web Image Monitor, you can log in to the machine and change the administrator settings. For details about logging in and logging out with administrator authentication, see page 22 "Administrator Login Method" and page 24 "Administrator Logout Method".

- 1. Log in as an administrator from Web Image Monitor.
- 2. Point to [Device Management], and then click [Configuration].

- 3. Click [Administrator Authentication Management] or [Program/Change Administrator] under "Device Settings".
- 4. Change the settings as desired.
- 5. Log out.



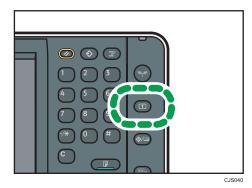
• For details about Web Image Monitor, see Web Image Monitor Help.

# **Administrator Login Method**

If administrator authentication has been specified, log in using an administrator's user name and password. Supervisors log in the same way.

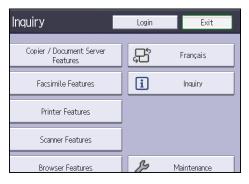
# Logging in Using the Control Panel

- 1. Press the [User Tools/Counter] key.
- 2. Press the [Login/Logout] key.



The login screen appears.

The login screen can also be made to appear by pressing [Login] in the User Tools menu.



3. Press [Login].



1

4. Enter the login user name, and then press [OK].

The default login name for administrators is "admin" and "supervisor" for supervisors.

5. Enter the login password, and then press [OK].

There is no preset default password for administrators or supervisors. Therefore, leave the password field blank and press [OK].

"Authenticating... Please wait." appears, followed by the screen for specifying the default.



- If user authentication has already been specified, a screen for authentication appears. To log in as an administrator, enter the administrator's login user name and login password.
- If you log in using administrator privilege, the name of the administrator logging in appears. When
  you log in with a user name that has multiple administrator privileges, one of the administrator
  privileges associated with that name is displayed.
- If you try to log in from an operating screen, "You do not have the privileges to use this function. You can only change setting(s) as an administrator." appears. Press the [User Tools/Counter] key to change the default.

## Logging in Using Web Image Monitor

- 1. Open a Web browser.
- 2. Enter "http://(the machine's IP address or host name)/" in the address bar.

When entering an IPv4 address, do not begin segments with zeros. For example: If the address is "192.168.001.010", you must enter it as "192.168.1.10" to connect to the machine.

Enter the IPv6 address with brackets before and after, like this: [2001:db8::9abc].

If you set "Permit SSL/TLS Communication" to [Ciphertext Only], enter " https://(the machine's IP address or host name)/" to access the machine.

- 3. Click [Login] at the top right of the window.
- 4. Enter the login name and password of an administrator, and then click [Login].

The default login name for administrators is "admin" and that for supervisors is "supervisor". No login password is set up.



 The Web browser might be configured to auto complete login dialog boxes by retaining user names and passwords. This function reduces security. To prevent the browser retaining user names and passwords, disable the browser's auto complete function.

# **Administrator Logout Method**

If administrator authentication has been specified, be sure to log out after completing settings. Supervisors log out in the same way.

## Logging out Using the Control Panel

- 1. Press the [Login/Logout] key.
- 2. Press [Yes].



- You can log out using the following procedures also.
  - Press the [Energy Saver] key.

## Logging out Using Web Image Monitor

1. Click [Logout] at the top right of the window.



• Delete the cache memory in Web Image Monitor after logging out.

1

# **Supervisor**

The supervisor can delete an administrator's password and specify a new one.

If any of the administrators forgets their password or if any of the administrators changes, the supervisor can assign a new password. If you have logged in using the supervisor's user name and password, you cannot use normal functions or specify system settings. The methods for logging in and out are the same as for administrators. See page 22 "Administrator Login Method" and page 24 "Administrator Logout Method".



- The default login user name is "supervisor". No login password is set up. We recommend changing the login user name and login password.
- For the characters that can be used for login user names and passwords, see page 20 "Usable characters for user names and passwords".
- Be sure not to forget the supervisor login user name and login password. If you do forget them, a
  service representative will have to return the machine to its default state. This will result in the
  machine setting data, counters, logs and other data being lost; consequently, the service call may
  not be free of charge.

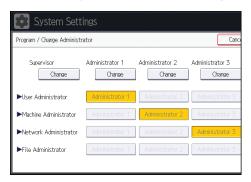


- You cannot specify the same login user name for the supervisor and the administrators.
- Using Web Image Monitor, you can log in as the supervisor and delete an administrator's password or specify a new one.

## Resetting the Administrator's Password

- Log in as the supervisor from the control panel.
   For details on how to log in, see page 22 "Administrator Login Method".
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [VNext].
- 5. Press [Program / Change Administrator].

6. Press [Change] for the administrator you wish to reset.



- 7. Press [Change] for "Login Password".
- 8. Enter the login password, and then press [OK].
- 9. Re-enter the login password for confirmation, and then press [OK].
- 10. Press [OK] twice.

You will be automatically logged out.



The supervisor can change the administrators' login passwords but not their login user names.

## Changing the Supervisor

This section describes how to change the supervisor's login name and password.

To do this, you must enable the user administrator's privileges through the settings under "Administrator Authentication Management". For details, see page 16 "Specifying Administrator Privileges".

- Log in as the supervisor from the control panel.
   For details on how to log in, see page 22 "Administrator Login Method".
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [VNext].
- 5. Press [Program / Change Administrator].
- 6. Under "Supervisor", press [Change].
- 7. Press [Change] for "Login User Name".
- 8. Enter the login user name, and then press [OK].
- 9. Press [Change] for "Login Password".
- 10. Enter the login password, and then press [OK].
- 11. Re-enter the login password for confirmation, and then press [OK].

# 12. Press [OK] twice.

You will be automatically logged out.

# 2. Configuring User Authentication

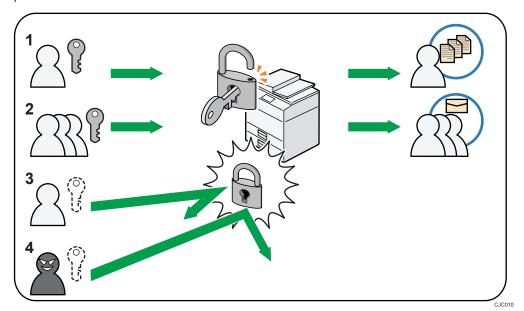
This chapter describes how to specify user authentication and explains the functions that are enabled by user authentication.

# **Users**

A user performs normal operations on the machine, such as copying and printing. Users are managed using the information in the machine's Address Book, and can only use the functions they are permitted to access by administrators. By enabling user authentication, you can allow only people registered in the Address Book to use the machine. Users can be managed in the Address Book by the user administrator. For details about administrator, see page 14 "Administrators". For details about user registration in the Address Book, see "Registering User Information", Connecting the Machine/ System Settings or Web Image Monitor Help.

# **About User Authentication**

User authentication is a system requiring the login user name and password for verifying users to operate the machine or access the machine over the network.



#### 1. User

A user performs normal operations on the machine, such as copying and printing.

## 2. Group

A group performs normal operations on the machine, such as copying and printing.

## 3. Unauthorized user

## 4. Unauthorized access

# **Configuring User Authentication**

There are five types of user authentication methods: User Code authentication, Basic authentication, Windows authentication, LDAP authentication, and Integration Server authentication. To use user authentication, select an authentication method on the control panel, and then make the required settings for the authentication. The settings depend on the authentication method. Specify administrator authentication, and then specify user authentication.



- If user authentication is not possible because of a problem with the hard disk or network, you can
  use the machine by accessing it using administrator authentication and disabling user
  authentication. Do this if, for instance, you need to use the machine urgently.
- You cannot use more than one authentication method at the same time.

### User authentication configuration flow

Configuration procedure	Details
Configuring administrator authentication	page 16 "Specifying Administrator Privileges" page 18 "Registering and Changing Administrators"
Configuring user authentication	Specify user authentication.  Five types of user authentication are available:  • page 34 "User Code Authentication"  • page 37 "Basic Authentication"  • page 42 "Windows Authentication"  • page 52 "LDAP Authentication"  • page 57 "Integration Server Authentication"

#### User authentication methods

Туре	Details
User Code authentication	Authentication is performed using eight-digit user codes.  Authentication is applied to each user code, not to each user.
	It is necessary to register the user code in the machine's address book in advance.

Туре	Details
Basic authentication	Authentication is performed using the machine's address book.
	It is necessary to register users in the machine's address book in advance.
	Authentication can be applied to each user.
Windows authentication	Authentication is performed using the domain controller of the Windows server on the same network as the machine.  Authentication can be applied to each user.
LDAP authentication	Authentication is performed using the LDAP server on the same network as the machine.
	Authentication can be applied to each user.
Integration Server authentication	Authentication is performed using an external authentication server on the same network as the machine.
	This establishes an environment in which authentication is applied collectively to users of devices (such as MFPs and computers) over the network.
	Authentication can be applied to each user.
	To create an external authentication server, software including Authentication Manager (e.g., Remote Communication Gate S) is required.

A user's e-mail address obtained via Windows, LDAP, or Integration Server authentication can be used as the sender's fixed address ("From") when sending e-mails in the scanner mode or when forwarding received faxes in order to prevent ID fraud.

#### If the user authentication method is switched halfway

- A user code account, that has no more than eight digits and is used for User Code
  authentication, can be carried over and used as a login user name even after the
  authentication method has switched from User Code authentication to Basic authentication,
  Windows authentication, LDAP authentication, or Integration Server authentication. In this
  case, since the User Code authentication does not have a password, the login password is set
  as blank.
- When authentication switches to an external authentication method (Windows authentication, LDAP authentication, or Integration Server authentication), authentication will not occur, unless the external authentication device has the carried over user code account previously registered. However, the user code account will remain in the Address Book of the machine despite an authentication failure.

From a security perspective, when switching from User Code authentication to another
authentication method, we recommend that you delete accounts you are not going to use, or
set up a login password. For details about deleting accounts, see "Deleting a Registered
Name", Connecting the Machine/ System Settings. For details about changing passwords,
see page 40 "Specifying Login User Names and Passwords".



- After turning the main power on, extended features may not appear in the list of user authentication items in the User Authentication Management menu. If this happens, wait a while and then open the User Authentication Management menu again.
- User authentication can also be specified via Web Image Monitor. For details, see Web Image Monitor Help.

# **User Code Authentication**

This is an authentication method for limiting access to functions according to a user code. The same user code can be used by more than one user.

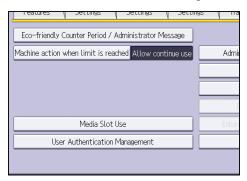
For details about specifying user codes, see "Registering a User Code", Connecting the Machine/ System Settings.

For details about specifying the user code on the printer driver or TWAIN driver, see the driver help.

For details about specifying the LAN-Fax driver user code, see the LAN-Fax driver Help.



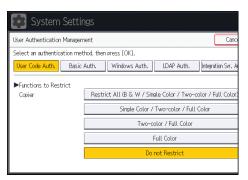
- To control the use of DeskTopBinder for the delivery of files stored in the machine, select Basic authentication, Windows authentication, LDAP authentication, or Integration Server authentication.
- 1. Log in as the machine administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [▼Next].
- 5. Press [User Authentication Management].



6. Select [User Code Auth.].

If you do not want to use user authentication management, select [Off].

7. In "Functions to Restrict", select the functions that you want to restrict.



If the function you want to select is not displayed, press [♥Next].

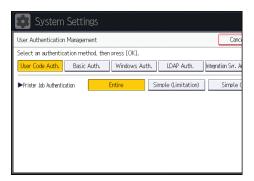
The selected functions are subject to User Code authentication. User Code authentication is not applied to the functions not selected.

For details about limiting available functions for individuals or groups, see page 78 "Limiting Available Functions".

8. To specify printer job authentication, select an item other than [PC Control] for "Printer" under "Functions to Restrict".

If you do not want to specify printer job authentication, proceed to step 14.

- 9. Press [▼Next].
- 10. Select the "Printer Job Authentication" level.

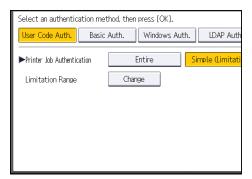


For a description of the printer job authentication levels, see page 62 "Printer Job Authentication".

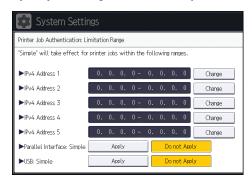
If you select [Entire] or [Simple (All)], proceed to step 14.

If you select [Simple (Limitation)], proceed to step 11.

#### 11. Press [Change].



12. Specify the range in which [Simple (Limitation)] is applied to "Printer Job Authentication".



You can specify the IPv4 address range to which this setting is applied, and whether or not to apply the setting to the parallel and USB interfaces.

- 13. Press [Exit].
- 14. Press [OK].
- 15. Press the [Login/Logout] key.

A confirmation message appears.

If you press [Yes], you will be automatically logged out.

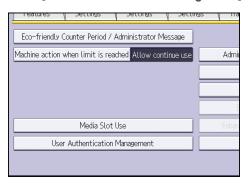
# **Basic Authentication**

Specify this authentication method when using the machine's Address Book to authenticate each user. Using Basic authentication, you can not only manage the machine's available functions but also limit access to stored files and to the Address Book. Under Basic authentication, the administrator must specify the functions available to each user registered in the Address Book. For details about limitation of functions, see page 39 "Authentication Information Stored in the Address Book".

### **Specifying Basic Authentication**

Before beginning to configure the machine, make sure that administrator authentication is properly configured under "Administrator Authentication Management".

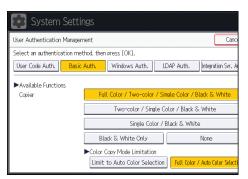
- 1. Log in as the machine administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [VNext].
- 5. Press [User Authentication Management].



6. Select [Basic Auth.].

If you do not want to use user authentication management, select [Off].

7. In "Available Functions", select which of the machine's functions you want to permit.

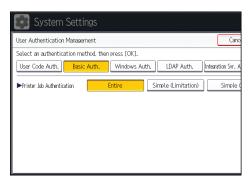


If the function you want to select is not displayed, press [♥Next].

The functions you select here become the default Basic Authentication settings that will be assigned to all new users of the Address Book.

For details about specifying available functions for individuals or groups, see page 78 "Limiting Available Functions".

- 8. Press [▼Next].
- 9. Select the "Printer Job Authentication" level.

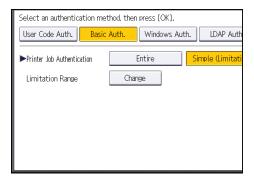


For a description of the printer job authentication levels, see page 62 "Printer Job Authentication".

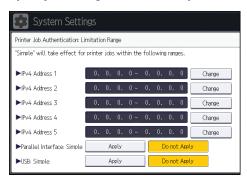
If you select [Entire] or [Simple (All)], proceed to step 13.

If you select [Simple (Limitation)], proceed to step 10.

#### 10. Press [Change].



11. Specify the range in which [Simple (Limitation)] is applied to "Printer Job Authentication".



You can specify the IPv4 address range to which this setting is applied, and whether or not to apply the setting to the parallel and USB interfaces.

- 12. Press [Exit].
- 13. Press [OK].
- 14. Press the [Login/Logout] key.

A confirmation message appears.

If you press [Yes], you will be automatically logged out.

### Authentication Information Stored in the Address Book

If you have enabled user authentication, you can specify access limits and usage limits to the machine's functions for each user or group of users. Specify the necessary settings in the Address Book entry of each user. For details about limiting which functions of the machine are available, see page 78 "Limiting Available Functions".

Users must have a registered account in the Address Book in order to use the machine when user authentication is specified. For details about user registration in the Address Book, see "Registering User Information", Connecting the Machine/ System Settings.

2

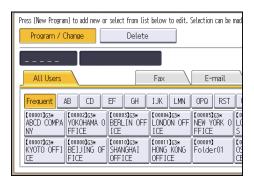
User authentication can also be specified via Web Image Monitor. For details, see Web Image Monitor Help.

### Specifying Login User Names and Passwords

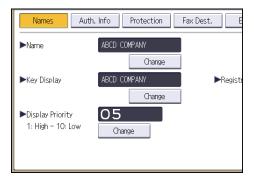
In "Address Book Management", specify the login user name and login password to be used for "User Authentication Management".

For the characters that can be used for login user names and passwords, see page 20 "Usable characters for user names and passwords".

- 1. Log in as the user administrator from the control panel.
- 2. Press [Address Book Mangmnt].
- 3. Select the user.



4. Press [Auth. Info].



- 5. Press [Change] for "Login User Name".
- 6. Enter a login user name, and then press [OK].
- 7. Press [Change] for "Login Password".
- 8. Enter a login password, and then press [OK].
- 9. Re-enter the login password for confirmation, and then press [OK].
- 10. Press [OK].

- 11. Press [Exit].
- 12. Log out.

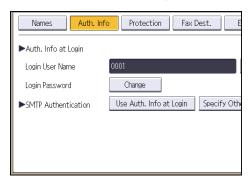
### **Specifying Login Details**

The login user name and password specified in "Address Book Management" can be used as the login information for "SMTP Authentication", "Folder Authentication", and "LDAP Authentication".

If you do not want to use the login user name and password specified in "Address Book Management" for "SMTP Authentication", "Folder Authentication", or "LDAP Authentication", see "Registering Folders" and "Registering SMTP and LDAP Authentication", Connecting the Machine/ System Settings.

### 

- When using "Use Auth. Info at Login" for "SMTP Authentication", "Folder Authentication", or "LDAP Authentication", a user name other than "other", "admin", "supervisor" or "HIDE\*\*\*" must be specified. The symbol "\*\*\*" represents any character.
- 1. Log in as the user administrator from the control panel.
- 2. Press [Address Book Mangmnt].
- 3. Select the user.
- 4. Press [Auth. Info].
- 5. Select [Use Auth. Info at Login] in "SMTP Authentication".



For folder authentication, select [Use Auth. Info at Login] in "Folder Authentication".

For LDAP authentication, select [Use Auth. Info at Login] in "LDAP Authentication".

If the function you want to select is not displayed, press [▼Next].

- 6. Press [OK].
- 7. Press [Exit].
- 8. Log out.

# Windows Authentication

Specify this authentication when using the Windows domain controller to authenticate users who have their accounts on the directory server. Users cannot be authenticated if they do not have their accounts in the directory server. Under Windows authentication, you can specify the access limit for each group registered in the directory server. The Address Book stored in the directory server can be registered to the machine, enabling user authentication without first using the machine to register individual settings in the Address Book. Obtaining user information can prevent the use of false identities because the sender's address (From:) is determined by the authentication system when scanned data is sent or a received fax message is transferred via e-mail.

The first time you access the machine, you can use the functions available to your group. If you are not registered in a group, you can use the functions available under "\*Default Group". To limit which functions are available to which users, first make settings in advance in the Address Book.

To automatically register user information such as fax numbers and e-mail addresses under Windows authentication, it is recommended that communication between the machine and domain controller be encrypted using SSL. To do this, you must create a server certificate for the domain controller. For details about creating a server certificate, see page 50 "Creating the Server Certificate".

Windows authentication can be performed using one of two authentication methods: NTLM or Kerberos authentication. The operational requirements for both methods are listed below.

#### Operational requirements for NTLM authentication

To specify NTLM authentication, the following requirements must be met:

- This machine supports NTLMv1 authentication and NTLMv2 authentication.
- A domain controller has been set up in a designated domain.
- This function is supported by the operating systems listed below. To obtain user information
  when running Active Directory, use LDAP. If you are using LDAP, we recommend you use SSL
  to encrypt communication between the machine and the LDAP server. Encryption by SSL is
  possible only if the LDAP server supports TLSv1 or SSLv3.
  - Windows Server 2003/2003 R2
  - Windows Server 2008/2008 R2
  - Windows Server 2012

#### Operational requirements for Kerberos authentication

To specify Kerberos authentication, the following requirements must be met:

- A domain controller must be set up in a designated domain.
- The operating system must support KDC (Key Distribution Center). To obtain user information
  when running Active Directory, use LDAP. If you are using LDAP, we recommend you use SSL
  to encrypt communication between the machine and the LDAP server. Encryption by SSL is
  possible only if the LDAP server supports TLSv1 or SSLv3. Compatible operating systems are
  listed below.

- Windows Server 2003/2003 R2
- Windows Server 2008/2008 R2
- Windows Server 2012

To use Kerberos authentication under Windows Server 2008, Service Pack 2 or later must be installed.

 Transmission between the machine and the KDC server is encrypted if Kerberos authentication is enabled. For details about specifying encrypted transmission, see page 169 "Kerberos Authentication Encryption Setting".

### Mportant (

- During Windows Authentication, data registered in the directory server, such as the user's e-mail
  address, is automatically registered in the machine. If user information on the server is changed,
  information registered in the machine may be overwritten when authentication is performed.
- Users managed in other domains are subject to user authentication, but they cannot obtain items such as e-mail addresses.
- If Kerberos authentication and SSL encryption are set at the same time, e-mail addresses cannot be obtained.
- If you created a new user in the domain controller and selected "User must change password at next logon" at password configuration, first log on to the computer and change the password.
- If the authenticating server only supports NTLM when Kerberos authentication is selected on the machine, the authenticating method will automatically switch to NTLM.
- When using Windows authentication, the login name is case sensitive. If you make a mistake, the
  user's login name will be added to the address book. You should delete the added user.
- If the "Guest" account on the Windows server is enabled, even users not registered in the domain controller can be authenticated. When this account is enabled, users are registered in the Address Book and can use the functions available under "\*Default Group".

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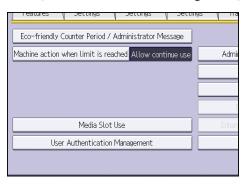
- For the characters that can be used for login user names and passwords, see page 20 "Usable characters for user names and passwords".
- When accessing the machine subsequently, you can use all the functions available to your group and to you as an individual user.
- Users who are registered in multiple groups can use all the functions available to those groups.
- Under Windows Authentication, you do not have to create a server certificate unless you want to automatically register user information such as fax numbers and e-mail addresses using SSL.
- If you fail in obtaining fax information during authentication, see page 50 "If the Fax Number Cannot be Obtained".

# 2

### **Specifying Windows Authentication**

Before beginning to configure the machine, make sure that administrator authentication is properly configured under "Administrator Authentication Management".

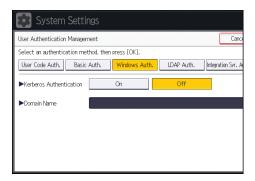
- 1. Log in as the machine administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [Vext].
- 5. Press [User Authentication Management].



6. Select [Windows Auth.].

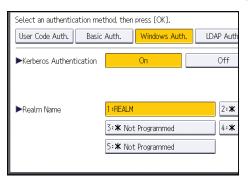
If you do not want to use user authentication management, select [Off].

7. If you want to use Kerberos authentication, press [On].



If you want to use NTLM authentication, press [Off] and proceed to step 9.

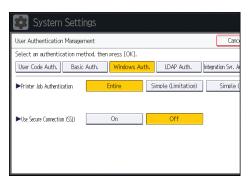
8. Select Kerberos authentication realm and proceed to step 10.



To enable Kerberos authentication, a realm must be registered beforehand. The realm name must be registered in capital letters. For details about registering a realm, see "Programming the Realm", Connecting the Machine/ System Settings.

Up to 5 realms can be registered.

- 9. Press [Change] for "Domain Name", enter the name of the domain controller to be authenticated, and then press [OK].
- 10. Press [▼Next].
- 11. Select the "Printer Job Authentication" level.

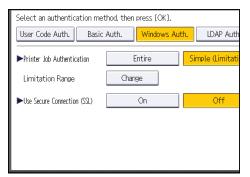


For a description of the printer job authentication levels, see page 62 "Printer Job Authentication".

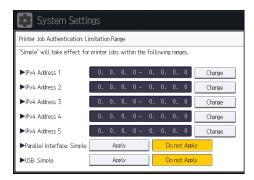
If you select [Entire] or [Simple (All)], proceed to step 15.

If you select [Simple (Limitation)], proceed to step 12.

#### 12. Press [Change].



13. Specify the range in which [Simple (Limitation)] is applied to "Printer Job Authentication".



You can specify the IPv4 address range to which this setting is applied, and whether or not to apply the setting to the parallel and USB interfaces.

#### 14. Press [Exit].

#### 15. Press [On] for "Use Secure Connection (SSL)".

If you are not using secure sockets layer (SSL) for authentication, press [Off].

If you have not registered a global group, proceed to step 22.

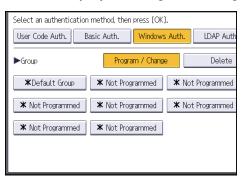
If you have registered a global group, proceed to step 16.

If global groups have been registered under Windows server, you can limit the use of functions for each global group.

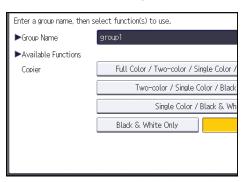
You need to create global groups in the Windows server in advance and register in each group the users to be authenticated. You also need to register in the machine the functions available to the global group members. Create global groups in the machine by entering the names of the global groups registered in the Windows Server. (Keep in mind that group names are case sensitive.) Then specify the machine functions available to each group.

If global groups are not specified, users can use the available functions specified in [\*Default Group]. If global groups are specified, users not registered in global groups can use the available functions specified in [\*Default Group]. By default, all functions are available to \*Default Group members. Specify the limitation on available functions according to user needs.

- 16. Press [▼Next].
- 17. Under "Group", press [Program / Change], and then press [\* Not Programmed].



- 18. Press [Change] for "Group Name", and then enter the group name.
- 19. Press [OK].
- 20. In "Available Functions", select which of the machine's functions you want to permit.



If the function you want to select is not displayed, press [▼Next].

Windows Authentication will be applied to the selected functions.

Users can use the selected functions only.

For details about specifying available functions for individuals or groups, see page 78 "Limiting Available Functions".

- 21. Press [OK].
- 22. Press [OK].
- 23. Press the [Login/Logout] key.

A confirmation message appears.

If you press [Yes], you will be automatically logged out.

### Installing Internet Information Services (IIS) and Certificate Services

Specify this setting if you want the machine to automatically obtain e-mail addresses registered in Active Directory.

We recommend you install Internet Information Services (IIS) and Certificate services as the Windows components.

Install the components, and then create the server certificate.

If they are not installed, install them as follows:

#### Installation under Windows Server 2008 R2

- 1. On the [Start] menu, point to [Administrative Tools], and then click [Server Manager].
- 2. Click [Roles] in the left column, click [Add Roles] from the [Action] menu.
- 3. Click [Next>].
- 4. Select the "Web Server (IIS)" and "Active Directory Certificate Services" check boxes, and then click [Next>].

If a confirmation message appears, click [Add Features].

- 5. Read the content information, and then click [Next>].
- 6. Check that [Certification Authority] is checked, and then click [Next>].
- 7. Select [Enterprise], and then click [Next>].
- 8. Select [Root CA], and then click [Next>].
- 9. Select [Create a new private key], and then click [Next>].
- 10. Select a cryptographic service provider, key length, and hash algorithm to create a new private key, and then click [Next>].
- In "Common name for this CA:", enter the Certificate Authority name, and then click [Next>].
- Select the validity period, and then click [Next>].
- 13. Leave the "Certificate database location:" and the "Certificate database log location:" settings set to their defaults, and then click [Next>].
- 14. Read the notes, and then click [Next>].
- 15. Select the role service you want to use, and then click [Next>].
- 16. Click [Install].
- 17. When the installation is complete, click [Close].
- 18. Close [Server Manager].

#### Installation under Windows Server 2012

- 1. On the Start screen, click [Server Manager].
- 2. On the [Manage] menu, click [Add Roles and Features].
- 3. Click [Next>].
- 4. Select [Role-based or feature-based installation], and then click [Next>].
- 5. Select a server.
- Select the "Active Directory Certificate Services" and "Web Server (IIS)" check boxes, and then click [Next>].
  - If a confirmation message appears, click [Add Features].
- 7. Check the features you want to install, and then click [Next>].
- 8. Read the content information, and then click [Next>].
- Make sure that [Certification Authority] is selected in the [Role Services] area in [Active Directory Certificate Services], and then click [Next>].
- 10. Read the content information, and then click [Next>].
- Check the role services you want to install under [Web Server (IIS)], and then click [Next>].
- 12. Click [Install].
- 13. After completing the installation, click the Server Manager's Notification icon ..., and then click [Configure Active Directory Certificate Services on the destination server].
- 14. Click [Next>].
- 15. Click [Certification Authority] in the [Role Services] area, and then click [Next>].
- 16. Select [Enterprise CA], and then click [Next>].
- 17. Select [Root CA], and then click [Next>].
- 18. Select [Create a new private key], and then click [Next>].
- 19. Select a cryptographic provider, key length, and hash algorithm to create a new private key, and then click [Next>].
- In "Common name for this CA:", enter the Certificate Authority name, and then click [Next>].
- 21. Select the validity period, and then click [Next>].
- 22. Leave the "Certificate database location:" and the "Certificate database log location:" settings set to their defaults, and then click [Next>].
- 23. Click [Configure].
- 24. If the message "Configuration succeeded" appears, click [Close].

### **Creating the Server Certificate**

After installing Internet Information Services (IIS) and Certificate services Windows components, create the Server Certificate as follows:

Windows Server 2008 R2 is used to illustrate the procedure.

 On the [Start] menu, point to [Administrative Tools], and then click [Internet Information Services (IIS) Manager].

Under Windows Server 2012, click [Internet Information Services (IIS) Manager] on the Start screen.

When the confirmation message appears, click [Yes].

- 2. In the left column, click the server name, and then double-click [Server Certificates].
- 3. In the right column, click [Create Certificate Request...].
- 4. Enter all the information, and then click [Next].
- 5. In "Cryptographic service provider:", select a provider, and then click [Next].
- 6. Click [...], and then specify a file name for the certificate request.
- 7. Specify a location in which to store the file, and then click [Open].
- 8. Close [Internet Information Services (IIS) Manager] by clicking [Finish].

#### If the Fax Number Cannot be Obtained

If the fax number cannot be obtained during authentication, specify the setting as follows:

Windows Server 2008 R2 is used to illustrate the procedure.

 From the [Start] menu, point to [All Programs], click [Accessories], and then click [Command Prompt].

Under Windows Server 2012, right-click on the Start screen, click [All Apps], and then click [Command Prompt].

- 2. Enter "regsvr32 schmmgmt.dll", and then press the [Enter] key.
- Click [OK], and then close the command prompt window.
- 4. On the [Start] menu, click [Run...].

Under Windows Server 2012, right-click on the Start page, click [All Apps], and then click [Run].

- 5. Enter "mmc", and then click [OK].
- 6. On the [File] menu, click [Add/Remove Snap-in...].
- 7. Select [Active Directory Scheme], and then click [Add>].
- 8. Click [OK].

- 9. Click [Active Directory Scheme] in the left column, and then open the [Attributes] folder.
- 10. Right-click [facsimileTelephoneNumber], and then click [Properties].
- Select the "Replicate this attribute to the Global Catalog" check box, and then click [Apply].
- 12. Click [OK].
- 13. On the [File] menu, click [Save].
- 14. Specify a file name and a location in which to store the file, and then click [Save].
- 15. Close the console window.

# LDAP Authentication

Specify this authentication method when using the LDAP server to authenticate users who have their accounts on the LDAP server. Users cannot be authenticated if they do not have their accounts on the LDAP server. The Address Book stored in the LDAP server can be registered to the machine, enabling user authentication without first using the machine to register individual settings in the Address Book. When using LDAP authentication, to prevent the password information being sent over the network unencrypted, it is recommended that communication between the machine and LDAP server be encrypted using SSL. You can specify on the LDAP server whether or not to enable SSL. To do this, you must create a server certificate for the LDAP server. For details about creating a server certificate, see page 50 "Creating the Server Certificate". The setting for using SSL can be specified in the LDAP server setting.

Using Web Image Monitor, you can enable a function that checks whether the SSL server is trustworthy when you connect to the server. For details about specifying LDAP authentication using Web Image Monitor, see Web Image Monitor Help.

When you select Cleartext authentication, LDAP Simplified authentication is enabled. Simplified authentication can be performed with a user attribute (such as cn, or uid), instead of the DN.

To enable Kerberos for LDAP authentication, a realm must be registered beforehand. The realm must be programmed in capital letters. For details about registering a realm, see "Programming the Realm", Connecting the Machine/System Settings.



- During LDAP authentication, the data registered in the LDAP server, such as the user's e-mail
  address, is automatically registered in the machine. If user information on the server is changed,
  information registered in the machine may be overwritten when authentication is performed.
- Under LDAP authentication, you cannot specify access limits for groups registered in the directory server.
- Do not use double-byte Japanese, Traditional Chinese, Simplified Chinese, or Hangul characters
  when entering the login user name or password. If you use double-byte characters, you cannot
  authenticate using Web Image Monitor.
- If using Active Directory in LDAP authentication when Kerberos authentication and SSL are set at the same time, e-mail addresses cannot be obtained.
- Under LDAP authentication, if "Anonymous Authentication" in the LDAP server's settings is not set to Prohibit, users who do not have an LDAP server account might still be able to gain access.
- If the LDAP server is configured using Windows Active Directory, "Anonymous Authentication" might be available. If Windows authentication is available, we recommend you use it.

#### Operational requirements for LDAP authentication

To specify LDAP authentication, the following requirements must be met:

The network configuration must allow the machine to detect the presence of the LDAP server.

- When SSL is being used, TLSv1 or SSLv3 can function on the LDAP server.
- The LDAP server must be registered in the machine.
- When registering the LDAP server, the following setting must be specified.
  - Server Name
  - Search Base
  - Port Number
  - SSL communication
  - Authentication

Select either Kerberos, DIGEST, or Cleartext authentication.

User Name

You do not have to enter the user name if the LDAP server supports "Anonymous Authentication".

Password

You do not have to enter the password if the LDAP server supports "Anonymous Authentication".

For details about registering an LDAP server, see "Programming the LDAP server", Connecting the Machine/System Settings.

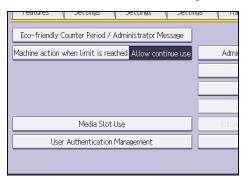


- For the characters that can be used for login user names and passwords, see page 20 "Usable characters for user names and passwords".
- In LDAP simple authentication mode, authentication will fail if the password is left blank. To allow blank passwords, contact your service representative.
- The first time an unregistered user accesses the machine after LDAP authentication has been specified, the user is registered in the machine and can use the functions available under "Available Functions" during LDAP authentication. To limit the available functions for each user, register each user and corresponding "Available Functions" setting in the Address Book, or specify "Available Functions" for each registered user. The "Available Functions" setting becomes effective when the user accesses the machine subsequently.
- Transmission between the machine and the KDC server is encrypted if Kerberos authentication is enabled. For details about specifying encrypted transmission, see page 169 "Kerberos Authentication Encryption Setting".

Before beginning to configure the machine, make sure that administrator authentication is properly configured under "Administrator Authentication Management".

- 1. Log in as the machine administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].

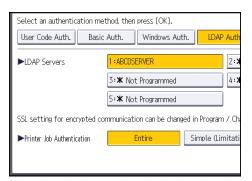
- 4. Press [Vext].
- 5. Press [User Authentication Management].



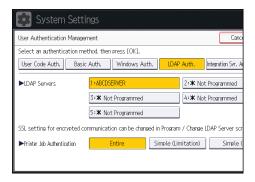
6. Select [LDAP Auth.].

If you do not want to use user authentication management, select [Off].

7. Select the LDAP server to be used for LDAP authentication.



8. Select the "Printer Job Authentication" level.

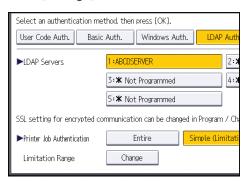


For a description of the printer job authentication levels, see page 62 "Printer Job Authentication".

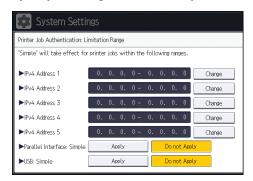
If you select [Entire] or [Simple (All)], proceed to step 12.

If you select [Simple (Limitation)], proceed to step 9.

#### 9. Press [Change].

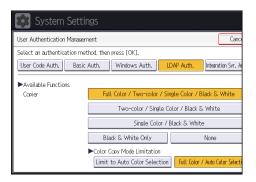


10. Specify the range in which [Simple (Limitation)] is applied to "Printer Job Authentication".



You can specify the IPv4 address range to which this setting is applied, and whether or not to apply the setting to the parallel and USB interfaces.

- 11. Press [Exit].
- 12. Press [Vext].
- 13. In "Available Functions", select which of the machine's functions you want to permit.



If the function you want to select is not displayed, press [▼Next].

LDAP authentication will be applied to the selected functions.

Users can use the selected functions only.

2

For details about specifying available functions for individuals or groups, see page 78 "Limiting Available Functions".

- 14. Press [VNext].
- 15. Press [Change] for "Login Name Attribute".
- 16. Enter the login name attribute, and then press [OK].

Use the login name attribute as a search criterion to obtain information about an authenticated user. You can create a search filter based on the login name attribute, select a user, and then retrieve the user information from the LDAP server so it is transferred to the machine's Address Book.

To specify multiple login attributes, place a comma (,) between them. The search will return hits for either or both attributes.

Also, if you place an equals sign (=) between two login attributes (for example: cn=abcde, uid=xyz), the search will return only hits that match the attributes. This search function can also be applied when Cleartext authentication is specified.

When authenticating using the DN format, login attributes do not need to be registered.

The method for selecting the user name depends on the server environment. Check the server environment and enter the user name accordingly.

- 17. Press [Change] for "Unique Attribute".
- 18. Enter the unique attribute and then press [OK].

Specify unique attribute on the machine to match the user information in the LDAP server with that in the machine. By doing this, if the unique attribute of a user registered in the LDAP server matches that of a user registered in the machine, the two instances are treated as referring to the same user. You can enter an attribute such as "serialNumber" or "uid". Additionally, you can enter "cn" or "employeeNumber", provided it is unique. If you do not specify the unique attribute, an account with the same user information but with a different login user name will be created in the machine.

- 19. Press [OK].
- 20. Press the [Login/Logout] key.

A confirmation message appears.

If you press [Yes], you will be automatically logged out.

# Integration Server Authentication

For external authentication, the Integration Server authentication collectively authenticates users accessing the server over the network, providing a server-independent, centralized user authentication system that is safe and convenient.

For example, if the delivery server and the machine share the same Integration Server authentication, single sign-on is possible using DeskTopBinder.

To use the Integration Server authentication, software featuring Authentication Manager (e.g., Remote Communication Gate S) is required. For details about supported software, contact your sales representative.

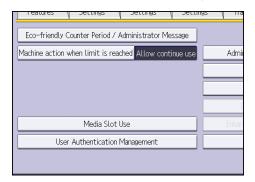
Using Web Image Monitor, you can specify that the server reliability and site certificate are checked every time you access the SSL server. For details about specifying SSL using Web Image Monitor, see Web Image Monitor Help.



- During Integration Server Authentication, the data registered in the server, such as the user's e-mail
  address, is automatically registered in the machine. If user information on the server is changed,
  information registered in the machine may be overwritten when authentication is performed.
- The default administrator name for ScanRouter System and Remote Communication Gate S is "Admin". This is different from the default administrator name for the machine, which is "admin".

Before beginning to configure the machine, make sure that administrator authentication is properly configured under "Administrator Authentication Management".

- 1. Log in as the machine administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [VNext].
- 5. Press [User Authentication Management].



6. Select [Integration Svr. Auth.].

If you do not want to use user authentication management, select [Off].

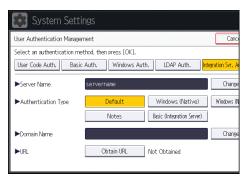
#### 7. Press [Change] for "Server Name".

Specify the name of the server for external authentication.

8. Enter the server name, and then press [OK].

Enter the IPv4 address or host name.

9. In "Authentication Type", select the authentication system for external authentication.



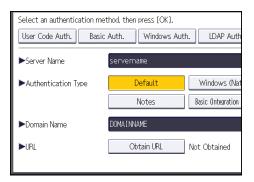
Select an available authentication system. For general usage, select [Default].

#### 10. Press [Change] for "Domain Name".

#### 11. Enter the domain name, and then press [OK].

You cannot specify a domain name under an authentication system that does not support domain login.

#### 12. Press [Obtain URL].



The machine obtains the URL of the server specified in "Server Name".

If "Server Name" or the setting for enabling SSL is changed after obtaining the URL, the URL is "Not Obtained".

#### 13. Press [Exit].

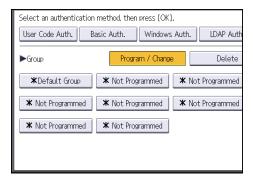
If you have not registered a group on the external authentication system being used, proceed to step 20.

If you have registered a group, proceed to step 14.

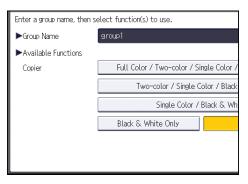
If you set "Authentication Type" to [Windows (Native)] or [Windows (NT Compatible)], you can use the global group.

If you set "Authentication Type" to [Notes], you can use the Notes group. If you set "Authentication Type" to [Basic (Integration Server)], you can use the groups created using the Authentication Manager.

- 14. Press [Vext].
- 15. Press [Program / Change] for "Group", and then press [\* Not Programmed].



- 16. Press [Change] for "Group Name", and then enter the group name.
- 17. Press [OK].
- 18. In "Available Functions", select which of the machine's functions you want to permit.



If the function you want to select is not displayed, press [▼Next].

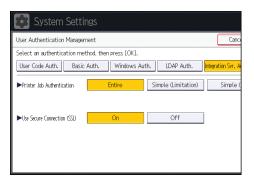
Authentication will be applied to the selected functions.

Users can use the selected functions only.

For details about specifying available functions for individuals or groups, see page 78 "Limiting Available Functions".

- 19. Press [OK].
- 20. Press [VNext].

#### 21. Select the "Printer Job Authentication" level.



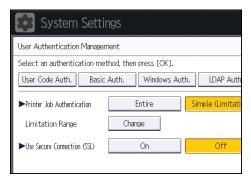
If you cannot see this item, press [▼Next] to display more settings.

For a description of the printer job authentication levels, see page 62 "Printer Job Authentication".

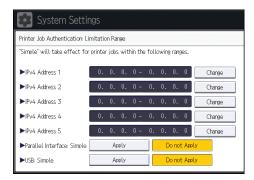
If you select [Entire] or [Simple (All)], proceed to step 25.

If you select [Simple (Limitation)], proceed to step 22.

#### 22. Press [Change].



23. Specify the range in which [Simple (Limitation)] is applied to "Printer Job Authentication".



You can specify the IPv4 address range to which this setting is applied, and whether or not to apply the setting to the parallel and USB interfaces.

#### 24. Press [Exit].

### 25. Press [On] for "Use Secure Connection (SSL)", and then press [OK].

To not use secure sockets layer (SSL) for authentication, press [Off].

### 26. Press [OK].

### 27. Press the [Login/Logout] key.

A confirmation message appears.

If you press [Yes], you will be automatically logged out.

# **Printer Job Authentication**

Printer job authentication is a function allowing user authentication to be applied to print jobs.

User authentication is supported by the PCL and PostScript3 drivers. The PostScript3 driver supports User Code authentication only.

#### **Printer Job Authentication Levels**

The security level for "Entire" is the highest, followed by "Simple (Limitation)", and at the bottom, "Simple (All)".

Entire

Select this to authenticate all print jobs and remote configuration.

The machine authenticates all printer jobs and remote settings, and cancels jobs and settings that fail authentication.

To print in an environment that does not support authentication, select [Simple (All)] or [Simple (Limitation)].

• Simple (Limitation)

Select this to restrict the range of [Simple (All)].

The specified range can be printed regardless of the authentication. Authentication will be applied to addresses outside this range.

You can specify whether to apply [Simple (All)] to parallel connection, USB connection, and the user's IPv4 address. The range of application to IPv6 addresses can be configured from Web Image Monitor.

Simple (All)

Select this if you want to print with a printer driver or device that cannot be identified by the machine or if authentication is not required for printing.

Printer jobs and settings without authentication information are performed without being authenticated.

The machine authenticates printer jobs and remote settings that have authentication information, and cancels the jobs and settings that fail authentication.

Unauthorized users may be able to use the machine since printing is allowed without user authentication.

### **Printer Job Types**

Depending on the combination of printer job authentication level and printer job type, the machine may not print properly. Set an appropriate combination according to the operating environment.

When user authentication is disabled, printing is possible for all job types.

#### Printer job types: A printer job is specified when:

- The [User Authentication] check box is selected in the PCL printer driver or in the PCL universal driver.
- 2. The [User Authentication] and [With Encryption] check boxes are selected in the PCL minidriver\*.
  - \* The authentication function cannot be used with IA-64 OS.
- 3. The [User Authentication] check box is selected in the PCL mini-driver.
- 4. The [User Authentication] check box is not selected in the PCL printer driver or in the PCL minidriver\*.
  - \* The authentication function cannot be used with IA-64 OS.
- 5. When the User Code is entered using the PostScript 3 printer driver or PS3 universal driver.

  This also applies to recovery/parallel printing using a PCL printer driver that does not support authentication.
- 6. When the User Code is not entered using the PostScript 3 printer driver or PS3 universal driver. This also applies to recovery/parallel printing using a PCL printer driver that does not support authentication.
- 7. A printer job or PDF file is sent from a host computer that does not have a printer driver and is printed via LPR or PictBridge. This can be also applied to Mail to Print. For details about Mail to Print, see "Receiving E-mail by Internet Fax/Mail to Print", Fax.
- 8. A PDF file is printed via ftp. Personal authentication is performed using the user ID and password used for logging in via ftp. However, the user ID and password are not encrypted.

#### Printer job authentication levels and printer job types

Printer Job Authenticati on	Simple (All)	Simple (All)	Simple (All)	Entire	Entire	Entire
Driver Encryption Key:Encryp tion Strength	Simple Encryption	DES	AES	Simple Encryption	DES	AES
Printer Job Type 1	C*1	C*1	C*1	C*1	C*1	C*1
Printer Job Type 2	C*1	C*1	X*1	C*1	C*1	X*1

Printer Job Authenticati on	Simple (All)	Simple (All)	Simple (All)	Entire	Entire	Entire
Driver Encryption Key:Encryp tion Strength	Simple Encryption	DES	AES	Simple Encryption	DES	AES
Printer Job Type 3	В	X*1	X*1	В	X*1	X*1
Printer Job Type 4	Х	Х	Х	Х	Х	Х
Printer Job Type 5	А	А	А	В	В	В
Printer Job Type 6	А	А	А	Х	Х	Х
Printer Job Type 7	А	А	А	Х	Х	Х
Printer Job Type 8	В	В	В	В	В	В

<sup>\*1</sup> Printing with User Code authentication is classified as B.

A: Printing is possible regardless of user authentication.

B: Printing is possible if user authentication is successful. If user authentication fails, the print job is reset.

C: Printing is possible if user authentication is successful and "Driver Encryption Key" for the printer driver and machine match.

X: Printing is not possible regardless of user authentication, and the print job is reset.



• For details about "Driver Encryption Key:Encryption Strength", see page 253 "Specifying the Extended Security Functions".

#### "authfree" Command

If [Simple (Limitation)] is selected under printer job authentication, the telnet authfree command can be used to specify exceptions to the printer job authentication.

The default user name for logging into telnet is "admin". The password is not configured by default. For details about logging into and using telnet, see "Remote Maintenance Using telnet", Connecting the Machine/ System Settings.

#### View settings

msh> authfree

If print job authentication exclusion is not specified, authentication exclusion control is not displayed.

#### IPv4 address settings

```
msh> authfree "ID" range "start-address" "end-address"
```

#### IPv6 address settings

```
msh> authfree "ID" range6 "start-address" "end-address"
```

#### IPv6 address mask settings

```
msh> authfree "ID" mask6 "base-address" "masklen"
```

#### Parallel/USB settings

msh> authfree [parallel|usb] [on|off]

- To exclude parallel and USB connections from printer job authentication, set this to "on". The
  default setting is "off".
- Always specify either "parallel" or "USB".

"parallel" can be specified when an optional IEEE 1284 interface board is installed.

#### Authentication exclusion control initialization

msh> authfree flush



• In both IPv4 and IPv6 environments, up to five access ranges can be registered and selected.

# Auto Registration to the Address Book

The personal information of users logging in via Windows, LDAP or Integration Server authentication is automatically registered in the Address Book. Any other information may be specified by copying from other registered users.

# **Automatically Registered Address Book Items**

- Login User Name
- Login Password
- Registration No.
- Name\*1
- Key Display\*1
- E-mail Address\*2
- Protect File(s)

Permissions for Users / Groups \*3

- \* 1 If this information cannot be obtained, the login user name is registered in this field.
- \*2 If this information cannot be obtained, auto registration does not work.
- \*3 If [Data Carry-over Setting for Address Book Auto-program] is set to [Carry-over Data], it has priority.

### **U** Note

 You can automatically delete old user accounts when performing auto registration if the amount of data registered in the address book has reached the limit. For details, see page 252 "Managing the Address Book".

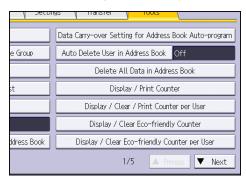
## Data Carry-over Setting for Address Book Auto-program

Information that is not automatically registered in the Address Book can be copied from an already registered user and then registered.

- 1. Log in as the user administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].

2

4. Press [Data Carry-over Setting for Address Book Auto-program].



- 5. Press [Carry-over Data].
- 6. Use the number keys to enter the registration number of the Address Book to apply the specified setting, and then press [#].
- 7. Press [OK].
- 8. Press the [Login/Logout] key.

A confirmation message appears.

If you press [Yes], you will be automatically logged out.

# **User Lockout Function**

If an incorrect password is entered several times, the User Lockout function prevents further login attempts under the same user name. Even if the locked out user enters the correct password later, authentication will fail and the machine cannot be used until the lockout period elapses or an administrator or supervisor disables the lockout.

To use the lockout function for user authentication, the authentication method must be set to Basic authentication. Under other authentication methods, the lockout function protects supervisor and administrator accounts only, not general user accounts.

#### Lockout setting items

The lockout function settings can be made using Web Image Monitor.

Setting item	Description	Setting values	Default setting
Lockout	Specify whether or not to enable the lockout function.	Active     Inactive	• Inactive
Number of Attempts before Lockout	Specify the number of authentication attempts to allow before applying lockout.	1-10	5
Lockout Release Timer	Specify whether or not to cancel lockout after a specified period elapses.	Active     Inactive	• Inactive
Lock Out User for	Specify the number of minutes after which lockout is canceled.	1-9999 min.	60 min.

### Lockout release privileges

Administrators with unlocking privileges are as follows.

Locked out user	Unlocking administrator		
general user	user administrator		
user administrator, network administrator, file administrator, machine administrator	supervisor		

Locked out user	Unlocking administrator
supervisor	machine administrator

# **Specifying the User Lockout Function**

- 1. Log in as the machine administrator from Web Image Monitor.
- 2. Point to [Device Management], and then click [Configuration].
- 3. Click [User Lockout Policy] under "Security".
- 4. Set "Lockout" to [Active].
- In the drop-down menu, select the number of login attempts to permit before applying lockout.
- After lockout, if you want to cancel lockout after a specified time elapses, set "Lockout Release Timer" to [Active].
- 7. In the "Lock Out User for" field, enter the number of minutes until lockout is disabled.
- Click [OK].User Lockout Policy is set.
- 9. Log out.

# Canceling Password Lockout

- 1. Log in as the user administrator from Web Image Monitor.
- 2. Point to [Device Management], and then click [Address Book].
- 3. Select the locked out user's account.
- 4. Click [Detail Input], and then click [Change].
- 5. Set "Lockout" to [Inactive] under "Authentication Information".
- 6. Click [OK].
- 7. Log out.

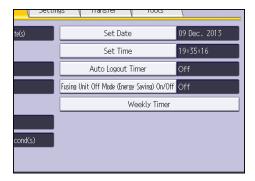


You can cancel the administrator and supervisor password lockout by turning the main power off
and then turning it back on again, or by canceling the setting in [Program/Change Administrator]
under [Configuration] in Web Image Monitor.

# **Auto Logout**

After you log in, the machine automatically logs you out if you do not use the control panel within a given time. This feature is called "Auto Logout". Specify how long the machine is to wait before performing Auto Logout.

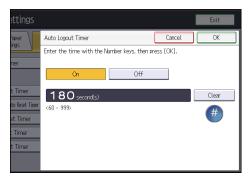
- 1. Log in as the machine administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Timer Settings].
- 4. Press [Auto Logout Timer].



5. Select [On].

If you do not want to specify [Auto Logout Timer], select [Off].

6. Enter "60" to "999" (seconds) using the number keys, and then press [#].



If you make a mistake, press [Clear].

- 7. Press [OK].
- 8. Press the [Login/Logout] key.

A confirmation message appears.

If you press [Yes], you will be automatically logged out.



- If a paper jam occurs or toner runs out, the machine might not be able to perform the Auto Logout function
- You can specify the Auto Logout setting for Web Image Monitor in [Webpage]. For details, see the Web Image Monitor Help.

# **Authentication Using an External Device**

To authenticate using an external device, see the device manual.

For details, contact your sales representative.

# 3. Restricting Machine Usage

This chapter explains how to restrict use of the machine by the user.

# Restricting Usage of the Destination List

The use of the destination list can be restricted separately under the scanner and fax functions.

### Restrict Use of Destinations (Fax), Restrict Use of Destinations (Scanner)

You can prohibit the sending of faxes and scanned documents to addresses other than those registered in the Address Book. By enabling this, you can prohibit users from manually entering the other party's fax number, e-mail address or folder destination.

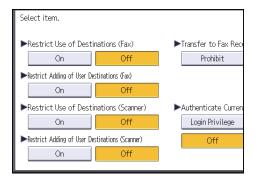
### Restrict Adding of User Destinations (Fax), Restrict Adding of User Destinations (Scanner)

With regard to the addresses manually entered for sending faxes or scanned documents, you can prohibit the their registration into the Address Book using [Prg. Dest.]. Also note that with this setting, only the user administrator can register new users in the Address Book and change the passwords and other information of existing registered users. Also, note that even if you set these functions to [On], the user registered as destination can change their password. Only the user administrator can change items other than the password.

- 1. Log in as the user administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [▼Next].
- 5. Press [Extended Security].



- 6. Press [VNext].
- 7. Set "Restrict Use of Destinations" or "Restrict Adding of User Destinations" to [On]. Specify these settings for both the fax and the scanner functions.



If you set "Restrict Use of Destinations (Fax)" to [On], "Restrict Adding of User Destinations (Fax)" will not appear. Similarly, if you set "Restrict Use of Destinations (Scanner)" to [On], "Restrict Adding of User Destinations (Scanner)" will not appear.

- 8. Press [OK].
- 9. Press the [Login/Logout] key.

A confirmation message appears.

If you press [Yes], you will be automatically logged out.

# **Preventing Changes to Administrator Settings**

### Limiting the Settings that Can Be Changed by Each Administrator

The settings that can be made for this machine vary depending on the type of administrator, allowing the range of operations that can be made to be divided among the administrators.

The following administrators are defined for this machine.

- User administrator
- Machine administrator
- Network administrator
- File administrator

For details on the settings that can be made by each administrator, see page 291 "List of Operation Privileges for Settings".

Register the administrators before using the machine. For instructions on registering the administrator, see page 18 "Registering and Changing Administrators".

# **Prohibiting Users from Making Changes to Settings**

Makes it possible to prohibit users from changing administrator settings.

Select the item under "Available Settings" in "Administrator Authentication Management" to prevent such changes.

For details on selections in "Available Settings", see page 15 "Configuring Administrator Authentication".

# **Specifying Menu Protect**

Menu Protect allows you to limit user permission to access the settings in the User Tools menu except for the System Settings. This setting can be used regardless of user authentication. To change the menu protect setting, first enable administrator authentication. For details on how to set administrator authentication, see page 15 "Configuring Administrator Authentication". For a list of settings that users can specify according to the menu protect level, see page 291 "List of Operation Privileges for Settings".

If you want to enable "Menu Protect", specify it to [Level 1] or [Level 2]. Select [Level 2] to impose stricter restrictions on users' access permission to the machine settings.

If you want to disable "Menu Protect", specify it to [Off].

### **Copy Function**

- 1. Log in as the machine administrator from the control panel.
- 2. Press [Copier / Document Server Features].
- 3. Press [Administrator Tools].
- 4. Press [Menu Protect].
- 5. Select the menu protect level, and then press [OK].
- 6. Log out.

#### Fax Function

- 1. Log in as the machine administrator from the control panel.
- 2. Press [Facsimile Features].
- 3. Press [Initial Settings].
- 4. Press [Menu Protect].
- 5. Select the menu protect level, and then press [OK].
- 6. Log out.

### **Printer Function**

- 1. Log in as the machine administrator from the control panel.
- 2. Press [Printer Features].
- 3. Press [Data Management].

- 4. Press [Menu Protect].
- 5. Select the menu protect level, and then press [OK].
- 6. Log out.

# **Scanner Function**

- 1. Log in as the machine administrator from the control panel.
- 2. Press [Scanner Features].
- 3. Press [Initial Settings].
- 4. Press [Menu Protect].
- 5. Select the menu protect level, and then press [OK].
- 6. Log out.

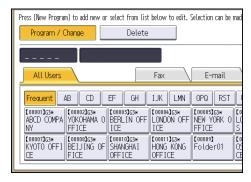
# **Limiting Available Functions**

To prevent unauthorized operation, you can specify who is allowed to access each of the machine's functions.

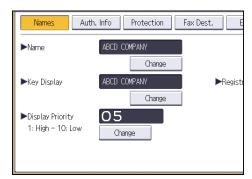
Specify the functions available to registered users. By making this setting, you can limit the functions available to users.

You can place limitations on the use of the copier, Document Server, fax, scanner, printer, browser functions, and extended features.

- 1. Log in as the user administrator from the control panel.
- 2. Press [Address Book Mangmnt].
- 3. Select the user.

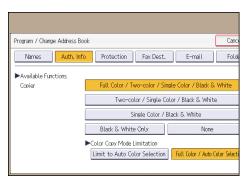


4. Press [Auth. Info].



5. Press [▼Next] twice.

6. In "Available Functions", select the functions you want to specify.



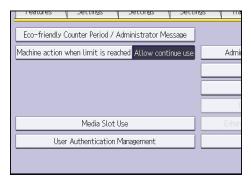
If the function you want to select is not displayed, press [▼Next].

- 7. Press [OK].
- 8. Log out.

# **Restricting Media Slot Access**

Specify on the control panel whether or not to allow users to use the media slots. With this setting, you can restrict storing scanned files on a removable memory device, and also restrict printing of files stored on a removable memory device.

- 1. Log in as the machine administrator from the control panel.
- 2. Press [System Settings].
- Press [Administrator Tools].
- 4. Press [▼Next].
- 5. Press [Media Slot Use].



- To restrict storing files on a removable memory device, press [Prohibit] under "Store to Memory Device".
- To restrict printing of files stored on a removable memory device, press [Prohibit] under "Print from Memory Storage Device".
- 8. Press [OK].
- 9. Log out.



- If you select [Prohibit] under "Store to Memory Device", the [Store to Memory Device] button is not displayed on the Store File screen of the scanner function.
- If you select [Prohibit] under "Print from Memory Storage Device", the [Print from Memory Storage Device] button is not displayed on the printer function's initial screen.

# Managing Print Volume per User

This function limits how much each user can print. If users reach their maximum print volume, their print jobs are canceled and/or a message indicating so is displayed.

#### **Print volume**

The print volume is calculated by multiplying the number of pages by a unit count.

The unit count can be specified according to the printing condition. For example, if one page is printed with a unit count of 10, the print volume would be 10.

The print volume is tracked for each user.

#### **Setting Items**

Item	Explanation	Setting
Machine action when limit is reached	Specify whether to limit print volume and the method for limiting prints.  • Stop Job  When the maximum print volume is reached, both the current job and waiting jobs are canceled.  • Finish Job and Limit  When the maximum print volume is reached, the current job is allowed to finish, but waiting jobs are canceled.  • Allow Continue Use  Print volume is not limited.	<ul> <li>Stop Job</li> <li>Finish Job and Limit</li> <li>Allow Continue Use (Default setting)</li> </ul>
Print Volume Use Limitation: Unit Count Setting	For each of the eight print conditions, specify a per-page unit count between 0 and 200.  A print condition is a combination of paper size, color mode, and function.  The default per-page unit count for every print condition is 1.  The paper size "Others" refers to paper sizes other than A3 and DLT (11 × 17 in).	<ul> <li>Copier:Color:A3/DLT</li> <li>Copier:Black &amp; White:A3/DLT</li> <li>Printer:Color:A3/DLT</li> <li>Printer:Black &amp; White:A3/DLT</li> <li>Copier:Color:Others</li> <li>Copier:Black &amp; White:Others</li> <li>Printer:Color:Others</li> <li>Printer:Black &amp; White:Others</li> </ul>

### Things to note when limiting print volume

If the following occurs, the user will not be able to print:

• The login user name or user code registered in the Address Book is changed while the user is logged in and authenticated.

If the following occurs, print volume management will not function correctly:

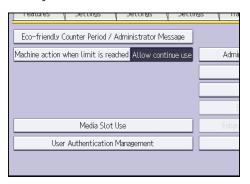
Under Windows or LDAP authentication, a user logs in to the same user account by using
multiple login user names, and these multiple login names are registered in the Address Book
as separate users.

The following operations are exempt from print volume limitation:

- Printing from an operating system that does not support the current authentication method
- Printing data using the Mail to Print function, received faxes, LAN-Fax data, and files stored
  using the fax function

### **Specifying Limitations for Print Volume**

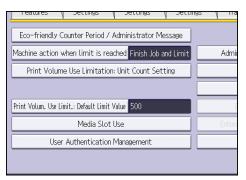
- 1. Log in as the machine administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [VNext].
- 5. Press [Machine action when limit is reached].



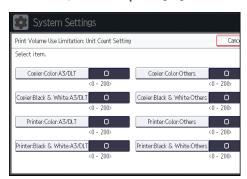
6. Select [Stop Job] or [Finish Job and Limit], and then press [OK].

If you do not want to limit print volume, select [Allow Continue Use].

7. Press [Print Volume Use Limitation: Unit Count Setting].



8. For each print condition, use the number keys to enter a per-page unit count between "0" and "200", and then press [#].



If you specify "0" for a print condition, no volume restriction is applied to jobs matching that condition.

- 9. Press [OK].
- 10. Log out.



 Limitations for print volume can also be specified in [Print Volume Use Limitation] under "Configuration" in Web Image Monitor.

### Restrictions When User Code Authentication is Enabled

When User Code authentication is enabled, the following restrictions apply to the print volume limitation settings:

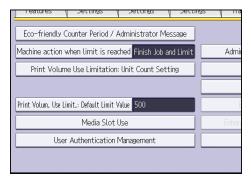
- If [PC Control] is selected for the printer function, the values specified for print volume use units
  might not be applied to users' print counters. Do not select [PC Control] if you want to limit print
  volume when running User Code authentication.
- Under Basic, Windows, and LDAP authentication, figures displayed on the lower left of the control panel show users how many of the total prints allotted to them by the administrator they have used.

Under User Code authentication, users cannot check the print volume they have made, using either the control panel or Web Image Monitor. Under User Code authentication, administrators can inform users of the print volume they have made.

- Log information related to print use limitations is not recorded in the Job Log or Access Log.
- Depending on the settings configured for User Code authentication, users might be able to make prints before logging in, regardless of the print volume limitation set by the administrator. Restrict all functions via "Functions to Restrict" in [User Code Auth.] in [User Authentication Management].

# Specifying the Default Maximum Use Count

- 1. Log in as the machine administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [VNext].
- 5. Press [Print Volum. Use Limit.: Default Limit Value].



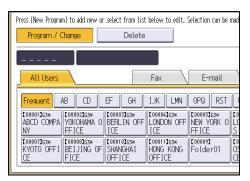
[Print Volum. Use Limit.: Default Limit Value] does not appear if you have selected [Allow Continue Use] in "Machine action when limit is reached".

- Use the number keys to enter a value between "0" and "999,999" as the maximum available print volume, and then press [#].
- 7. Press [OK].
- 8. Log out.

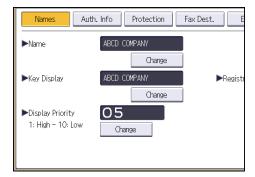
# Specifying the Maximum Use Count per User

- 1. Log in as the machine administrator from the control panel.
- 2. Press [Address Book Mangmnt].

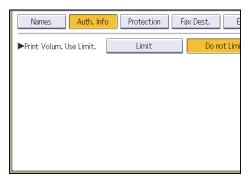
3. Select the user whose maximum available print volume you want to specify.



4. Press [Auth. Info].



- 5. Press [▼Next] four times.
- 6. Press [Limit] in "Print Volum. Use Limit.".



"Print Volum. Use Limit." does not appear if you have selected [Allow Continue Use] in "Machine action when limit is reached".

If you do not want to limit user's print volume, press [Do not Limit].

7. Press [Change], and then use the number keys to enter a value between "0" and "999,999" as the maximum available print volume, and then press [#].

A user whose maximum print volume is set to "0" can only print jobs whose print conditions match those with a unit value of "0".

- 8. Press [OK].
- 9. Log out.



- The maximum print volume for an individual user can also be specified in [Address Book] in Web Image Monitor.
- You can search for users by entering a name in the text box at the top of the control panel, and then pressing [Search].

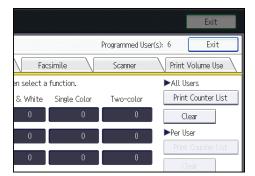
# **Checking Print Volume per User**

This procedure can be done by any administrator.

- 1. Log in as the administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [Display / Clear / Print Counter per User].



5. Press [Print Volume Use].



Each user's print volume limit and print volume used to date are displayed.

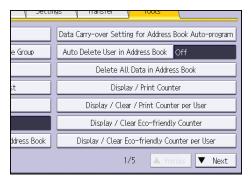
6. After confirming the settings, log out.



• Authorized users and the user administrator can also use [Address Book] in Web Image Monitor to check users' print volume use counters.

### **Printing a List of Print Volume Use Counters**

- 1. Log in as the machine administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [Display / Clear / Print Counter per User].

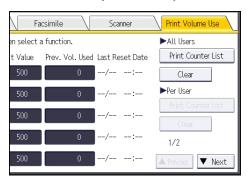


5. Press [Print Volume Use].

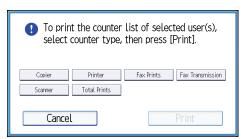
A list of users' print volume use counters is displayed.

To select all the users displayed on the page, press [Select All on the Page].

6. To print a list of the volume use counters of every user, press [Print Counter List] under "All Users". To print a list of the volume use counters of selected users only, select the users whose counters you want to print, and then press [Print Counter List] under "Per User".



7. Select the counter you want to print in the list, and then press [Print].



8. Log out.

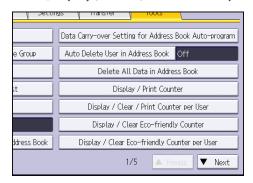


• Print volume use counter lists can be printed only if the following paper sizes is loaded in the paper tray: A4, 8  $^{1}/_{2}$  × 11 in, B4, 8  $^{1}/_{2}$  × 14 in, A3, or 11 × 17 in.

### Clearing Print Volume Use Counters

Clearing a user's print volume counter or increasing a user's print volume limit allows the user to continue printing beyond his/her original print volume limit.

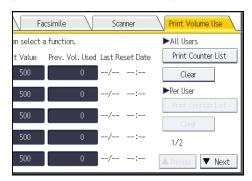
- 1. Log in as the user administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [Display / Clear / Print Counter per User].



5. Press [Print Volume Use].

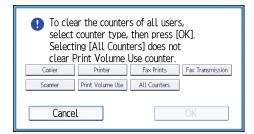
A list of users' print volume use counters is displayed.

6. To clear the print volume use counters of every user, press [Clear] under "All Users". To clear the print volume use counters of selected users only, select the users whose counters you want to clear, and then press [Clear] under "Per User".



To select all the users displayed on the page, press [Select All on the Page].

7. Select [Print Volume Use], and then press [OK].



8. Log out.



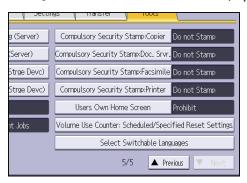
You can also use [Address Book] in Web Image Monitor to clear the print volume use counters.
 However if you want to clear the print volume use counters of all users simultaneously, use the control panel.

# Configuring the Auto-Reset Function

The print volume counter can be reset at a specified time.

Options	Details
Every Month	Resets the print volume at the specified time/date each month.
Specify Date Resets the print volume (only once) at the specified time/date.	
Specify Cycle	Resets after the specified interval from a reference date, then resets thereafter at the same interval.

- 1. Log in as the machine administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [▼Next] four times.
- 5. Press [Volume Use Counter: Scheduled/Specified Reset Settings].



- 6. Select one of [Every Month], [Specify Date] and [Specify Cycle].
- 7. Configure the conditions.
- 8. Press [OK].
- 9. Log out.



- If the machine is turned off at the specified time on the specified date, the print volume will be reset when the power is turned on.
- If you select in [Every Month] a date, such as the 31st, which is missing on some months, the print volume will be reset at 0:00 on the 1st of the month following such a month.

# 4. Preventing Leakage of Information from Machines

This chapter explains how to protect information if it is stored in the machine's memory or on the hard disk.

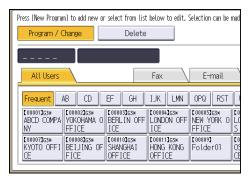
# **Protecting the Address Book**

You can specify who is allowed to access the data in the Address Book. To protect the data from unauthorized reading, you can also encrypt the data in the Address Book.

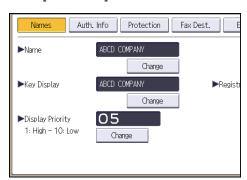
### **Specifying Address Book Access Permissions**

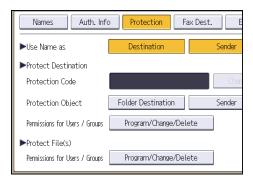
These access permissions can be specified by the users registered in the Address Book, users with full control privileges, and user administrator.

- 1. Log in as the user administrator from the control panel.
- 2. Press [Address Book Mangmnt].
- 3. Select the user whose access permission you want to change.

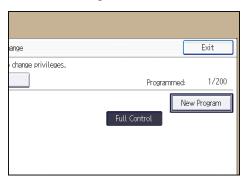


4. Press [Protection].





6. Press [New Program].



7. Select the users or groups to which to apply the access permission.

You can select more than one user.

By pressing [All Users], you can select all the users.

- 8. Press [Exit].
- Select the user to whom you want to assign access permission, and then select the permission.

Select the permission, from [Read-only], [Edit], [Edit / Delete], or [Full Control].

- 10. Press [Exit].
- 11. Press [OK].
- 12. Log out.



The "Edit", "Edit / Delete", and "Full Control" access permissions allow a user to perform high level
operations that could result in loss of or changes to sensitive information. We recommend you grant
only the "Read-only" permission to general users.

### **Encrypting Data in the Address Book**



• The machine cannot be used during encryption.

The time it takes to encrypt the data in the Address Book depends on the number of registered users.

Encrypting the data in the Address Book may take a long time.

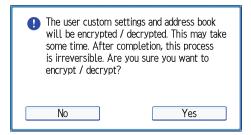
- 1. Log in as the user administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [Vext].
- 5. Press [Extended Security].



- 6. Press [On] for "Encrypt User Custom Settings & Address Book".
- 7. Press [Change] for "Encryption Key".
- 8. Enter the encryption key, and then press [OK].

Enter the encryption key using up to 32 alphanumeric characters.

- 9. Press [Encrypt / Decrypt].
- 10. Press [Yes].



Do not switch the main power off during encryption, as doing so may corrupt the data.

If you press [Stop] during encryption, the data is not encrypted.

If you press [Stop] during decryption, the data stays encrypted.

Normally, once encryption is complete, "Encryption / Decryption is successfully complete. Press [Exit]." appears.

- 11. Press [Exit].
- 12. Press [OK].
- 13. Log out.



- If you register additional users after encrypting the data in the Address Book, those users are also encrypted.
- The backup copy of the address book data stored in the SD card is encrypted. For details about backing up and then restoring the address book using an SD card, see "Administrator Tools", Connecting the Machine/ System Settings.

# **Encrypting Data on the Hard Disk**

### **CAUTION**

 Keep SD cards or USB flash memory devices out of reach of children. If a child accidentally swallows an SD card or USB flash memory device, consult a doctor immediately.

Prevent information leakage by encrypting the Address Book, authentication information, and stored documents as the data is written.

When the data encryption settings are enabled, an encryption key is generated and this is used to restore the data. This key can be changed at any time.

### Data that is encrypted

This function encrypts data that is stored in the machine's NVRAM (memory that remains even after the machine has been turned off) and on the hard disk.

The following data is encrypted:

- Address Book data
- User authentication information
- Data stored in Document Server
- Temporary stored documents
- Logs
- Network I/F setting information
- System settings information



- If the machine needs to be replaced, the existing data can be transferred to a new machine, even if the data is encrypted. To transfer data, contact your service representative.
- You can back up the machine's data encryption key to an SD card. For details about SD card handling, see "Inserting/Removing a Memory Storage Device", Getting Started.

#### Time required for encryption

When setting up encryption, specify whether to start encryption after deleting data (initialize) or encrypt existing data and retain it. If data is retained, it may take some time to encrypt it.

The amount of time it takes set up encryption depends on the machine type being used. For information on machine types, see "Machine Types", Read This First.

Setting	Data to be kept	Data to be initialized	Required time
File System Data Only	Embedded Software     Architecture     applications'     program/log     Address Book     Registered fonts     Job logs/access logs     Thumbnails of stored documents     Sent/received e-mail     Documents     forwarded to the capture server     Files received via     Mail to Print     Spooled jobs	Stored documents in Document Server, Locked Print files / Sample Print files / Stored Print files , and received and stored fax documents)  Registered stamps	Approx. 1 hour 15 minutes
All Data	All Data:  Both the data to be kept and data not kept when [File System Data Only] is specified	None	Types 1 & 2: Approx. 3 hours, 30 minutes Types 3, 4, & 5: Approx. 4 hours
Format All Data None		All Data:  Both the data to be kept and data not kept when [File System Data Only] is specified	Several minutes

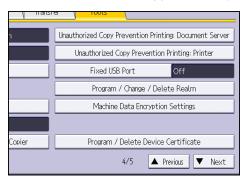
### Things to note when enabling encryption settings

- If you use Embedded Software Architecture application or App2Me, be sure to specify [File System Data Only] or [All Data].
- Note that the machine's settings will not be initialized to their system defaults even if [Format All Data], [File System Data Only], or [All Data] is specified.

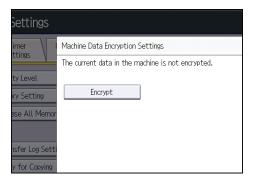
### **Enabling the Encryption Settings**

# Mportant (

- The machine cannot be operated while data is being encrypted.
- Once the encryption process begins, it cannot be stopped. Make sure that the machine's main
  power is not turned off while the encryption process is in progress. If the machine's main power is
  turned off while the encryption process is in progress, the hard disk will be damaged and all data
  on it will be unusable.
- The encryption key is required for data recovery if the machine malfunctions. Be sure to store the encryption key safely for retrieving backup data.
- Encryption begins after you have completed the control panel procedure and rebooted the
  machine by turning off and on the main power switch. If both the erase-by-overwrite function and
  the encryption function are specified, encryption begins after the data that is stored on the hard
  disk has been overwritten and the machine has been rebooted with the turning off and on of the
  main power switch.
- If you use hard disk erase-by-overwrite and encryption simultaneously, and select overwrite three times for "Random Numbers", the process will take up to 8 hours and 45 minutes for Types 1 and 2, and up to 7 hours and 45 minutes for Types 3, 4 and 5. Re-encrypting from an already encrypted state takes the same amount of time.
- The "Erase All Memory" function also clears the machine's security settings, with the result that
  afterward, neither machine nor user administration will be effective. Ensure that users do not save
  any data on the machine after "Erase All Memory" has completed.
- Rebooting will be faster if there is no data to carry over to the hard disk and if encryption is set to
  [Format All Data], even if all the data on the hard disk is formatted. Before you perform encryption,
  we recommend you back up important data such as the Address Book and all data stored in
  Document Server.
- If the encryption key update was not completed, the printed encryption key will not be valid.
- 1. Log in as the machine administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [▼Next] three times.



### 6. Press [Encrypt].



#### 7. Select the data to be carried over to the hard disk and not be reset.

To carry all of the data over to the hard disk, select [All Data]. To carry over only the machine settings data, select [File System Data Only]. To reset all of the data, select [Format All Data].

#### 8. Select the backup method.

If you have selected [Save to SD Card], load an SD card into the media slot on the side of the control panel and press [OK] to back up the machine's data encryption key.

For details about inserting the SD card, see "Inserting/Removing a Memory Storage Device", Getting Started.

If you have selected [Print on Paper], press the [Start] key and print out the machine's data encryption key.

- 9. Press [OK].
- 10. Press [Exit].
- 11. Press [Exit].
- 12. Log out.

13. Turn off the main power switch, and then turn the main power switch back on.

The machine will start to convert the data on the memory after you turn on the machine. Wait until the message "Memory conversion complete. Turn the main power switch off." appears, and then turn the main power switches off again.

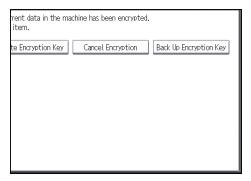
For details about turning off the main power, see "Turning On/Off the Power", Getting Started.

### **Backing Up the Encryption Key**

The encryption key can be backed up. Select whether to save it to an SD card or to print it.



- The encryption key is required for data recovery if the machine malfunctions. Be sure to store the
  encryption key safely for retrieving backup data.
- 1. Log in as the machine administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [▼Next] three times.
- 5. Press [Machine Data Encryption Settings].
- 6. Press [Back Up Encryption Key].



7. Select the backup method.

If you have selected [Save to SD Card], load an SD card into the media slot on the side of the control panel and press [OK]; once the machine's data encryption key is backed up, press [Exit].

For details about inserting the SD card, see "Inserting/Removing a Memory Storage Device", Getting Started.

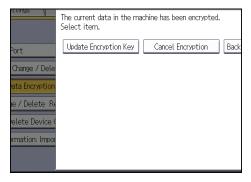
If you have selected [Print on Paper], press the [Start] key and print out the machine's data encryption key.

- 8. Press [Exit].
- 9. Log out.

You can update the encryption key and create a new key. Updates are possible when the machine is functioning normally.



- The encryption key is required for recovery if the machine malfunctions. Be sure to store the encryption key safely for retrieving backup data.
- When the encryption key is updated, encryption is performed using the new key. After completing
  the procedure on the machine's control panel, turn off the main power and restart the machine to
  enable the new settings. Restarting can be slow when there is data to be carried over to the hard
  disk.
- If the encryption key update was not completed, the printed encryption key will not be valid.
- 1. Log in as the machine administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [▼Next] three times.
- 5. Press [Machine Data Encryption Settings].
- 6. Press [Update Encryption Key].



7. Select the data to be carried over to the hard disk and not be reset.

To carry all of the data over to the hard disk, select [All Data]. To carry over only the machine settings data, select [File System Data Only]. To reset all of the data, select [Format All Data].

8. Select the backup method.

If you have selected [Save to SD Card], load an SD card into the media slot on the side of the control panel and press [OK] to back up the machine's data encryption key.

For details about inserting the SD card, see "Inserting/Removing a Memory Storage Device", Getting Started.

If you have selected [Print on Paper], press the [Start] key and print out the machine's data encryption key.

- 9. Press [OK].
- 10. Press [Exit].
- 11. Press [Exit].
- 12. Log out.
- 13. Turn off the main power switch, and then turn the main power switch back on.

The machine will start to convert the data on the memory after you turn on the machine. Wait until the message "Memory conversion complete. Turn the main power switch off." appears, and then turn the main power switches off again.

For details about turning off the main power, see "Turning On/Off the Power", Getting Started.

### **Canceling Data Encryption**

Use the following procedure to cancel the encryption settings when encryption is no longer necessary.

### 

- After completing this procedure on the machine's control panel, turn off the main power and restart
  the machine to enable the new settings. Restarting can be slow when there is data to be carried
  over to the hard disk.
- When disposing of a machine, completely erase the memory. For details on erasing all of the memory, see page 102 "Deleting Data on the Hard Disk".
- 1. Log in as the machine administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [▼Next] three times.
- 5. Press [Machine Data Encryption Settings].
- 6. Press [Cancel Encryption].
- 7. Select the data to be carried over to the hard disk and not be reset.

To carry all of the data over to the hard disk, select [All Data]. To carry over only the machine settings data, select [File System Data Only]. To reset all of the data, select [Format All Data].

- 8. Press [OK].
- 9. Press [Exit].
- 10. Press [Exit].
- 11. Log out.
- 12. Turn off the main power switch, and then turn the main power switch back on.

For details about turning off the main power, see "Turning On/Off the Power", Getting Started.

# Deleting Data on the Hard Disk

The machine's hard disk stores all document data from the copier, printer and scanner functions. It also stores the data of users' Document Server and code counters, and the Address Book.

To prevent data on the hard disk being leaked before disposing of the machine, you can overwrite all data stored on the hard disk. You can also automatically overwrite temporarily-stored data.

### Conditions for Use

When you use the erase-by-overwrite function, make sure to use it under the following conditions:

- The machine is used in its normal state (i.e. it is neither damaged, modified nor are there missing components).
- The machine is managed by an administrator who has carefully read and understood this manual, and can ensure the safe and effective use of this machine by general users.

### Instructions for Use

- Before turning off the main power of the machine, always make sure that the Data Overwrite icon has turned to "Clear".
- With Type 3 to 5 models, if the machine enters Low Power mode when Auto Erase Memory is in progress, press the [Energy Saver] key to revive the display in order to check the icon. For details about machine types, see "Machine Types", Read This First.
- The machine will not enter Sleep mode until overwriting has been completed.
- Should the Data Overwrite icon continue to be "Dirty" even after you have made sure that there is no data to be overwritten, turn off the main power of your machine. Turn it on again and see if the icon changes to "Clear". If it does not, contact your sales or service representative.

# **Auto Erase Memory**

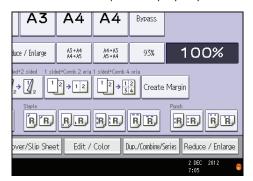
A document scanned in copier, or scanner mode, or print data sent from a printer driver is temporarily stored on the machine's hard disk. Even after the job is completed, it remains in the hard disk as temporary data. Auto Erase Memory erases the temporary data on the hard disk by writing over it.

Overwriting starts automatically once the job is completed.

The copier, fax and printer functions take priority over the Auto Erase Memory function. If a copy, fax or print job is in progress, overwriting will only be done after the job is completed.

#### Overwrite icon

When Auto Erase Memory is set to [On], the Data Overwrite icon will be indicated in the bottom right hand corner of the panel display of your machine.



lcon	lcon name	Explanation
	Dirty	This icon is lit when there is temporary data to be overwritten, and blinks during overwriting.
8	Clear	This icon is lit when there is no temporary data to be overwritten.

# 

 The Data Overwrite icon will indicate "Clear" when there is a Sample Print/Locked Print/Hold Print/Stored Print job.



If the Data Overwrite icon is not displayed, first check if Auto Erase Memory has been set to [Off].
 If the icon is not displayed even though Auto Erase Memory is [On], contact your service representative.

### Methods of overwriting

You can select a method of overwriting from the following:

NSA

Temporary data is overwritten twice with random numbers and once with zeros.

DoD

Each item of data is overwritten by a random number, then by its complement, then by another random number, and is then verified.

Random Numbers

Temporary data is overwritten multiple times with random numbers. The number of overwrites can be selected from 1 to 9.

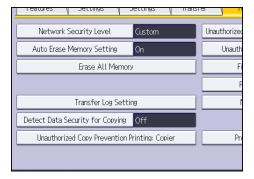


- The default method for overwriting is "Random Numbers", and the default number of overwrites is 3.
- NSA stands for "National Security Agency", U.S.A.
- DoD stands for "Department of Defense", U.S.A.

#### **Using Auto Erase Memory**



- When Auto Erase Memory is set to [On], temporary data that remained on the hard disk when Auto Erase Memory was set to [Off] might not be overwritten.
- If the main power switch is turned off before Auto Erase Memory is completed, overwriting will stop and data will be left on the hard disk.
- Do not stop the overwrite mid-process. Doing so will damage the hard disk.
- Should the main power switch be turned off before Auto Erase Memory is completed, overwriting will continue once the main power switch is turned back on.
- If an error occurs before overwriting is completed, turn off the main power. Turn it on, and then repeat from step 1.
- 1. Log in as the machine administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [▼Next] three times.
- 5. Press [Auto Erase Memory Setting].



6. Press [On].

### 7. Select the method of overwriting.

If you select [NSA] or [DoD], proceed to step 10.

If you select [Random Numbers], proceed to step 8.

- 8. Press [Change].
- Enter the number of times that you want to overwrite using the number keys, and then press [#].
- 10. Press [OK].

Auto Erase Memory is set.

11. Log out.



• If you enable both overwriting and data encryption, the overwriting data will also be encrypted.

## **Canceling Auto Erase Memory**

- 1. Log in as the machine administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [▼Next] three times.
- 5. Press [Auto Erase Memory Setting].
- 6. Press [Off].
- 7. Press [OK].

Auto Erase Memory is disabled.

8. Log out.

### Types of data that can or cannot be overwritten

The following are the types of data that can or cannot be overwritten by "Auto Erase Memory".

#### Data overwritten by Auto Erase Memory

Copier

Copy jobs

#### Printer

- Print jobs
- Sample Print/Locked Print/Hold Print/Stored Print jobs

A Sample Print/Locked Print/Hold Print job can only be overwritten after it has been executed. A Stored Print job is overwritten after it has been deleted.

· Spool printing jobs

#### **Facsimile**

- LAN-Fax print data
- Faxes sent/received using remote machines

Data sent or received directly by this machine via facsimile, as well as fax numbers, will not be overwritten by Auto Erase Memory.

#### Scanner

- Scanned files sent by e-mail
- Files sent by Scan to Folder
- Documents sent using DeskTopBinder, the ScanRouter delivery software or Web Image Monitor
- Network TWAIN scanner

Data scanned with the network TWAIN scanner when the TWAIN driver's "ADF(Readahead)" function is checked will be overwritten by Auto Erase Memory. Data scanned when the "ADF(Read-ahead)" function is not checked will not be overwritten.

### Data Not overwritten by Auto Erase Memory

 Documents stored by the user in Document Server using the Copier, Printer, Facsimile or Scanner functions

A stored document can only be overwritten after it has been printed or deleted from Document Server.

- Information registered in the Address Book
   Data stored in the Address Book can be encrypted for security. For de
  - Data stored in the Address Book can be encrypted for security. For details, see page 91 "Protecting the Address Book".
- Counters stored under each user code

## **Erase All Memory**

You can erase all the data on the hard disk by writing over it. This is useful if you relocate or dispose of your machine. The amount of time it takes to completely erase the memory depends on the machine type being used. For information on machine types, see "Machine Types", Read This First.

The following data will also be erased by Erase All Memory. For details about using the machine after executing Erase All Memory, contact your sales representative.

- User codes
- Counters under each user code
- User stamps
- Data stored in the Address Book

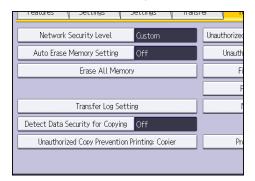
- Printer fonts downloaded by users
- Applications using Embedded Software Architecture
- SSL server certificates
- · Machine's network settings

## **Important**

- If the main power switch is turned off before "Erase All Memory" is completed, overwriting will be stopped and data will be left on the hard disk.
- Do not stop the overwrite mid-process. Doing so will damage the hard disk.
- We recommend that before you erase the hard disk, you use SmartDeviceMonitor for Admin/
  Device Manager NX Lite to back up the user codes, the counters for each user code, and the
  Address Book. The Address Book can also be backed up using Web Image Monitor. For details,
  see SmartDeviceMonitor for Admin/Device Manager NX Lite Help or Web Image Monitor Help.
- The only operation possible during the "Erase All Memory" process is pausing. If "Random Numbers" is selected and overwrite three times is set, the "Erase All Memory" process takes up to 5 hours and 15 minutes for Types 1 and 2, and up to 3 hours and 45 minutes for Types 3, 4, and 5.
- The "Erase All Memory" function also clears the machine's security settings, with the result that
  afterward, neither machine nor user administration will be effective. Ensure that users do not save
  any data on the machine after "Erase All Memory" has completed.

## **Using Erase All Memory**

- 1. Disconnect communication cables connected to the machine.
- 2. Log in as the machine administrator from the control panel.
- 3. Press [System Settings].
- 4. Press [Administrator Tools].
- Press [▼Next] three times.
- 6. Press [Erase All Memory].

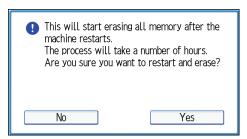


7. Select the method of overwriting.

If you select [NSA] or [DoD], proceed to step 10.

If you select [Random Numbers], proceed to step 8.

- 8. Press [Change].
- 9. Enter the number of times that you want to overwrite using the number keys, and then press [#].
- 10. Press [Erase].
- 11. Press [Yes].



12. When overwriting is completed, press [Exit], and then turn off the main power.

For details about turning off the main power, see "Turning On/Off the Power", Getting Started.



- Should the main power switch be turned off before "Erase All Memory" is completed, overwriting will start over when the main power switch is turned back on.
- If an error occurs before overwriting is completed, turn off the main power. Turn it on again, and then repeat from step 2.

## Suspending Erase All Memory

The overwriting process can be suspended temporarily.



- Erase All Memory cannot be canceled.
- 1. Press [Suspend] while Erase All Memory is in progress.
- 2. Press [Yes].

Erase All Memory is suspended.

3. Turn off the main power.

For details about turning off the main power, see "Turning On/Off the Power", Getting Started.



• To resume overwriting, turn on the main power.

## 5. Enhanced Network Security

This chapter describes the functions for enhancing security when the machine is connected to the network

## **Access Control**

The machine can control TCP/IP access.

Limit the IP addresses from which access is possible by specifying the access control range.

For example, if you specify the access control range as [192.168.15.16]-[192.168.15.20], the client PC addresses from which access is possible will be from [192.168.15.16] to [192.168.15.20].



- Using access control, you can limit access involving LPR, RCP/RSH, FTP, ssh/sftp, Bonjour, SMB, WSD (Device), WSD (Printer), WSD (Scanner)/DSM, IPP, DIPRINT, RHPP, Web Image Monitor, SmartDeviceMonitor for Client, or DeskTopBinder. You cannot limit the monitoring of SmartDeviceMonitor for Client. You cannot limit access involving telnet, or SmartDeviceMonitor for Admin/Device Manager NX Lite, when using the SNMPv1 monitoring.
- 1. Log in as the network administrator from Web Image Monitor.
- 2. Point to [Device Management], and then click [Configuration].
- 3. Click [Access Control] under "Security".
- 4. To specify the IPv4 address, enter an IP address that has access to the machine in "Access Control Range".

To specify the IPv6 address, enter an IP address that has access to the machine in "Range" under "Access Control Range", or enter an IP address in "Mask" and specify the "Mask Length".

- 5. Click [OK].
- 6. "Updating..." appears. Wait for about one or two minutes, and then click [OK].
  If the previous screen does not reappear after you click [OK], wait for a while, and then click the web browser's refresh button.
- 7. Log out.

## **Enabling and Disabling Protocols**

Specify whether to enable or disable the function for each protocol. By making this setting, you can specify which protocols are available and so prevent unauthorized access over the network. Network settings can be specified on the control panel or by using Web Image Monitor, telnet, SmartDeviceMonitor for Admin/Device Manager NX Lite or Remote Communication Gate S. In the case of SmartDeviceMonitor for Admin/Device Manager NX Lite, use it to start Web Image Monitor and configure the settings from there.

Protocol	Port	Setting method	When disabled
IPv4	-	Control panel Web Image Monitor telnet SmartDeviceMonitor for Admin Device Manager NX Lite Remote Communication Gate S	All applications that operate over IPv4 cannot be used. IPv4 cannot be disabled from Web Image Monitor when using IPv4 transmission.
IPv6	-	Control panel Web Image Monitor telnet SmartDeviceMonitor for Admin Device Manager NX Lite Remote Communication Gate S	All applications that operate over IPv6 cannot be used.
IPsec	-	<ul> <li>Control panel</li> <li>Web Image Monitor</li> <li>telnet</li> <li>SmartDeviceMonitor for Admin</li> <li>Device Manager NX Lite</li> </ul>	Encrypted transmission using IPsec is disabled.

5

Protocol	Port	Setting method	When disabled
FTP	TCP:21	Web Image Monitor     telnet     SmartDeviceMonitor     for Admin     Device Manager NX     Lite     Remote     Communication Gate S	Functions that require FTP cannot be used.  You can restrict personal information from being displayed by making settings on the control panel using "Restrict Display of User Information".
ssh/sftp	TCP:22	Web Image Monitor     telnet     SmartDeviceMonitor     for Admin     Device Manager NX     Lite     Remote     Communication Gate S	Functions that require sftp cannot be used. You can restrict personal information from being displayed by making settings on the control panel using "Restrict Display of User Information".
telnet	TCP:23	Web Image Monitor     SmartDeviceMonitor     for Admin     Device Manager NX Lite	Commands using telnet are disabled.
SMTP	TCP:25 (variable)	Control panel Web Image Monitor SmartDeviceMonitor for Admin Device Manager NX Lite Remote Communication Gate S	Internet Fax or e-mail notification functions that require SMTP reception cannot be used.

Protocol	Port	Setting method	When disabled
НТТР	TCP:80	Web Image Monitor     telnet     SmartDeviceMonitor     for Admin     Device Manager NX Lite	Functions that require HTTP cannot be used.  Cannot print using IPP on port 80.
HTTPS	TCP:443	Web Image Monitor     telnet     SmartDeviceMonitor     for Admin     Device Manager NX Lite	Functions that require HTTPS cannot be used.  @Remote cannot be used.  You can also make settings to require SSL transmission using the control panel or Web Image Monitor.
SMB	TCP:139	Control panel Web Image Monitor telnet SmartDeviceMonitor for Admin Device Manager NX Lite Remote Communication Gate S	SMB printing functions cannot be used.
NBT	UDP:137 UDP:138	• telnet	SMB printing functions via TCP/IP, as well as NetBIOS designated functions on the WINS server cannot be used.
SNMPv1,v2	UDP:161	<ul> <li>Web Image Monitor</li> <li>telnet</li> <li>SmartDeviceMonitor for Admin</li> <li>Device Manager NX Lite</li> <li>Remote Communication Gate S</li> </ul>	Functions that require SNMPv1, v2 cannot be used.  Using the control panel, Web Image Monitor or telnet, you can specify that SNMPv1, v2 settings are readonly, and cannot be edited.

Protocol	Port	Setting method	When disabled
SNMPv3	UDP:161	<ul> <li>Web Image Monitor</li> <li>telnet</li> <li>SmartDeviceMonitor for Admin</li> <li>Device Manager NX Lite</li> <li>Remote Communication Gate S</li> </ul>	Functions that require SNMPv3 cannot be used.  You can also make settings to require SNMPv3 encrypted transmission and restrict the use of other transmission methods using the control panel, Web Image Monitor, or telnet.
RSH/RCP	TCP:514	<ul> <li>Web Image Monitor</li> <li>telnet</li> <li>SmartDeviceMonitor for Admin</li> <li>Device Manager NX Lite</li> <li>Remote Communication Gate S</li> </ul>	Functions that require RSH and network TWAIN functions cannot be used.  You can restrict personal information from being displayed by making settings on the control panel using "Restrict Display of User Information".
LPR	TCP:515	<ul> <li>Web Image Monitor</li> <li>telnet</li> <li>SmartDeviceMonitor for Admin</li> <li>Device Manager NX Lite</li> <li>Remote Communication Gate S</li> </ul>	LPR functions cannot be used.  You can restrict personal information from being displayed by making settings on the control panel using "Restrict Display of User Information".
IPP	TCP:631	<ul> <li>Web Image Monitor</li> <li>telnet</li> <li>SmartDeviceMonitor for Admin</li> <li>Device Manager NX Lite</li> <li>Remote Communication Gate S</li> </ul>	IPP functions cannot be used.

Protocol	Port	Setting method	When disabled
IP-Fax	TCP:1720 (H. 323)  UDP:1719 (Gatekeeper)  TCP/UDP: 5060 (SIP)  TCP:5000 (H. 245)  UDP:5004, 5005 (Voice)  TCP/UDP: 49152 (T.38)	<ul> <li>Control panel</li> <li>Web Image Monitor</li> <li>SmartDeviceMonitor for Admin</li> <li>Device Manager NX Lite</li> <li>Remote Communication Gate S</li> </ul>	IP-Fax connecting functions using H. 323, SIP and T.38 cannot be used.
SSDP	UDP:1900	<ul> <li>Web Image Monitor</li> <li>telnet</li> <li>SmartDeviceMonitor for Admin</li> <li>Device Manager NX Lite</li> </ul>	Device discovery using UPnP from Windows cannot be used.
Bonjour	UDP:5353	Web Image Monitor     telnet     SmartDeviceMonitor     for Admin     Device Manager NX     Lite     Remote     Communication Gate S	Bonjour functions cannot be used.
@Remote	TCP:7443 TCP:7444	Control panel     telnet	@Remote cannot be used.

Protocol	Port	Setting method	When disabled
DIPRINT	TCP:9100	<ul> <li>Web Image Monitor</li> <li>telnet</li> <li>SmartDeviceMonitor for Admin</li> <li>Device Manager NX Lite</li> <li>Remote Communication Gate S</li> </ul>	DIPRINT functions cannot be used.
RFU	TCP:10021	Control panel     telnet	You can attempt to update firmware via FTP.
NetWare	(IPX/SPX)	<ul> <li>Control panel</li> <li>Web Image Monitor</li> <li>telnet</li> <li>SmartDeviceMonitor for Admin</li> <li>Device Manager NX Lite</li> <li>Remote Communication Gate S</li> </ul>	Cannot print with NetWare.  SNMP over IPX cannot be used.
WSD (Device)	TCP:53000 (variable)	<ul> <li>Web Image Monitor</li> <li>telnet</li> <li>SmartDeviceMonitor for Admin</li> <li>Device Manager NX Lite</li> <li>Remote Communication Gate S</li> </ul>	WSD (Device) functions cannot be used.

Protocol	Port	Setting method	When disabled
WSD (Printer)	TCP:53001 (variable)	Web Image Monitor     telnet     SmartDeviceMonitor     for Admin     Device Manager NX     Lite     Remote     Communication Gate S	WSD (Printer) functions cannot be used.
WSD (Scanner)/D SM	TCP-53002 (variable)	Web Image Monitor     telnet     SmartDeviceMonitor     for Admin     Device Manager NX     Lite     Remote     Communication Gate S	WSD (Scanner) and DSM functions cannot be used.
WS- Discovery	UDP/TCP: 3702	telnet     Remote     Communication Gate S	WSD (Device, Printer, Scanner) search function cannot be used.
RHPP	TCP:59100	Web Image Monitor     telnet     SmartDeviceMonitor     for Admin     Device Manager NX Lite	Cannot print with RHPP.
LLTD	-	• telnet	Device search function using LLTD cannot be used.
LLMNR	UDP:5355	Web Image Monitor     telnet	Name resolution requests using LLMNR cannot be respond.

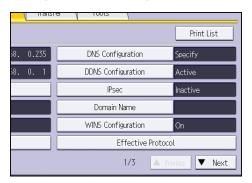


• "Restrict Display of User Information" is one of the Extended Security features. For details about making this setting, see page 253 "Specifying the Extended Security Functions".

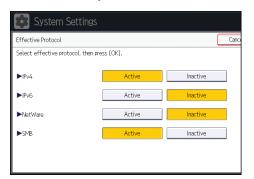
#### 5

## **Enabling and Disabling Protocols Using the Control Panel**

- 1. Log in as the network administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Interface Settings].
- 4. Press [Effective Protocol].



5. Set the desired protocols to active/inactive.



- 6. Press [OK].
- 7. Log out.

## **Enabling and Disabling Protocols Using Web Image Monitor**

- 1. Log in as the network administrator from Web Image Monitor.
- 2. Point to [Device Management], and then click [Configuration].
- 3. Click [Network Security] under "Security".
- 4. Set the desired protocols to active/inactive (or open/close).
- 5. Click [OK].

- 6. "Updating..." appears. Wait for about one or two minutes, and then click [OK].
  If the previous screen does not reappear after you click [OK], wait for a while, and then click the web browser's refresh button.
- 7. Log out.

## 5

## **Specifying Network Security Level**

This setting lets you change the security level to limit unauthorized access. You can make network security level settings on the control panel, as well as Web Image Monitor. However, the protocols that can be specified differ.

## 

• With some utilities, communication or login may fail depending on the network security level.

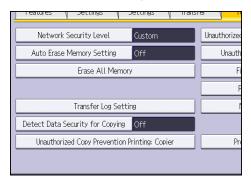
## **Network Security Levels**

Security Level	Description
[Level 0]	Select [Level 0] to use all features. Use this setting when you have no information that needs to be protected from external threats.
[Level 1]	Select [Level 1] for moderate security to protect important information. Use this setting if the machine is connected to a local area network (LAN).
[FIPS140]	Provides a security strength intermediate between [Level 1] and [Level 2]. You can only use codes recommended by the U.S. government as its coding/authentication algorithm. Settings other than the algorithm are the same as [Level 2].
[Level 2]	Select [Level 2] for maximum security to protect confidential information. Use this setting when it is necessary to protect information from external threats.
[Custom]	For configurations other than the levels above. Configure using Web Image Monitor.

## Specifying Network Security Level Using the Control Panel

- 1. Log in as the network administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [▼Next] three times.

### 5. Press [Network Security Level].



6. Select the network security level.

Select [Level 0], [Level 1], [Level 2], or [FIPS 140].

- 7. Press [OK].
- 8. Log out.

## Specifying Network Security Level Using Web Image Monitor

- 1. Log in as the network administrator from Web Image Monitor.
- 2. Point to [Device Management], and then click [Configuration].
- 3. Click [Network Security] under "Security".
- 4. Select the network security level in "Security Level".
- 5. Click [OK].
- 6. "Updating..." appears. Wait for about one or two minutes, and then click [OK].
  If the previous screen does not reappear after you click [OK], wait for a while, and then click the web browser's refresh button.
- 7. Log out.

## Status of Functions under Each Network Security Level

## TCP/IP

Function	Level 0	Level 1	FIPS 140	Level 2
TCP/IP	Active	Active	Active	Active
HTTP > Port 80	Open	Open	Open	Open
IPP > Port 80	Open	Open	Open	Open

Function	Level 0	Level 1	FIPS 140	Level 2
IPP > Port 631	Open	Open	Close	Close
SSL/TLS > Port 443	Open	Open	Open	Open
SSL/TLS > Permit SSL/TLS Communication	Ciphertext Priority	Ciphertext Priority	Ciphertext Only	Ciphertext Only
SSL/TLS Version > TLS1.2	Active	Active	Active	Active
SSL/TLS Version > TLS 1.1	Active	Active	Active	Active
SSL/TLS Version > TLS 1.0	Active	Active	Active	Active
SSL/TLS Version > SSL3.0	Active	Active	Inactive	Inactive
Encryption Strength Setting > AES	128bit/ 256bit	128bit/ 256bit	128bit/ 256bit	128bit/ 256bit
Encryption Strength Setting > 3DES	168bit	168bit	168bit	-
Encryption Strength Setting > RC4	-	-	-	-
DIPRINT	Active	Active	Inactive	Inactive
LPR	Active	Active	Inactive	Inactive
FTP	Active	Active	Active	Active
sftp	Active	Active	Active	Active
ssh	Active	Active	Active	Active
RSH/RCP	Active	Active	Inactive	Inactive
TELNET	Active	Inactive	Inactive	Inactive
Bonjour	Active	Active	Inactive	Inactive
SSDP	Active	Active	Inactive	Inactive
SMB	Active	Active	Inactive	Inactive
NetBIOS over TCP/IPv4	Active	Active	Inactive	Inactive
WSD (Device)	Active	Active	Active	Active
WSD (Printer)	Active	Active	Active	Active

Function	Level 0	Level 1	FIPS 140	Level 2
WSD (Scanner)/DSM	Active	Active	Active	Active
WSD (Encrypted Communication of Device)	Inactive	Inactive	Active	Active
RHPP	Active	Active	Inactive	Inactive

The same settings are applied to IPv4 and IPv6.

TCP/IP setting is not governed by the security level. Manually specify whether to activate or inactivate this setting.

### NetWare

Function	Level 0	Level 1	FIPS 140	Level 2
NetWare	Active	Active	Inactive	Inactive

If NetWare is not used on your network, the above settings are not applicable.

#### **SNMP**

Function	Level 0	Level 1	FIPS 140	Level 2
SNMP	Active	Active	Active	Active
Permit Settings by SNMPv1 and v2	On	Off	Off	Off
SNMPv1,v2 Function	Active	Active	Inactive	Inactive
SNMPv3 Function	Active	Active	Active	Active
Permit SNMPv3 Communication	Encryption/ Cleartext	Encryption/ Cleartext	Encryption Only	Encryption Only

## TCP/IP Encryption Strength Setting

Function	Level 0	Level 1	FIPS 140	Level 2
ssh > Encryption Algorithm	DES/3DES/ AES-128/ AES-192/ AES-256/ Blowfish/ Arcfour	3DES/ AES-128/ AES-192/ AES-256/ Arcfour	3DES/ AES-128/ AES-192/ AES-256	3DES/ AES-128/ AES-192/ AES-256

Function	Level 0	Level 1	FIPS 140	Level 2
S/MIME > Encryption Algorithm	3DES-168 bit	3DES-168 bit	3DES-168 bit	AES-256 bit
S/MIME > Digest Algorithm	SHA1	SHA1	SHA1	SHA-256 bit
SNMPv3 > Authentication Algorithm	MD5	SHA1	SHA1	SHA1
SNMPv3 > Encryption Algorithm	DES	DES	AES-128	AES-128
Kerberos Authentication > Encryption Algorithm	AES256-CTS- HMAC- SHA1-96/ AES128-CTS- HMAC- SHA1-96/ DES3-CBC- SHA1/RC4- HMAC/DES- CBC-MD5	AES256-CTS- HMAC- SHA1-96/ AES128-CTS- HMAC- SHA1-96/ DES3-CBC- SHA1/RC4- HMAC	AES256-CTS- HMAC- SHA1-96/ AES128-CTS- HMAC- SHA1-96/ DES3-CBC- SHA1	AES256-CTS- HMAC- SHA1-96/ AES128-CTS- HMAC- SHA1-96
Driver Encryption Key > Encryption Strength	Simple Encryption	DES	AES	AES

# Protecting the Communication Path via a Device Certificate

This machine can protect its communication path and establish encrypted communications using SSL/TLS, IPsec, S/MIME, or IEEE 802.1X. It can also protect PDFs by means of a PDF or PDF/A digital signature.

To use these functions, it is necessary to create and install a device certificate for the machine in advance.

The following types of device certificate can be used:

- · Self-signed certificate created by the machine
- · Certificate issued by a certificate authority



- The administrator is required to manage the expiration of certificates and renew the certificates before they expire.
- The administrator is required to check that the issuer of the certificate is valid.
- If SHA256 or SHA512 is selected as the "Algorithm Signature" of the device certificate, Windows XP SP3 or later is required to connect the device using Internet Explorer 6.0.

## Creating and Installing a Device Certificate from the Control Panel (Self-Signed Certificate)

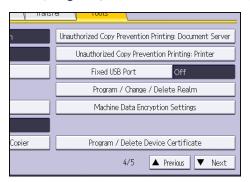
Create and install the device certificate using control panel.

This section explains the use of a self-signed certificate as the device certificate.

- 1. Log in as the network administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [▼Next] three times.

5

### 5. Press [Program / Delete Device Certificate].



- 6. Check that [Program] is selected.
- 7. Press [Certificate 1].

Only [Certificate 1] can be created from the control panel.

8. Make the necessary settings.

To use the device certificate for S/MIME, PDF Digital Signature, or PDF/A Digital Signature, enter the machine's administrator's e-mail address in the e-mail address setting.

9. Press [OK].

"Installed" appears under "Certificate Status" to show that a device certificate for the machine has been installed.

10. Log out.



- Select [Delete] to delete the device certificate from the machine.
- To use the device certificate created on the machine for S/MIME or PDF/A Digital Signature, set "Certification" in Web Image Monitor to [Certificate 1].

## Creating and Installing a Device Certificate from Web Image Monitor (Self-Signed Certificate)

Create and install the device certificate using Web Image Monitor. For details about the displayed items and selectable items, see Web Image Monitor Help.

This section explains the use of a self-signed certificate as the device certificate.

- 1. Log in as the network administrator from Web Image Monitor.
- 2. Point to [Device Management], and then click [Configuration].
- 3. Click [Device Certificate] under "Security".

4. Check the radio button next to the number of the certificate you want to create.

To use SSL/TLS, select [Certificate 1]. To use any other protocol, select the certificate number desired.

5. Click [Create].

Click [Delete] to delete the device certificate from the machine.

6. Make the necessary settings.

To use the device certificate for S/MIME, PDF Digital Signature, or PDF/A Digital Signature, enter the machine's administrator's e-mail address in the e-mail address setting.

7. Click [OK].

The setting is changed.

- 8. Click [OK].
- If a security warning message appears, check the details, and then select "Continue to this website".

"Installed" appears under "Certificate Status" to show that a device certificate for the machine has been installed.

10. Log out.

## Creating the Device Certificate (Issued by a Certificate Authority)

Create the device certificate using Web Image Monitor. For details about the displayed items and selectable items, see Web Image Monitor Help.

This section explains the use of a certificate issued by a certificate authority as the device certificate.

- 1. Log in as the network administrator from Web Image Monitor.
- 2. Point to [Device Management], and then click [Configuration].
- Click [Device Certificate] under "Security".
- Check the radio button next to the number of the certificate you want to create.

To use SSL/TLS, select [Certificate 1]. To use any other protocol, select the certificate number desired.

- 5. Click [Request].
- 6. Make the necessary settings.
- 7. Click [OK].

The setting is changed.

8. Click [OK].

"Requesting" appears for "Certificate Status".

9. Log out.

## Apply to the certificate authority for the device certificate.

The application procedure depends on the certificate authority. For details, contact the certificate authority.

For the application, click Web Image Monitor Details icon and use the information that appears in "Certificate Details".



- The issuing location may not be displayed if you request two certificates at the same time. When you install a certificate, be sure to check the certificate destination and installation procedure.
- Web Image Monitor can be used for creating the device certificate but not for requesting the
  certificate to the certificate authority.
- Click [Cancel Request] to cancel the request for the device certificate.

## Installing the Device Certificate (Issued by a Certificate Authority)

Install the device certificate using Web Image Monitor. For details about the displayed items and selectable items, see Web Image Monitor Help.

This section explains the use of a certificate issued by a certificate authority as the device certificate.

Enter the device certificate contents issued by the certificate authority.

- 1. Log in as the network administrator from Web Image Monitor.
- 2. Point to [Device Management], and then click [Configuration].
- 3. Click [Device Certificate] under "Security".
- 4. Check the radio button next to the number of the certificate you want to install.

To use SSL/TLS, select [Certificate 1]. To use any other protocol, select the certificate number desired.

- 5. Click [Install].
- 6. Enter the contents of the device certificate.

In the certificate box, enter the contents of the device certificate issued by the certificate authority.

If you are installing an intermediate certificate, enter the contents of the intermediate certificate also.

For details about the displayed items and selectable items, see Web Image Monitor Help.

- 7. Click [OK].
- 8. Wait for about one or two minutes, and then click [OK].

"Installed" appears under "Certificate Status" to show that a device certificate for the machine has been installed.

9. Log out.

## Installing an Intermediate Certificate (Issued by a Certificate Authority)

This section explains how to use Web Image Monitor to install an intermediate certificate issued by a certificate authority.

If you do not have the intermediate certificate issued by the certificate authority, a warning message will appear during communication. If the certificate authority has issued an intermediate certificate, we recommend installing the intermediate certificate.

- 1. Log in as the network administrator from Web Image Monitor.
- 2. Point to [Device Management], and then click [Configuration].
- 3. Click [Device Certificate] under "Security".
- 4. Check the radio button next to the number of the certificate you want to install.
- 5. Click [Install Intermediate Certificate].
- 6. Enter the contents of the intermediate certificate.

In the certificate box, enter the contents of the intermediate certificate issued by the certificate authority. For details about the items and settings of a certificate, see Web Image Monitor Help.

- 7. Click [OK].
- 8. Wait for about one or two minutes, and then click [OK].

The intermediate certificate will be installed on the device. The "Certificate Details" screen will inform you whether or not the installation of the intermediate certificate was successful. For details about the "Certificate Details" screen, see Web Image Monitor Help.

9. Log out.

## 5

## **Configuring SSL/TLS**

Configuring the machine to use SSL/TLS enables encrypted communication. Doing so helps prevent data from being intercepted, cracked or tampered with during transmission.

#### Flow of SSL/TLS encrypted communications

1. To access the machine from a user's computer, request the SSL/TLS device certificate and public key.



2. The device certificate and public key are sent from the machine to the user's computer.



3. The shared key created with the computer is encrypted using the public key, sent to the machine, and then decrypted using the private key in the machine.



4. The shared key is used for data encryption and decryption, thus achieving secure transmission.



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### Configuration flow when using a self-signed certificate

1. Creating and installing the device certificate

Create and install a device certificate from the control panel or Web Image Monitor.

2. Enabling SSL/TLS

Enable the SSL/TLS setting using Web Image Monitor.

#### Configuration flow when using an authority issued certificate

1. Creating a device certificate and applying to the authority

After creating a device certificate on Web Image Monitor, apply to the certificate authority.

The application procedure after creating the certificate depends on the certificate authority. Follow the procedure specified by the certificate authority.

2. Installing the device certificate

Install the device certificate using Web Image Monitor.

3. Enabling SSL/TLS

Enable the SSL/TLS setting using Web Image Monitor.



- To confirm whether SSL/TLS configuration is enabled, enter "https://(the machine's IP address or host name)/" in your Web browser's address bar to access this machine. If the "The page cannot be displayed" message appears, check the configuration because the current SSL/TLS configuration is invalid.
- If you enable SSL/TLS for IPP (printer functions), sent data is encrypted, preventing it from being intercepted, analyzed, or tampered with.

## **Enabling SSL/TLS**

After installing the device certificate in the machine, enable the SSL/TLS setting.

This procedure is used for a self-signed certificate or a certificate issued by a certificate authority.

- 1. Log in as the network administrator from Web Image Monitor.
- 2. Point to [Device Management], and then click [Configuration].
- 3. Click [SSL/TLS] under "Security".
- 4. For IPv4 and IPv6, select "Active" if you want to enable SSL/TLS.
- 5. Select the encryption communication mode for "Permit SSL/TLS Communication".
- If you want to disable a protocol, click [Inactive] next to "TLS1.2", "TLS1.1", "TLS1.0", or "SSL3.0".

At least one of these protocols must be enabled.

 Under "Encryption Strength Setting", specify the strength of encryption to be applied for "AES", "3DES", and/or "RC4". You must select at least one check box.

Note that the availability of encryption strengths will vary depending on the settings you have specified for "TLS1.2", "TLS1.1", "TLS1.0", or "SSL3.0".

- 8. Click [OK].
- 9. "Updating..." appears. Wait for about one or two minutes, and then click [OK].
  If the previous screen does not reappear after you click [OK], wait for a while, and then click the web browser's refresh button.
- 10. Log out.



- If you set "Permit SSL/TLS Communication" to [Ciphertext Only], communication will not be
  possible if you select a protocol that does not support a Web browser, or specify an encryption
  strength setting only. If this is the case, enable communication by setting [Permit SSL / TLS
  Communication] to [Ciphertext / Cleartext] using the machine's control panel, and then specify the
  correct protocol and encryption strength.
- The SSL/TLS version and encryption strength settings can be changed, even under [Network Security].
- Depending on the states you specify for "TLS1.2", "TLS1.1", "TLS1.0", and "SSL3.0", the machine
  might not be able to connect to an external LDAP server.
- If only TLS1.2 and TLS1.1 are enabled, Integration Server authentication cannot be performed.
- The following types of communication and data are always encrypted by SSL3.0: communication via @Remote, Integration Server authentication, files sent via a delivery server, and logs transferred to Remote Communication Gate S.

## User Setting for SSL/TLS

We recommend that after installing the self-signed certificate or device certificate from a private certificate authority on the main unit and enabling SSL/TLS (communication encryption), you instruct users to install the certificate on their computers. Installation of the certificate is especially necessary for users who want to print via IPP-SSL from Windows Vista/7/8, Windows Server 2008/2008 R2/2012. The network administrator must instruct each user to install the certificate.

Select [Trusted Root Certification Authorities] for the certificate store location when accessing the machine by IPP.



Take the appropriate steps when you receive a user's inquiry concerning problems such as an
expired certificate.

- If a certificate issued by a certificate authority is installed in the machine, confirm the certificate store location with the certificate authority.
- To change the host name or IP address in [Common Name] of the device certificate when using the operating system's standard IPP port under Windows Vista/7/8 or Windows Server 2008/2008 R2/2012, delete any previously configured PC printer beforehand and re-install it after changing [Common Name]. Also, to change the user authentication settings (login user name and password), delete any previously configured PC printer beforehand and re-install it after changing the user authentication settings.

## Setting the SSL/TLS Encryption Mode

By specifying the SSL/TLS encrypted communication mode, you can change the security level.

#### **Encrypted communication mode**

Using the encrypted communication mode, you can specify encrypted communication.

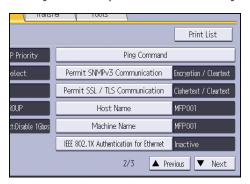
Encrypted communication mode	Description
Ciphertext Only	Allows encrypted communication only.  If encryption is not possible, the machine does not communicate.
Ciphertext Priority	Performs encrypted communication if encryption is possible.  If encryption is not possible, the machine communicates without it.
Ciphertext / Cleartext	Communicates with or without encryption, according to the setting.

After installing the device certificate, specify the SSL/TLS encrypted communication mode. By making this setting, you can change the security level.

- 1. Log in as the network administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Interface Settings].
- 4. Press [▼Next].



5. Press [Permit SSL / TLS Communication].



6. Select the encrypted communication mode.

Select [Ciphertext Only], [Ciphertext Priority], or [Ciphertext / Cleartext] as the encrypted communication mode.

- 7. Press [OK].
- 8. Log out.

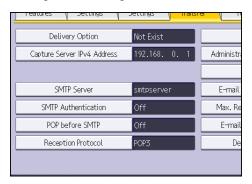


 The SSL/TLS encrypted communication mode can also be specified using Web Image Monitor. For details, see Web Image Monitor Help.

## **Enabling SSL for SMTP Connections**

Use the following procedure to enable SSL encryption for SMTP connections.

- 1. Log in as the network administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [File Transfer].
- 4. Press [SMTP Server].



## 5. In "Use Secure Connection (SSL)", press [On].

If you are not using SSL for SMTP connections, press [Off].

When "Use Secure Connection (SSL)" is set to [On], the port number is changed to 465.

- 6. Press [OK].
- 7. Log out.



• If you set "Use Secure Connection (SSL)" to [On], you cannot bypass the SMTP server to send Internet Fax documents directly.

#### 0

## Configuring S/MIME

By registering a user certificate in the Address Book, you can send e-mail that is encrypted with a public key which prevents its content from being altered during transmission. You can also prevent sender impersonation (spoofing) by installing a device certificate on the machine, and attaching an electronic signature created with a private key. You can apply these functions separately or, for stronger security, together.

To send encrypted e-mail, both the sender (this machine) and the receiver must support S/MIME.

## Compatible mailer applications

The S/MIME function can be used with the following applications:

- · Microsoft Outlook 98 and later
- Microsoft Outlook Express 5.5 and later
- Thunderbird 3.1.7 and later
- Lotus Notes R5 and later
- Windows Live Mail 2009 and later



• To use S/MIME, you must first specify [Administrator's E-mail Address] in [System Settings].



- If an electronic signature is specified for an e-mail, the administrator's address appears in the "From" field and the address of the user specified as "sender" appears in the "Reply To" field.
- When you send an e-mail to both users whose mail clients support S/MIME and users whose
  clients lack such support, the e-mail for the S/MIME clients is encrypted, but that for the non-S/
  MIME clients is left as plaintext.
- When using S/MIME, the e-mail size is larger than normal.
- For details about using S/MIME with the fax function, see "Encryption and Signature for Internet Fax/E-mail", Fax.

## **E-mail Encryption**

To send encrypted e-mail using S/MIME, the user certificate must first be prepared using Web Image Monitor and registered in the Address Book by the user administrator. Registering the certificate in the Address Book specifies each user's public key. After installing the certificate, specify the encryption algorithm using Web Image Monitor. The network administrator can specify the algorithm.

#### **E-mail encryption**

1. Prepare the user certificate.

5

- 2. Install the user certificate in the Address Book using Web Image Monitor. (The public key on the certificate is specified in the Address Book.)
- 3. Specify the encryption algorithm using Web Image Monitor.
- 4. Using the shared key, encrypt the e-mail message.
- 5. The shared key is encrypted using the user's public key.
- 6. The encrypted e-mail is sent.
- 7. The receiver decrypts the shared key using a secret key that corresponds to the public key.
- 8. The e-mail is decrypted using the shared key.



- There are three types of user certificates that can be installed on this machine, "DER Encoded Binary X.509", "Base 64 Encoded X.509", and "PKCS #7" certificate.
- When installing a user certificate to the Address Book using Web Image Monitor, you might see an
  error message if the certificate file contains more than one certificate. If this error message appears,
  install the certificates one at a time.

## Specifying the user certificate

Each user certificate must be prepared in advance.

- 1. Log in as the user administrator from Web Image Monitor.
- 2. Point to [Device Management], and then click [Address Book].
- 3. Select the user for whom the certificate will be installed.
- 4. Click [Detail Input], and then click [Change].

The Change User Information screen appears.

- 5. Enter the user address in the "Email Address" field under "Email".
- 6. Click [Change] in "User Certificate".
- 7. Click [Browse], select the user certificate file, and then click [Open].
- 8. Click [OK].

The user certificate is installed.

9. "Updating..." appears. Wait for about one or two minutes, and then click [OK].
If the previous screen does not reappear after you click [OK], wait for a while, and then click the web browser's refresh button.

10. Log out.



 Once the valid period of the selected user certificate elapses, encrypted messages can no longer be sent. Select a certificate that is within its valid period.

## Specifying the encryption algorithm

- 1. Log in as the network administrator from Web Image Monitor.
- 2. Point to [Device Management], and then click [Configuration].
- 3. Click [S/MIME] under "Security".
- 4. Select the encryption algorithm from the drop-down menu next to "Encryption Algorithm" under "Encryption".
- 5. Click [OK].

The algorithm for S/MIME is set.

6. Log out.



 Configure the settings taking into consideration the encryption algorithm and digest algorithm supported by the user's e-mail software.

## Attaching an Electronic Signature

To attach an electronic signature to sent e-mail, a device certificate must be installed in advance.

As the device certificate, you can use a self-signed certificate created by the machine or a certificate issued by a certificate authority. For details about creating and installing the device certificate, see page 124 "Protecting the Communication Path via a Device Certificate".



 To install an S/MIME device certificate, you must first register "Administrator's E-mail Address" in [System Settings] as the e-mail address for the device certificate. Note that even if you will not be using S/MIME, you must still specify an e-mail address for the S/MIME device certificate.

#### Electronic signature

- 1. Install a device certificate on the machine. (The secret key on the certificate is configured on the machine.)
- Attach the electronic signature to an e-mail using the secret key provided by the device certificate.
- 3. Send the e-mail with the electronic signature attached to the user.
- 4. The receiver requests the public key and device certificate from the machine.
- 5. Using the public key, you can determine the authenticity of the attached electronic signature to see if the message has been altered.

#### Configuration flow (self-signed certificate)

- 1. Create and install the device certificate using Web Image Monitor.
- 2. Make settings for the certificate to be used for S/MIME using Web Image Monitor.

3. Make settings for the electronic signature using Web Image Monitor.

#### Configuration flow (certificate issued by a certificate authority)

- 1. Create the device certificate using Web Image Monitor.
  - The application procedure for a created certificate depends on the certificate authority. Follow the procedure specified by the certificate authority.
- 2. Install the device certificate using Web Image Monitor.
- 3. Make settings for the certificate to be used for S/MIME using Web Image Monitor.
- 4. Make settings for the electronic signature using Web Image Monitor.

## Selecting the device certificate

Select the device certificate to be used for S/MIME using Web Image Monitor.

- 1. Log in as the network administrator from Web Image Monitor.
- 2. Point to [Device Management], and then click [Configuration].
- 3. Click [Device Certificate] under "Security".
- Select the certificate to be used for the electronic signature from the drop-down box in "S/MIME" under "Certification".
- 5. Click [OK].

The certificate to be used for the S/MIME electronic signature is set.

- 6. "Updating..." appears. Wait for about one or two minutes, and then click [OK].
  If the previous screen does not reappear after you click [OK], wait for a while, and then click the web browser's refresh button.
- 7. Log out.



If the selected device certificate expires, signatures cannot be attached to e-mail. Select a
certificate that is within its valid period.

## Specifying the electronic signature

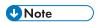
After installing a device certificate to the machine, configure the conditions for S/MIME signatures. The configuration procedure is the same regardless of whether you are using a self-signed certificate or a certificate issued by a certificate authority.

- 1. Log in as the network administrator from Web Image Monitor.
- 2. Point to [Device Management], and then click [Configuration].
- 3. Click [S/MIME] under "Security".

- 4. Select the digest algorithm to be used in the electronic signature next to "Digest Algorithm" under "Signature".
- Select the method for attaching the electronic signature when sending e-mail from the scanner next to "When Sending Email by Scanner" under "Signature".
- Select the method for attaching the electronic signature when forwarding received fax messages next to "When Transferring by Fax" under "Signature".
- Select the method for attaching the electronic signature when sending e-mail from the fax next to "When Sending Email by Fax" under "Signature".
- 8. Select the method for attaching the electronic signature when e-mail notification is sent using the fax function next to "When Emailing TX Results by Fax" under "Signature".
- Select the method for attaching the electronic signature when forwarding stored documents next to "When Transferring Files Stored in Document Server (Utility)" under "Signature".
- 10. Click [OK].

The settings for the S/MIME electronic signature are enabled.

11. Log out.



 Configure the settings taking into consideration the encryption algorithm and digest algorithm supported by the user's e-mail software.

## Specifying Checking of the Certificate Valid Period

The validity period of the certificate used with S/MIME is verified when you send e-mail.

You can change the timing at which the valid period is checked.

Operation mode	Description
Security Priority	The validity period is verified at the following timings.
	User Certificate
	(a). When the address is selected
	(b). When the [Start] key is pressed
	Device certificate
	(c). When the first address is selected
	(d). When the [Start] key is pressed

Operation mode	Description
Performance Priority	Performing (b) and (c) are omitted.
	If it takes a long time to verify the validity period when the address is selected or when the [Start] key is pressed, the time taken can be shortened by selecting "Performance Priority".

- 1. Log in as the network administrator from Web Image Monitor.
- 2. Point to [Device Management], and then click [Configuration].
- 3. Click [S/MIME] under "Security".
- 4. In "Operation Mode", select [Security Priority] or [Performance Priority].
- 5. Click [OK].
- 6. Log out.



- If a certificate was valid when transmitted but has expired before retrieving the e-mail from the mail server to the client computer, the e-mail may not be retrieved.
- If an error occurs outside the validity period of the certificate when sending an S/MIME e-mail automatically, such as in the case of sending e-mail by Memory Transmission or at a specified time, the error will be reported by e-mail in plain text to the sender's or administrator's e-mail address.
   The error details can be viewed in the job log. When using S/MIME, be sure to enable the job log collection function. For details about viewing the logs, see page 197 "Managing Log Files".

#### 5

# **Configuring PDFs with Electronic Signatures**

This machine can create PDFs with electronic signatures. PDFs with electronic signatures certify the creator of the PDF document and the date and time of creation. Tampering is also prevented as documents that have been tampered with can be detected.

In order to create PDFs with electronic signatures, first select the certificate to use for the signature from the device certificates that have been created and installed.

As the device certificate, you can use a self-signed certificate created by the machine or a certificate issued by a certificate authority. For details about creating and installing a device certificate, see page 124 "Protecting the Communication Path via a Device Certificate".



- To create digitally signed PDFs, you must first specify [Administrator's E-mail Address] in [File Transfer] in [System Settings].
- To use the device certificate for digitally signed PDFs, you must first specify the administrator's e-mail address so that it is the same as that registered as "Administrator's E-mail Address" in [System Settings].

Select the certificate to use for signatures.

- 1. Log in as the network administrator from Web Image Monitor.
- 2. Point to [Device Management], and then click [Configuration].
- Click [Device Certificate] under "Security".
- Select the certificate to be used for the electronic signature from the drop-down box in "PDF Digital Signature" or "PDF/A Digital Signature" under "Certification".

PDF Digital Signature: This can be attached to PDFs in formats other than PDF/A. PDF/A Digital Signature: This can be attached to PDFs in the PDF/A format.

- 5. Click [OK].
- 6. "Updating..." appears. Wait for about one or two minutes, and then click [OK].
  If the previous screen does not reappear after you click [OK], wait for a while, and then click the web browser's refresh button.
- 7. Log out.



- If the selected device certificate expires, signatures cannot be attached to PDFs. Select a certificate
  that is within its valid period.
- The signature algorithm for the device certificate's digital signature that can be attached to PDF/A files is "sha1WithRSA-1024".

# Configuring IPsec

For communication security, this machine supports IPsec. IPsec transmits secure data packets at the IP protocol level using the shared key encryption method, where both the sender and receiver retain the same key. This machine uses automatic key exchange to configure the pre-shared key for both parties. Using the auto exchange setting, you can renew the shared key exchange settings within a specified validity period, and achieve higher transmission security.

## Mportant !

- When "Inactive" is specified for "Exclude HTTPS Communication", access to Web Image Monitor can be lost if the key settings are improperly configured. In order to prevent this, you can specify IPsec to exclude HTTPS transmission by selecting "Active". When you want to include HTTPS transmission, we recommend that you select "Inactive" for "Exclude HTTPS Communication" after confirming that IPsec is properly configured. When "Active" is selected for "Exclude HTTPS Communication", even though HTTPS transmission is not targeted by IPsec, Web Image Monitor might become unusable when TCP is targeted by IPsec from the computer side.
- If you cannot access Web Image Monitor due to IPsec configuration problems, disable IPsec in System Settings on the control panel, and then access Web Image Monitor.
- For details about enabling and disabling IPsec using the control panel, see "Interface Settings",
   Connecting the Machine/ System Settings.
- IPsec is not applied to data obtained through DHCP, DNS, or WINS.
- IPsec for IPv4 is supported by Windows XP SP2 and Windows Server 2003/2003 R2. IPsec for both IPv4 and IPv6 is supported by Windows Vista/7/8, Windows Server 2008/2008 R2/2012, Mac OS X 10.4.8 and later, Red Hat Enterprise Linux WS 4.0 and Solaris 10. 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.

# **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. If you use the encryption key auto exchange method, 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. If you use the encryption key auto exchange method, 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. If you use the encryption key auto exchange method, 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. If you use the encryption key auto exchange method, 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. If you use the encryption key auto exchange method, the
  authentication algorithm and authentication key are specified automatically.



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

# **Encryption Key Auto Exchange Settings**

For key configuration, this machine supports automatic key exchange to specify agreements such as the IPsec algorithm and key 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.

If you use the auto exchange method to specify the encryption key, the SA settings are auto configured on both parties' machines. However, before setting the IPsec SA, the ISAKMP SA (Phase 1) settings are auto configured. After this, the IPsec SA (Phase 2) settings, which allow actual IPsec transmission, are 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 auto exchange.

Note that it is possible to configure multiple SAs.

#### Settings 1-4 and default setting

Using the auto exchange method, you can configure four separate sets of SA details (such as different shared keys and IPsec algorithms). In the default settings of these sets, you can include settings that the fields of sets 1 to 4 cannot contain.

When IPsec is enabled, set 1 has the highest priority and 4 has the lowest. You can use this priority system to target IP addresses more securely. For example, set the broadest IP range at the lowest priority (4), and then set specific IP addresses at a higher priority level (3 and higher). This way, when IPsec transmission is enabled for a specific IP address, the higher level settings will be applied.

# **IPsec Settings**

IPsec settings for this machine can be made on Web Image Monitor. The following table explains individual setting items.

#### **IPsec settings items**

Setting	Description	Setting value
IPsec	Specify whether to enable or disable IPsec.	<ul><li>Active</li><li>Inactive</li></ul>
Exclude HTTPS Communication	Specify whether to enable IPsec for HTTPS transmission.	<ul> <li>Active</li> <li>Inactive</li> <li>Specify "Active" if you do not want to use IPsec for HTTPS transmission.</li> </ul>

The IPsec setting can also be made from the control panel.

#### Encryption key auto exchange security level

When you select a security level, certain security settings are automatically configured. The following table explains security level features.

Security level	Security level features
Authentication Only	Select this level if you want to authenticate the transmission partner and prevent unauthorized data tampering, but not perform data packet encryption.  Since the data is sent in cleartext, data packets are vulnerable to eavesdropping attacks. Do not select this if you are exchanging sensitive information.

Security level	Security level features
Authentication and Low Level Encryption	Select this level if you want to encrypt the data packets as well as authenticate the transmission partner and prevent unauthorized packet tampering. Packet encryption helps prevent eavesdropping attacks. This level provides less security than "Authentication and High Level Encryption".
Authentication and High Level Encryption	Select this level if you want to encrypt the data packets as well as authenticate the transmission partner and prevent unauthorized packet tampering. Packet encryption helps prevent eavesdropping attacks. This level provides higher security than "Authentication and Low Level Encryption".

The following table lists the settings that are automatically configured according to the security level.

Setting	Authentication Only	Authentication and Low Level Encryption	Authentication and High Level Encryption
Security Policy	Apply	Apply	Apply
Encapsulation Mode	Transport	Transport	Transport
IPsec Requirement Level	Use When Possible	Use When Possible	Always Require
Authentication Method	PSK	PSK	PSK
Phase 1 Hash Algorithm	MD5	SHA1	SHA256
Phase 1 Encryption Algorithm	DES	3DES	AES-128-CBC
Phase 1 Diffie- Hellman Group	2	2	2
Phase 2 Security Protocol	АН	ESP	ESP

Setting	Authentication Only	Authentication and Low Level Encryption	Authentication and High Level Encryption
Phase 2 Authentication Algorithm	HMAC-SHA1-96/ HMAC- SHA256-128/ HMAC- SHA384-192/ HMAC- SHA512-256	HMAC-SHA1-96/ HMAC- SHA256-128/ HMAC- SHA384-192/ HMAC-SHA512-256	HMAC-SHA256-128/ HMAC-SHA384-192/ HMAC-SHA512-256
Phase 2 Encryption Algorithm	Cleartext (NULL encryption)	3DES/AES-128/ AES-192/AES-256	AES-128/AES-192/ AES-256
Phase 2 PFS	Inactive	Inactive	2

## Encryption key auto exchange settings items

When you specify a security level, the corresponding security settings are automatically configured, but other settings, such as address type, local address, and remote address must still be configured manually.

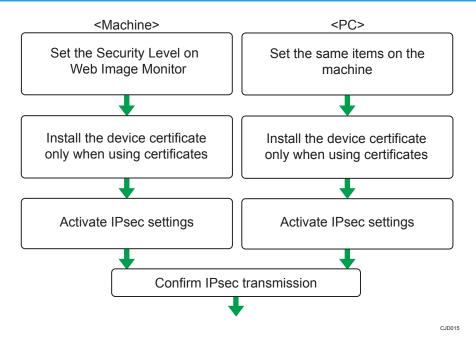
After you specify a security level, you can still make changes to the auto configured settings. When you change an auto configured setting, the security level switches automatically to "User Setting".

Setting	Description	Setting value
Address Type	Specify the address type for which IPsec transmission is used.	<ul> <li>Inactive</li> <li>IPv4</li> <li>IPv6</li> <li>IPv4/IPv6 (Default Settings only)</li> </ul>
Local Address	Specify the machine's address. If you are using multiple addresses in IPv6, you can also specify an address range.	The machine's IPv4 or IPv6 address.  If you are not setting an address range, enter 32 after an IPv4 address, or enter 128 after an IPv6 address.

Setting	Description	Setting value
Remote Address	Specify the address of the IPsec transmission partner. You can also specify an address range.	The IPsec transmission partner's IPv4 or IPv6 address.  If you are not setting an address range, enter 32 after an IPv4 address, or enter 128 after an IPv6 address.
Security Policy	Specify how IPsec is handled.	<ul><li>Apply</li><li>Bypass</li><li>Discard</li></ul>
Encapsulation Mode	Specify the encapsulation mode. (auto setting)	Transport  Tunnel  (Tunnel beginning address - Tunnel ending address)  Select the transport mode (this has no bearing on the security level).  If you specify "Tunnel", you must then specify the "Tunnel End Point", which are the beginning and ending IP addresses. Set the same address for the beginning point as you set in "Local Address".
IPsec Requirement Level	Specify whether to only transmit using IPsec, or to allow cleartext transmission when IPsec cannot be established.  (auto setting)	<ul><li>Use When Possible</li><li>Always Require</li></ul>

Setting	Description	Setting value
Authentication Method	Specify the method for authenticating transmission partners. (auto setting)	PSK     Certificate  If you specify "PSK", you must then set the PSK text (using ASCII characters).  If you are using "PSK", specify a PSK password using up to 32 ASCII characters.  If you specify "Certificate", the certificate for IPsec must be installed and specified before it can be used.
PSK Text	Specify the pre-shared key for PSK authentication.	Enter the pre-shared key required for PSK authentication.
Phase 1 Hash Algorithm	Specify the Hash algorithm to be used in phase 1. (auto setting)	<ul><li>MD5</li><li>SHA1</li><li>SHA256</li><li>SHA384</li><li>SHA512</li></ul>
Phase 1 Encryption Algorithm	Specify the encryption algorithm to be used in phase 1. (auto setting)	<ul><li>DES</li><li>3DES</li><li>AES-128-CBC</li><li>AES-192-CBC</li><li>AES-256-CBC</li></ul>
Phase 1 Diffie-Hellman Group	Select the Diffie-Hellman group number used for IKE encryption key generation. (auto setting)	• 1 • 2 • 14
Phase 1 Validity Period	Specify the time period for which the SA settings in phase 1 are valid.	Set in seconds from 300 sec. (5 min.) to 172800 sec. (48 hrs.).

Setting	Description	Setting value
Phase 2 Security Protocol	Specify the security protocol to be used in Phase 2.  To apply both encryption and authentication to sent data, specify "ESP" or "ESP+AH".  To apply authentication data only, specify "AH".  (auto setting)	• ESP • AH • ESP+AH
Phase 2 Authentication Algorithm	Specify the authentication algorithm to be used in phase 2.  (auto setting)	<ul> <li>HMAC-MD5-96</li> <li>HMAC-SHA1-96</li> <li>HMAC-SHA256-128</li> <li>HMAC-SHA384-192</li> <li>HMAC-SHA512-256</li> </ul>
Phase 2 Encryption Algorithm Permissions	Specify the encryption algorithm to be used in phase 2. (auto setting)	<ul> <li>Cleartext (NULL encryption)</li> <li>DES</li> <li>3DES</li> <li>AES-128</li> <li>AES-192</li> <li>AES-256</li> </ul>
Phase 2 PFS	Specify whether to activate PFS. Then, if PFS is activated, select the Diffie-Hellman group. (auto setting)	<ul><li>Inactive</li><li>1</li><li>2</li><li>14</li></ul>
Phase 2 Validity Period	Specify the time period for which the SA settings in phase 2 are valid.	Specify a period (in seconds) from 300 (5min.) to 172800 (48 hrs.).





- To use a certificate to authenticate the transmission partner in encryption key auto exchange settings, a device certificate must be installed.
- After configuring IPsec, you can use "Ping" command to check if the connection is established
  correctly. However, you cannot use "Ping" command when ICMP is excluded from IPsec
  transmission on the computer side. Also, because the response is slow during initial key exchange,
  it may take some time to confirm that transmission has been established.

# **Specifying Encryption Key Auto Exchange Settings**

To change the transmission partner authentication method for encryption key auto exchange settings to "Certificate", you must first install and assign a certificate. For details about creating and installing a device certificate, see page 124 "Protecting the Communication Path via a Device Certificate". For the method of assigning installed certificates to IPsec, see page 151 "Selecting the certificate for IPsec".

- 1. Log in as the network administrator from Web Image Monitor.
- 2. Point to [Device Management], and then click [Configuration].
- 3. Click [IPsec] under "Security".
- 4. Click [Edit] under "Encryption Key Auto Exchange Settings".

- 5. Make encryption key auto exchange settings in [Settings 1].
  - If you want to make multiple settings, select the settings number and add settings.
- 6. Click [OK].
- 7. Select [Active] for "IPsec" in "IPsec".
- 8. Set "Exclude HTTPS Communication" to [Active] if you do not want to use IPsec for HTTPS transmission.
- 9. Click [OK].
- 10. "Updating..." appears. Wait for about one or two minutes, and then click [OK].
  - If the previous screen does not reappear after you click [OK], wait for a while, and then click the web browser's refresh button.
- 11. Log out.

#### Selecting the certificate for IPsec

Using Web Image Monitor, select the certificate to be used for IPsec. You must install the certificate before it can be used. For details about creating and installing a device certificate, see page 124 "Protecting the Communication Path via a Device Certificate".

- 1. Log in as the network administrator from Web Image Monitor.
- 2. Point to [Device Management], and then click [Configuration].
- 3. Click [Device Certificate] under "Security".
- Select the certificate to be used for IPsec from the drop-down box in "IPsec" under "Certification".
- 5. Click [OK].

The certificate for IPsec is specified.

- 6. "Updating..." appears. Wait for about one or two minutes, and then click [OK].
  - If the previous screen does not reappear after you click [OK], wait for a while, and then click the web browser's refresh button.
- 7. Log out.

#### Specifying the computer's IPsec settings

Configure the computer's IPsec SA settings, so that they exactly match the machine's security level on the machine. Setting methods differ according to the computer's operating system. The example procedure shown here uses Windows 7 when the "Authentication and Low Level Encryption" security level is selected.

 On the [Start] menu, click [Control Panel], click [System and Security], and then click [Administrative Tools].

Under Windows 8, hover the mouse pointer over the top- or bottom-right corner of the screen, and then click [Settings], [Control Panel], [System and Security], and then [Administrative Tools].

If you are using Windows XP, on the [Start] menu, click [Control Panel], click [Performance and Maintenance], and then click [Administrative Tools].

Double-click [Local Security Policy].

If the "User Account Control" dialog box appears, click [Yes].

- 3. Click [IP Security Policies on Local Computer].
- 4. In the "Action" menu, click [Create IP Security Policy].

The IP Security Policy Wizard appears.

- 5. Click [Next].
- 6. Enter a security policy name in "Name", and then click [Next].
- 7. Clear the "Activate the default response rule" check box, and then click [Next].
- 8. Select "Edit properties", and then click [Finish].
- 9. In the "General" tab, click [Settings].

If you are using Windows XP, in the "General" tab, click [Advanced].

- 10. In "Authenticate and generate a new key after every", enter the same validity period (in minutes) that is specified on the machine in "Encryption Key Auto Exchange Settings Phase 1", and then click [Methods].
- 11. Check that the hash algorithm ("Integrity"), encryption algorithm ("Encryption") and "Diffie-Hellman Group" settings in "Security method preference order" all match those specified on the machine in "Encryption Key Auto Exchange Settings Phase 1".

If the settings are not displayed, click [Add].

- 12. Click [OK] twice.
- 13. Click [Add] in the "Rules" tab.

The Security Rule Wizard appears.

- 14. Click [Next].
- 15. Select "This rule does not specify a tunnel", and then click [Next].
- 16. Select the type of network for IPsec, and then click [Next].
- For Windows XP, select the authentication method, and then click [Next]. For Windows 7/8, go to Step 18.

If you select "Certificate" for authentication method in "Encryption Key Auto Exchange Settings" on the machine, specify the device certificate. If you select "PSK", enter the same PSK text specified on the machine with the pre-shared key.

18. Click [Add] in the IP Filter List.

19. In [Name], enter an IP Filter name, and then click [Add].

The IP Filter Wizard appears.

- 20. Click [Next].
- 21. If required, enter a description of the IP filter, and then click [Next].

For Windows XP, go to Step 22.

- 22. Select "My IP Address" in "Source address", and then click [Next].
- 23. Select "A specific IP Address or Subnet" in "Destination address", enter the machine's IP address, and then click [Next].

If you are using Windows XP, select "A specific IP Address", and then click [Next].

24. Select the protocol type for IPsec, and then click [Next].

If you are using IPsec with IPv6, select "58" as the protocol number for the "Other" target protocol type.

- 25. Click [Finish].
- 26. Click [OK].
- 27. Select the IP filter that was just created, and then click [Next].
- 28. Click [Add].

Filter action wizard appears.

- 29. Click [Next].
- 30. In [Name], enter an IP Filter action name, and then click [Next].
- 31. Select "Negotiate security", and then click [Next].
- 32. Select "Allow unsecured communication if a secure connection connect be established.", and then [Next].

If you are using Windows XP, select "Fall back to unsecured communication", and then click [Next].

- 33. Select "Custom" and click [Settings].
- 34. In "Integrity algorithm", select the authentication algorithm that was specified on the machine in "Encryption Key Auto Exchange Settings Phase 2".
- 35. In "Encryption algorithm", select the encryption algorithm that specified on the machine in "Encryption Key Auto Exchange Settings Phase 2".
- 36. In Session key settings, select "Generate a new key every", and enter the validity period (in seconds) that was specified on the machine in "Encryption Key Auto Exchange Settings Phase 2".
- 37. Click [OK].
- 38. Click [Next].
- 39. Click [Finish].

#### 40. Select the filter action that was just created, and then click [Next].

If you set "Encryption Key Auto Exchange Settings" to "Authentication and High Level Encryption", select the IP filter action that was just created, click [Edit], and then check "Use session key perfect forward secrecy (PFS)" on the filter action properties dialog box. If using PFS in Windows, the PFS group number used in phase 2 is automatically negotiated in phase 1 from the Diffie-Hellman group number (set in step 11). Consequently, if you change the security level specified automatic settings on the machine and "User Setting" appears, you must set the same the group number for "Phase 1 Diffie-Hellman Group" and "Phase 2 PFS" on the machine to establish IPsec transmission.

41. Select the authentication method, and then click [Next]. For Windows XP, go to Step 42.

If you select "Certificate" for authentication method in "Encryption Key Auto Exchange Settings" on the machine, specify the device certificate. If you select "PSK", enter the same PSK text specified on the machine with the pre-shared key.

- 42. Click [Finish].
- 43. Click [OK].

If you are using Windows XP, click [Close].

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

44. Select the security policy that was just created, right-click, and then click [Assign].

The computer's IPsec settings are enabled.



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

# telnet Setting Commands

You can use telnet to confirm IPsec settings and make setting changes. This section explains telnet commands for IPsec. The default user name for logging into telnet is "admin". The password is not configured by default. For details about logging in to telnet and telnet operations, see "Remote Maintenance Using telnet", Connecting the Machine/ System Settings.



 If you are using a certificate as the authentication method in encryption key auto exchange settings (IKE), install the certificate using Web Image Monitor. A certificate cannot be installed using telnet.

#### ipsec

To display IPsec related settings information, use the "ipsec" command.

#### Display current settings

msh> ipsec

Displays the following IPsec settings information:

- IPsec settings values
- Encryption key auto exchange settings, IKE setting 1-4 values
- Encryption key auto exchange settings, IKE default setting values

#### Display current settings portions

```
msh> ipsec -p
```

• Displays IPsec settings information in portions.

#### ipsec exclude

To display or specify protocols excluded by IPsec, use the "ipsec exclude" command.

#### Display current settings

msh> ipsec exclude

• Displays the protocols currently excluded from IPsec transmission.

#### Specify protocols to exclude

```
msh> ipsec exclude {https|dns|dhcp|wins|all} {on|off}
```

 Specify the protocol, and then enter [on] to exclude it, or [off] to include it for IPsec transmission. Entering [all] specifies all protocols collectively.

#### ipsec ike

To display or specify the encryption key auto exchange settings, use the "ipsec ike" command.

#### Display current settings

```
msh> ipsec ike {1|2|3|4|default}
```

- To display the settings 1-4, specify the number [1-4].
- To display the default setting, specify [default].
- Not specifying any value displays all of the settings.

#### Disable settings

```
msh> ipsec ike {1|2|3|4|default} disable
```

- To disable the settings 1-4, specify the number [1-4].
- To disable the default settings, specify [default].

#### Specify the local/remote address for settings 1-4

```
msh> ipsec ike {1|2|3|4} {ipv4|ipv6} "local address" "remote address"
```

• Enter the separate setting number [1-4], and the address type to specify local and remote address.

- To set the local or remote address values, specify masklen by entering [/] and an integer
  0-32 when settings an IPv4 address. When setting an IPv6 address, specify masklen by
  entering [/] and an integer 0-128.
- Not specifying an address value displays the current setting.

#### Specify the address type in default setting

msh> ipsec ike default {ipv4|ipv6|any}

- · Specify the address type for the default setting.
- To specify both IPv4 and IPv6, enter [any].

#### Security policy setting

msh> ipsec ike {1|2|3|4|default} proc {apply|bypass|discard}

- Enter the separate setting number [1-4] or [default] and specify the security policy for the address specified in the selected setting.
- To apply IPsec to the relevant packets, specify [apply]. To not apply IPsec, specify [bypass].
- If you specify [discard], any packets to which IPsec can be applied are discarded.
- Not specifying a security policy displays the current setting.

#### Security protocol setting

msh> ipsec ike {1|2|3|4|default} proto {ah|esp|dual}

- Enter the separate setting number [1-4] or [default] and specify the security protocol.
- To specify AH, enter [ah]. To specify ESP, enter [esp]. To specify AH and ESP, enter [dual].
- Not specifying a protocol displays the current setting.

#### IPsec requirement level setting

msh> ipsec ike {1|2|3|4|default} level {require|use}

- Enter the separate setting number [1-4] or [default] and specify the IPsec requirement level.
- If you specify [require], data will not be transmitted when IPsec cannot be used. If you specify
  [use], data will be sent normally when IPsec cannot be used. When IPsec can be used, IPsec
  transmission is performed.
- Not specifying a requirement level displays the current setting.

#### **Encapsulation mode setting**

msh> ipsec ike {1|2|3|4|default} mode {transport|tunnel}

- Enter the separate setting number [1-4] or [default] and specify the encapsulation mode.
- To specify transport mode, enter [transport]. To specify tunnel mode, enter [tunnel].
- If you have set the address type in the default setting to [any], you cannot use [tunnel] in encapsulation mode.
- Not specifying an encapsulation mode displays the current setting.

#### Tunnel end point setting

msh> ipsec ike  $\{1|2|3|4|\text{default}\}$  tunneladdr "beginning IP address" "ending IP address"

- Enter the separate setting number [1-4] or [default] and specify the tunnel end point beginning and ending IP address.
- Not specifying either the beginning or ending address displays the current setting.

#### IKE partner authentication method setting

msh> ipsec ike {1|2|3|4|default} auth {psk|rsasig}

- Enter the separate setting number [1-4] or [default] and specify the authentication method.
- Specify [psk] to use a shared key as the authentication method. Specify [rsasig] to use a certificate at the authentication method.
- You must also specify the PSK character string when you select [psk].
- Note that if you select "Certificate", the certificate for IPsec must be installed and specified before it can be used. To install and specify the certificate use Web Image Monitor.

#### **PSK** character string setting

msh> ipsec ike {1|2|3|4|default} psk "PSK character string"

- If you select PSK as the authentication method, enter the separate setting number [1-4] or [default] and specify the PSK character string.
- Specify the character string in ASCII characters. There can be no abbreviations.

#### ISAKMP SA (phase 1) hash algorithm setting

msh> ipsec ike {1|2|3|4|default} ph1 hash {md5|sha1|sha256|sha384|sha512}

- Enter the separate setting number [1-4] or [default] and specify the ISAKMP SA (phase 1) hash algorithm.
- Not specifying the hash algorithm displays the current setting.

#### ISAKMP SA (phase 1) encryption algorithm setting

msh> ipsec ike {1|2|3|4|default} ph1 encrypt {des|3des|aes128|aes192|aes256}

- Enter the separate setting number [1-4] or [default] and specify the ISAKMP SA (phase 1) encryption algorithm.
- Not specifying an encryption algorithm displays the current setting.

#### ISAKMP SA (phase 1) Diffie-Hellman group setting

msh $\rangle$  ipsec ike  $\{1|2|3|4|\text{default}\}\$ ph1 dhgroup  $\{1|2|14\}$ 

- Enter the separate setting number [1-4] or [default] and specify the ISAKMP SA (phase 1)
   Diffie-Hellman group number.
- Specify the group number to be used.
- Not specifying a group number displays the current setting.

#### ISAKMP SA (phase 1) validity period setting

msh> ipsec ike {1|2|3|4|default} ph1 lifetime "validity period"

- Enter the separate setting number [1-4] or [default] and specify the ISAKMP SA (phase 1) validity period.
- Enter the validity period (in seconds) from 300 to 172800.
- Not specifying a validity period displays the current setting.

#### IPsec SA (phase 2) authentication algorithm setting

msh> ipsec ike {1|2|3|4|default} ph2 auth {hmac-md5|hmac-sha1|hmac-sha256|hmac-sha384|hmac-sha512}

- Enter the separate setting number [1-4] or [default] and specify the IPsec SA (phase 2) authentication algorithm.
- Separate multiple encryption algorithm entries with a comma (,). The current setting values are displayed in order of highest priority.
- Not specifying an authentication algorithm displays the current setting.

#### IPsec SA (phase 2) encryption algorithm setting

msh> ipsec ike  $\{1|2|3|4|\text{default}\}\$ ph2 encrypt  $\{\text{null}|\text{des}|3\text{des}|\text{aes}128|\text{aes}192|\$ aes $256\}$ 

- Enter the separate setting number [1-4] or [default] and specify the IPsec SA (phase 2) encryption algorithm.
- Separate multiple encryption algorithm entries with a comma (,). The current setting values are displayed in order of highest priority.
- Not specifying an encryption algorithm displays the current setting.

#### IPsec SA (phase 2) PFS setting

msh $\rangle$  ipsec ike {1|2|3|4|default} ph2 pfs {none|1|2|14}

- Enter the separate setting number [1-4] or [default] and specify the IPsec SA (phase 2) Diffie-Hellman group number.
- Specify the group number to be used.
- Not specifying a group number displays the current setting.

#### IPsec SA (phase 2) validity period setting

msh> ipsec ike {1|2|3|4|default} ph2 lifetime "validity period"

- Enter the separate setting number [1-4] or [default] and specify the IPsec SA (phase 2) validity period.
- Enter the validity period (in seconds) from 300 to 172800.
- Not specifying a validity period displays the current setting.

#### 5

## Reset setting values

msh> ipsec ike  $\{1|2|3|4|default|all\}$  clear

• Enter the separate setting number [1-4] or [default] and reset the specified setting. Specifying [all] resets all of the settings, including default.

# Configuring IEEE 802.1X Authentication

IEEE 802.1X is an authentication function that can be used with both wired and wireless networks. Authentication is performed by the authentication server (RADIUS server).

You can select four types of EAP authentication method: EAP-TLS, LEAP, EAP-TTLS and PEAP. Note that each EAP authentication method has different configuration settings and authentication procedures.

Types and requirements of certificates are as follows:

EAP type	Required certificates
EAP-TLS	Site certificate, Device certificate (IEEE 802.1X Client Certificate)
LEAP	-
EAP-TTLS	Site certificate
PEAP	Site certificate
PEAP (Phase 2 is for TLS only)	Site certificate, Device certificate (IEEE 802.1X Client Certificate)

# Installing a Site Certificate

Install a site certificate (root CA certificate) for verifying the reliability of the authentication server. You need to have at least a certificate issued by the certificate authority who signed the server certificate or a certificate from a higher certificate authority.

Only PEM (Base64-encoded X.509) site certificates can be imported.

- 1. Log in as the network administrator from Web Image Monitor.
- 2. Point to [Device Management], and then click [Configuration].
- 3. Click [Site Certificate] under "Security".
- Click [Browse] for "Site Certificate to Import", and then select the CA certificate you obtained.
- 5. Click [Open].
- 6. Click [Import].
- 7. Check that the imported certificate's [Status] shows "Trustworthy".
  If [Site Certificate Check] shows [Active], and the [Status] of the certificate shows [Untrustworthy], communication might not be possible.
- 8. Click [OK].
- 9. Log out.

## Selecting the Device Certificate

Select the certificate to use under IEEE 802.1X from among the device certificates created and installed in advance on the machine. For details about creating and installing a device certificate, see page 124 "Protecting the Communication Path via a Device Certificate".

- 1. Log in as the network administrator from Web Image Monitor.
- 2. Point to [Device Management], and then click [Configuration].
- 3. Click [Device Certificate] under "Security".
- Select the certificate to be used for IEEE 802.1X from the drop-down box in "IEEE 802.1X" under "Certification".
- 5. Click [OK].
- 6. "Updating..." appears. Wait for about one or two minutes, and then click [OK].
  If the previous screen does not reappear after you click [OK], wait for a while, and then click the web browser's refresh button.
- 7. Log out.

## Setting Items of IEEE 802.1X for Ethernet

- 1. Log in as the network administrator from Web Image Monitor.
- 2. Point to [Device Management], and then click [Configuration].
- 3. Click [IEEE 802.1X] under "Security".
- 4. In "User Name", enter the user name set in the RADIUS server.
- 5. Enter the domain name in "Domain Name".
- 6. Select "EAP Type". Configurations differ according to the EAP Type.

#### **EAP-TLS**

- · Make the following settings according to the operating system you are using:
  - Select [On] or [Off] in "Authenticate Server Certificate".
  - Select [On] or [Off] in "Trust Intermediate Certificate Authority".
  - Enter the host name of the RADIUS server on "Server ID".
  - Select [On] or [Off] in "Permit Sub-domain".

#### **LEAP**

• Click [Change] in "Password", and then enter the password set in the RADIUS server.

#### **EAP-TTLS**

• Click [Change] in "Password", and then enter the password set in the RADIUS server.

- Click [Change] in "Phase 2 User Name", and then enter the user name set in the RADIUS server.
- Select [CHAP], [MSCHAP], [MSCHAPv2], [PAP], or [MD5] in "Phase 2 Method".
   Certain methods might not be available, depending on the RADIUS server you want to use.
- Make the following settings according to the operating system you are using:
  - Select [On] or [Off] in "Authenticate Server Certificate".
  - Select [On] or [Off] in "Trust Intermediate Certificate Authority".
  - Enter the host name of the RADIUS server in "Server ID".
  - Select [On] or [Off] in "Permit Sub-domain".

#### **PEAP**

- Click [Change] in "Password", and then enter the password set in the RADIUS server.

  If [TLS] is selected for "Phase 2 Method", you do not need to specify a password.
- Click [Change] on "Phase 2 User Name", and then enter the user name set in the RADIUS server.
- Select [MSCHAPv2] or [TLS] in "Phase 2 Method".
   When you select [TLS], you must install "IEEE 802.1X Client Certificate".
- Make the following settings according to the operating system you are using:
  - Select [On] or [Off] in "Authenticate Server Certificate".
  - Select [On] or [Off] in "Trust Intermediate Certificate Authority".
  - Enter the host name of the RADIUS server on "Server ID".
  - Select [On] or [Off] in "Permit Sub-domain".
- 7. Click [OK].
- 8. "Updating..." appears. Wait for about one or two minutes, and then click [OK].

  If the previous screen does not reappear after you click [OK], wait for a while, and then click the web browser's refresh button.
- 9. Click [Interface Settings] under "Interface".
- 10. Select [Active] in "Ethernet Security".
- 11. Click [OK].
- 12. "Updating..." appears. Wait for about one or two minutes, and then click [OK].

  If the previous screen does not reappear after you click [OK], wait for a while, and then click the web browser's refresh button.
- 13. Log out.



- If there is a problem with settings, you might not be able to communicate with the machine. In such a case, access [Print List] in [Interface Settings] on the control panel, and then print the network summary to check the status.
- If you cannot identify the problem, execute [Restore IEEE 802.1X Authentication to Defaults] in [Network] in [Interface Settings] on the control panel, and then repeat the procedure.

# Setting Items of IEEE 802.1X for Wireless LAN

- 1. Log in as the network administrator from Web Image Monitor.
- 2. Point to [Device Management], and then click [Configuration].
- 3. Click [IEEE 802.1X] under "Security".
- 4. In "User Name", enter the user name set in the RADIUS server.
- 5. Enter the domain name in "Domain Name".
- 6. Select "EAP Type". Configurations differ according to the EAP Type.

#### **EAP-TLS**

- · Make the following settings according to the operating system you are using:
  - Select [On] or [Off] in "Authenticate Server Certificate".
  - Select [On] or [Off] in "Trust Intermediate Certificate Authority".
  - Enter the host name of the RADIUS server on "Server ID".
  - Select [On] or [Off] in "Permit Sub-domain".

#### LEAP

• Click [Change] in "Password", and then enter the password set in the RADIUS server.

#### **EAP-TTLS**

- Click [Change] in "Password", and then enter the password set in the RADIUS server.
- Click [Change] in "Phase 2 User Name", and then enter the user name set in the RADIUS server.
- Select [CHAP], [MSCHAP], [MSCHAPv2], [PAP], or [MD5] in "Phase 2 Method".
   Certain methods might not be available, depending on the RADIUS server you want to use.
- Make the following settings according to the operating system you are using:
  - Select [On] or [Off] in "Authenticate Server Certificate".
  - Select [On] or [Off] in "Trust Intermediate Certificate Authority".
  - Enter the host name of the RADIUS server in "Server ID".
  - Select [On] or [Off] in "Permit Sub-domain".

#### **PEAP**

- Click [Change] in "Password", and then enter the password set in the RADIUS server.
   If [TLS] is selected for "Phase 2 Method", you do not need to specify a password.
- Click [Change] on "Phase 2 User Name", and then enter the user name set in the RADIUS server.
- Select [MSCHAPv2] or [TLS] in "Phase 2 Method".
   When you select [TLS], you must install "IEEE 802.1X Client Certificate".
- Make the following settings according to the operating system you are using:
  - Select [On] or [Off] in "Authenticate Server Certificate".
  - Select [On] or [Off] in "Trust Intermediate Certificate Authority".
  - Enter the host name of the RADIUS server on "Server ID".
  - Select [On] or [Off] in "Permit Sub-domain".
- 7. Click [OK].
- 8. "Updating..." appears. Wait for about one or two minutes, and then click [OK].

If the previous screen does not reappear after you click [OK], wait for a while, and then click the web browser's refresh button.

- 9. Click [Wireless LAN Settings] under "Interface".
- 10. Select [Wireless LAN] in "LAN Type".
- 11. Select [Infrastructure Mode] in "Communication Mode".
- 12. Enter the alphanumeric characters (a-z, A-Z, or 0-9) in [SSID] according to the access point you want to use.
- 13. Select [WPA2] in "Security Method".
- 14. Select [WPA2] in "WPA2 Authentication Method".
- 15. Click [OK].
- 16. "Updating..." appears. Wait for about one or two minutes, and then click [OK].
  If the previous screen does not reappear after you click [OK], wait for a while, and then click the web browser's refresh button.
- 17. Log out.



- If there is a problem with settings, you might not be able to communicate with the machine. In such a case, access [Print List] in [Interface Settings] on the control panel, and then print the network summary to check the status.
- If you cannot identify the problem, execute [Restore IEEE 802.1X Authentication to Defaults] in [Network] in [Interface Settings] on the control panel, and then repeat the procedure.

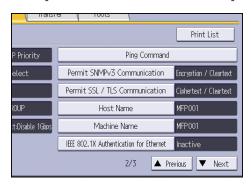
#### 5

# **SNMPv3 Encryption**

When using SmartDeviceMonitor for Admin/Device Manager NX Lite or another application that communicates via SNMPv3, you can encrypt the data transmitted.

By making this setting, you can protect data from being tampered with.

- 1. Log in as the network administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Interface Settings].
- 4. Press [VNext].
- 5. Press [Permit SNMPv3 Communication].



- 6. Press [Encryption Only].
- 7. Press [OK].
- 8. Log out.



- To use SmartDeviceMonitor for Admin/Device Manager NX Lite for encrypting the data for specifying settings, you need to specify the network administrator's [Encryption Password] setting and [Encryption Password] in [SNMP Authentication Information] in SmartDeviceMonitor for Admin/Device Manager NX Lite, in addition to specifying [Permit SNMPv3 Communication] on the machine. For details about specifying [Encryption Password] in SmartDeviceMonitor for Admin/Device Manager NX Lite, see SmartDeviceMonitor for Admin/Device Manager NX Lite Help.
- If network administrator's [Encryption Password] setting is not specified, the data for transmission may not be encrypted or sent. For details about specifying the network administrator's [Encryption Password] setting, see page 18 "Registering and Changing Administrators".

# **Encrypting Transmitted Passwords**

Configuring the driver encryption key and password encryption for IPP authentication enables communication with encrypted passwords as well as increasing the security against password cracking. In order to further enhance security, we recommend using IPsec, SNMPv3 and SSL/TLS all together.

Also, encrypt the login password for administrator authentication and user authentication.

#### **Driver Encryption Key**

This key is a character string used for encrypting login passwords or document passwords sent from each driver when user authentication is ON.

To encrypt the login password, specify the driver encryption key on the machine and on the printer driver installed in the user's computer.

#### **Password for IPP Authentication**

To encrypt the IPP Authentication password on Web Image Monitor, set "Authentication" to [DIGEST], and then specify the IPP Authentication password set on the machine.

You can use telnet or FTP to manage passwords for IPP authentication, although it is not recommended.



For details on encrypting the login passwords used for administrator authentication, see page 18
 "Registering and Changing Administrators".

# Specifying a Driver Encryption Key

Specify the driver encryption key on the machine.

This setting enables encrypted transmission of login passwords and strengthens the security against password cracking.

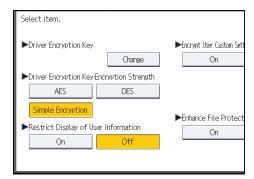
- 1. Log in as the network administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [VNext].

#### 5

#### 5. Press [Extended Security].



6. For "Driver Encryption Key", press [Change].



#### 7. Enter the driver encryption key, and then press [OK].

Enter the driver encryption key using up to 32 alphanumeric characters.

The network administrator must give users the driver encryption key specified on the machine so they can register it on their computers. Make sure to enter the same driver encryption key as that is specified on the machine.

- 8. Press [OK].
- 9. Log out.



- For details about specifying the encryption key on the printer driver or TWAIN driver, see the driver help.
- For details about specifying the encryption key on the LAN-Fax driver, see the LAN-Fax driver Help.

# Specifying an IPP Authentication Password

Specify an IPP authentication password for this machine. This setting enables encrypted transmission of IPP authentication passwords and strengthens the security against password cracking.

- 1. Log in as the network administrator from Web Image Monitor.
- 2. Point to [Device Management], and then click [Configuration].
- 3. Click [IPP Authentication] under "Security".
- 4. Select [DIGEST] from the "Authentication" list.
- 5. Enter the user name in the "User Name" box.
- 6. Enter the password in the "Password" box.
- 7. Click [OK].

IPP authentication is specified.

- 8. "Updating..." appears. Wait for about one or two minutes, and then click [OK].

  If the previous screen does not reappear after you click [OK], wait for a while, and then click the web browser's refresh button.
- 9. Log out.

# **Kerberos Authentication Encryption Setting**

You can specify encrypted transmission between the machine and the key distribution center (KDC) server when Kerberos authentication is enabled.

Using Kerberos authentication with Windows or LDAP authentication, LDAP search, etc., ensures safe communication.

The supported encryption algorithm differs depending on the type of KDC server. Select the algorithm that suits your environment.

KDC server	Supported encryption algorithms
Windows Server 2003 Active Directory	RC4-HMAC (ARCFOUR-HMAC-MD5)     DES-CBC-MD5
Windows Server 2008	<ul> <li>AES256-CTS-HMAC-SHA1-96</li> <li>AES128-CTS-HMAC-SHA1-96</li> <li>RC4-HMAC (ARCFOUR-HMAC-MD5)</li> </ul>
Windows Server 2008 R2/Windows Server 2012	<ul> <li>DES-CBC-MD5</li> <li>AES256-CTS-HMAC-SHA1-96</li> <li>AES128-CTS-HMAC-SHA1-96</li> <li>RC4-HMAC (ARCFOUR-HMAC-MD5)</li> <li>DES-CBC-MD5*</li> </ul>
Heimdal	<ul> <li>AES256-CTS-HMAC-SHA1-96</li> <li>AES128-CTS-HMAC-SHA1-96</li> <li>DES3-CBC-SHA1</li> <li>RC4-HMAC (ARCFOUR-HMAC-MD5)</li> <li>DES-CBC-MD5</li> </ul>

- \* To use Kerberos authentication, it must be enabled in the operating system settings.
- 1. Log in as the network administrator from Web Image Monitor.
- 2. Point to [Device Management], and then click [Configuration].
- 3. Click [Kerberos Authentication] under "Device Settings".
- 4. Select the encryption algorithm you want to enable.
  One or more encryption algorithm must always be selected.
- 5. Click [OK].

# 6. Preventing the Leaking of Documents

This chapter explains how to protect document data stored in the machine or printed using the machine.

# **Managing Folders**

This section explains how to manage the folders in Document Server: how to delete folders, change their passwords, and unlock them when locked.

#### **Deleting Folders**

This can be done by the file administrator or a user.

To delete a folder with ficon next to it, the folder's password is required.

If a user has forgotten the password to access the folder, the file administrator can change it.

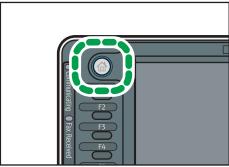
The file administrator can delete folders without using the password.

Folders containing files which the user does not have permission to delete cannot be deleted.

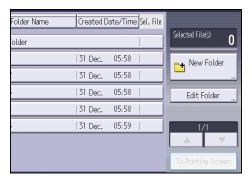
The shared folder cannot be deleted.

- 1. Log in as the file administrator or a user from the control panel.
- Press the [User Tools/Counter] key to close the User Tools menu.If the message "You do not have the privileges to use this function." appears, press [Exit].
- Press the [Home] key on the control panel, and press the [Document Server] icon on the [Home] screen.

If the message "You do not have the privileges to use this function." appears, press [Exit].



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- 5. Select the folder.
- 6. Press [Delete].
- If a password entry screen appears, enter the password of the folder, and then press [OK].

The password entry screen does not appear if the file administrator is logged in.

- 8. Press [Delete].
- 9. Log out.



• This can also be specified via Web Image Monitor. For details, see Web Image Monitor Help.

# Changing the Password of a Folder

This can be specified by the file administrator or a user.

If the password to access the folder has been forgotten, the file administrator can change it.

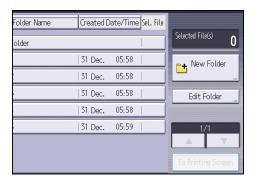
A password cannot be specified for the shared folder.

- 1. Log in as the file administrator or a user from the control panel.
- 2. Press the [User Tools/Counter] key to close the User Tools menu.

  If the message "You do not have the privileges to use this function." appears, press [Exit].
- 3. Press the [Home] key on the control panel, and press the [Document Server] icon on the [Home] screen.

If the message "You do not have the privileges to use this function." appears, press [Exit].

#### 4. Press [Edit Folder].



- 5. Select the folder.
- 6. Press [Change Password].
- 7. If a password entry screen appears, enter the password of the folder, and then press [OK].

The password entry screen does not appear if the file administrator is logged in.

- 8. Enter the new password for the folder, and then press [OK].
  - You can use 4 to 8 numbers as the password for the folder.
- 9. Re-enter the password for confirmation, and then press [OK].
  The icon appears next to a folder protected by password.
- 10. Log out.



• This can also be specified via Web Image Monitor. For details, see Web Image Monitor Help.

# **Unlocking Folders**

Only the file administrator can unlock folders.

If you specify [On] for "Enhance File Protection", the folder will be locked and become inaccessible if an invalid password is entered ten times. This section explains how to unlock folders.

"Enhance File Protection" is one of the extended security functions. For details about this and other extended security functions, see page 253 "Specifying the Extended Security Functions".

- 1. Log in as the file administrator from the control panel.
- 2. Press the [User Tools/Counter] key to close the User Tools menu.
  If the message "You do not have the privileges to use this function." appears, press [Exit].
- 3. Press the [Home] key on the control panel, and press the [Document Server] icon on the [Home] screen.

If the message "You do not have the privileges to use this function." appears, press [Exit].

- 4. Press [Edit Folder].
- 5. Select the folder.
  - The  ${\color{red} \underline{ \mathfrak{O}}}$  icon appears next to a folder locked by the Enhance File Protection function.
- 6. Press [Unlock].
  - The ticon changes to the icon.
- 7. Press [Unlock].
- 8. Log out.



• This can also be specified via Web Image Monitor. For details, see Web Image Monitor Help.

#### 6

# **Managing Stored Files**

This section describes how to specify access permissions for stored files.

You can specify who is allowed to access stored scan files and files stored in Document Server.

This can prevent activities such as printing or sending of stored files by unauthorized users.

You can also specify which users can change or delete stored files.

To limit the use of stored files, you can specify four types of access permissions.

#### Types of access permission

Access permission	Description
Read-only	In addition to checking the content of and information about stored files, you can also print and send the files.
Edit	You can change the print settings for stored files. This includes permission to view files.
Edit / Delete	You can delete stored files.  This includes permission to view and edit files.
Full Control	You can specify the user and access permission.  This includes permission to view, edit, and edit / delete files.

#### Password for stored files

- Passwords for stored files can be specified by the file administrator or owner. You can obtain
  greater protection against the unauthorized use of files. For details about assigning a
  password to a stored file, see page 181 "Specifying Passwords for Stored Files".
- Even if user authentication is not set, passwords for stored files can be set.



- Files can be stored by any user who is allowed to use Document Server, copy function, scanner function, fax function or printer function.
- Using Web Image Monitor, you can check the content of stored files. For details, see Web Image Monitor Help.
- The default access permission for the owner is "Read-only". You can also specify the access permission.
- The file administrator not only configures access permissions, but can also delete stored files. For
  details on the methods of deleting documents, see "Deleting Stored Documents", Copy/ Document
  Server.

## **Configuring Access Permission for Each Stored File**

This can be specified by the file administrator or owner.

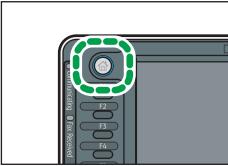
Specify the users and their access permissions for each stored file.

# Mportant !

- If files become inaccessible, reset their access permission as the owner. This can also be done by the file administrator. If you want to access a file but do not have access permission, ask the owner.
- The file administrator can change the owner of a document using the document's [Change Access Priv.] setting. This setting also allows the file administrator to change the access privileges of the owner and other users.
- The document owner and users with the [Full Control] privilege for the document can change the
  access privileges of the owner and other users under the [Change Access Priv.] setting.
- 1. Log in as the file administrator or the owner from the control panel.
- 2. Press the [User Tools/Counter] key to close the User Tools menu.

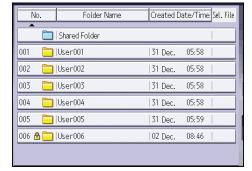
  If the message "You do not have the privileges to use this function." appears, press [Exit].
- Press the [Home] key on the control panel, and press the [Document Server] icon on the [Home] screen.

If the message "You do not have the privileges to use this function." appears, press [Exit].

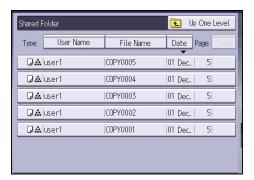


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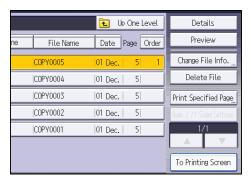
4. Select the folder.



## 5. Select the file.



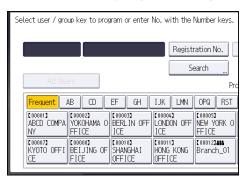
6. Press [Change File Info.].



- 7. Press [Change Access Priv.].
- 8. Press [Program/Change/Delete].



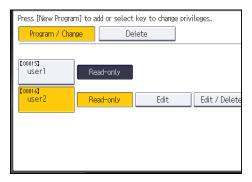
9. Press [New Program].



You can select more than one user.

By pressing [All Users], you can select all the users.

- 11. Press [Exit].
- 12. Select the user to whom you want to assign access permission, and then select the permission.



Select the access permission from [Read-only], [Edit], [Edit / Delete], or [Full Control].

- 13. Press [Exit].
- 14. Press [OK].
- 15. Log out.



- This can also be specified via Web Image Monitor. For details, see Web Image Monitor Help.
- The "Edit", "Edit / Delete", and "Full Control" access permissions allow a user to perform high level operations that could result in loss of or changes to sensitive information. We recommend you grant only the "Read-only" permission to general users.

# Changing the Owner of a Document

Use this procedure to change the owner of a document.

Only the file administrator can change the owner of a document.

- 1. Log in as the file administrator from the control panel.
- 2. Press the [User Tools/Counter] key to close the User Tools menu.

If the message "You do not have the privileges to use this function." appears, press [Exit].

3. Press the [Home] key on the control panel, and press the [Document Server] icon on the [Home] screen.

If the message "You do not have the privileges to use this function." appears, press [Exit].

- 4. Select the folder.
- 5. Select the file.
- 6. Press [Change File Info.].
- 7. Press [Change Access Priv.].
- 8. Press [Change] for "Owner".
- 9. Select the user you want to register.
- 10. Press [Exit].
- 11. Press [OK].
- 12. Log out.

# Configuring Access Permission for Each User for Stored Files

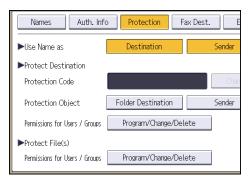
This can be specified by the user administrator or owner.

Specify the users and their access permission to files stored by a particular user.

This makes managing access permission easier than specifying and managing access permissions for each stored file.

# **Important**

- If files become inaccessible, be sure to enable the user administrator, so that the user administrator can reset the access permission for the files in question.
- 1. The user administrator or the owner logs in from the control panel.
- 2. Press [Address Book Mangmnt].
- 3. Select the user.
- 4. Press [Protection].

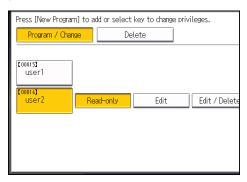


- 6. Press [New Program].
- 7. Select the users or groups to register.

You can select more than one user.

By pressing [All Users], you can select all the users.

- 8. Press [Exit].
- Select the user to whom you want to assign access permission, and then select the permission.



Select the access permission from [Read-only], [Edit], [Edit / Delete], or [Full Control].

- 10. Press [Exit].
- 11. Press [OK].
- 12. Press [Exit].
- 13. Log out.



The "Edit", "Edit / Delete", and "Full Control" access permissions allow a user to perform high level
operations that could result in loss of or changes to sensitive information. We recommend you grant
only the "Read-only" permission to general users.

## 6

# Specifying Passwords for Stored Files

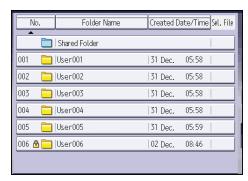
This can be specified by the file administrator or owner.

- 1. The file administrator or the owner logs in from the control panel.
- 2. Press the [User Tools/Counter] key to close the User Tools menu.

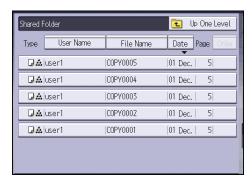
  If the message "You do not have the privileges to use this function." appears, press [Exit].
- Press the [Home] key on the control panel, and press the [Document Server] icon on the [Home] screen.

If the message "You do not have the privileges to use this function." appears, press [Exit].

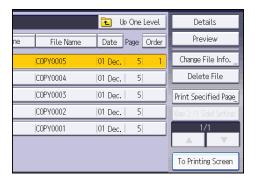
4. Select the folder.



5. Select the file.



## 6. Press [Change File Info.].



- 7. Press [Change Password].
- 8. Enter the new password for the stored file, and then press [OK].

You can use 4 to 8 numbers as the password for the stored file.

9. Re-enter the password for confirmation, and then press [OK].

The ficon appears next to a stored file protected by password.

- 10. Press [OK].
- 11. Log out.

# **Unlocking Stored Files**

Only the file administrator can unlock files.

If you specify "Enhance File Protection", the file will be locked and become inaccessible if an invalid password is entered ten times. This section explains how to unlock files.

"Enhance File Protection" is one of the extended security functions. For details about this and other extended security functions, see page 253 "Specifying the Extended Security Functions".

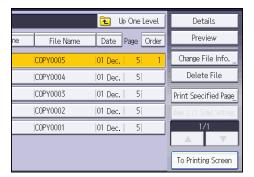
- 1. Log in as the file administrator from the control panel.
- 2. Press the [User Tools/Counter] key to close the User Tools menu.
- If the message "You do not have the privileges to use this function." appears, press [Exit].
- Press the [Home] key on the control panel, and press the [Document Server] icon on the [Home] screen.

If the message "You do not have the privileges to use this function." appears, press [Exit].

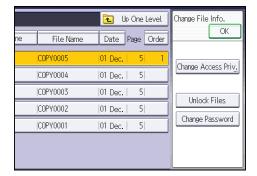
- 4. Select the folder.
- 5. Select the file.

The  $\bigcirc$  icon appears next to a file locked by the Enhance File Protection function.

# 6. Press [Change File Info.].



## 7. Press [Unlock Files].



- 8. Press [Yes].
  - The 😘 icon changes to the 🗓 icon.
- 9. Press [OK].
- 10. Log out.

# **Managing Locked Print Files**

Depending on the location of the machine, it is difficult to prevent unauthorized persons from viewing prints lying in the machine's output trays. When printing confidential documents, use the Locked Print function.

#### **Locked Print**

Using the printer's Locked Print function, store files in the machine as Locked Print files and then
print them from the control panel and retrieve them immediately, preventing others from
viewing them.



- Confidential documents can be printed regardless of the user authentication settings.
- To store files temporarily, select [Stored Print] in the printer driver. If you select [Stored Print (Shared)], you can also share these files.
- For details on how to use the Locked Print function, see "Locked Print", Print.

# **Deleting Locked Print Files**

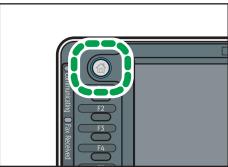
This can be specified by the file administrator or owner.

For the owner to delete a Locked Print file, the password to access the file is required. If the owner has forgotten the password, the file administrator can change it.

The password is not required for the file administrator to delete Locked Print files.

- 1. Log in as the file administrator or the owner from the control panel.
- 2. Press the [User Tools/Counter] key to close the User Tools menu.

  If the message "You do not have the privileges to use this function." appears, press [Exit].
- 3. Press the [Home] key on the control panel, and press the [Printer] icon on the [Home] screen.

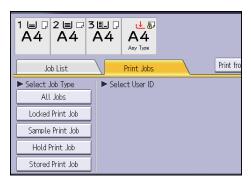


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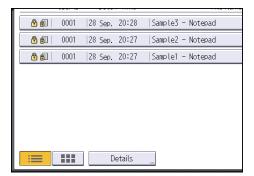
4. Press [Print Jobs].



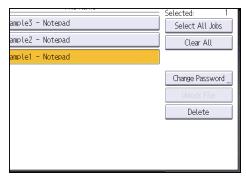
5. Press [Locked Print Job].



6. Select the file.



7. Press [Delete].



8. If a password entry screen appears, enter the password of the Locked Print file, and then press [OK].

The password entry screen does not appear if the file administrator is logged in.

- 9. Press [Yes].
- 10. Log out.



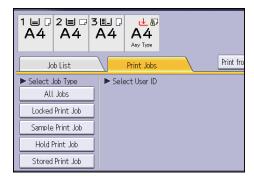
- You can configure this machine to delete stored files automatically by setting the "Auto Delete
  Temporary Print Jobs" option to [On]. For details about "Auto Delete Temporary Print Jobs", see
  "Data Management", Print.
- This can also be specified via Web Image Monitor. For details, see Web Image Monitor Help.

# Changing the Password of a Locked Print File

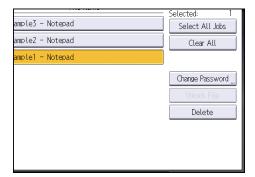
This can be specified by the file administrator or owner.

If the owner has forgotten the password, the file administrator can change it.

- 1. Log in as the file administrator or the owner from the control panel.
- Press the [User Tools/Counter] key to close the User Tools menu.If the message "You do not have the privileges to use this function." appears, press [Exit].
- 3. Press the [Home] key on the control panel, and press the [Printer] icon on the [Home] screen.
- 4. Press [Print Jobs].
- 5. Press [Locked Print Job].



- 6. Select the file.
- 7. Press [Change Password].



If a password entry screen appears, enter the password for the stored file, and then press [OK].

The password entry screen will not appear if the file administrator is logged in.

- 9. Enter the new password for the stored file, and then press [OK].
- 10. Re-enter the password for confirmation, and then press [OK].
- 11. Log out.



This can also be specified via Web Image Monitor. For details, see Web Image Monitor Help.

## Unlocking a Locked Print File

Only the file administrator can unlock files.

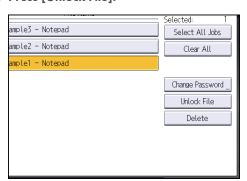
If you specify [On] for "Enhance File Protection", the file will be locked and become inaccessible if an invalid password is entered ten times. This section explains how to unlock files.

"Enhance File Protection" is one of the extended security functions. For details about this and other extended security functions, see page 253 "Specifying the Extended Security Functions".

- 1. Log in as the file administrator from the control panel.
- Press the [User Tools/Counter] key to close the User Tools menu.If the message "You do not have the privileges to use this function." appears, press [Exit].
- 3. Press the [Home] key on the control panel, and press the [Printer] icon on the [Home] screen.
- 4. Press [Print Jobs].
- 5. Press [Locked Print Job].
- 6. Select the file.

The igotimes icon appears next to a file locked by the Enhance File Protection function.

7. Press [Unlock File].



- 8. Press [Yes].
  - The **O** icon disappears.
- 9. Log out.



• This can also be specified via Web Image Monitor. For details, see Web Image Monitor Help.

# 6

# Unauthorized Copy Prevention / Data Security for Copying

The copier, Document Server, and printer functions let you embed a pattern in a printed copy to discourage or prevent unauthorized copying.

If the Unauthorized Copy Prevention function is enabled, embedded text patterns (for instance, a warning message such as "No Copying") are displayed when documents are copied illegally. Accordingly, unauthorized copying can be prevented.

If the Data Security for Copying function is used and settings for special patterns embedded in documents are enabled, copies of documents with embedded patterns are printed with gray overprint. Accordingly, information leakage can be prevented. To protect documents by gray overprint, the copier or multi-function printer must be installed with the Copy Data Security Unit.

If a machine installed with the Copy Data Security Unit detects a file protected by the Data Security for Copying function, the machine beeps and logs the unauthorized copying.

For more information, see the information below:

## **Using Unauthorized Copy Prevention**

- On the machine, enable printing of the embedded pattern. The settings must be configured by the machine administrator. For details about how to configure the setting, see page 190 "Enabling Pattern Printing".
- Specify the settings for unauthorized copy prevention in the copier, Document Server, or
  printer function. The privilege to specify the setting depends on the setting specified in
  [Compulsory Unauthorized Copy Prevention]. For details, see page 190 "Enabling Pattern
  Printing".

## **Using Data Security for Copying**

- On the machine, enable the embedded pattern print setting. The settings must be configured by the machine administrator. For details about how to configure the setting, see page 190 "Enabling Pattern Printing".
- 2. Specify the settings for data security for copying in the copier, Document Server, or printer function. The privilege to specify the setting depends on the setting specified in [Compulsory Unauthorized Copy Prevention]. For details, see page 190 "Enabling Pattern Printing".
- 3. Configure the "Detect Data Security for Copying" setting for printed copies, so that documents are printed with gray overprint when they are illegally copied, faxed, scanned, or stored in the machine. The setting must be configured by the machine administrator. For details about how to configure the setting, see page 191 "Enabling Detect Data Security for Copying".



 When copying, the thickness of an embedded pattern may be uneven due to the original type setting,. If this happens, change the original type setting to [Text] or [Photo].

# **Enabling Pattern Printing**

You can enable embedded pattern printing to discourage or prevent unauthorized copying.

## Enabling embedded pattern printing in the Copier/Document Server functions

- 1. Log in as the machine administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [▼Next] three times.
- 5. Select either [Unauthorized Copy Prevention Printing: Copier] or [Unauthorized Copy Prevention Printing: Document Server].
- 6. Press [Change] for "Compulsory Unauthorized Copy Prevention".
- 7. Specify whether or not to make printing of the embedded pattern mandatory.
  - [Off]

Printing of the embedded pattern is not mandatory.

From the Copier/Document Server screen, users can specify whether or not to print with the embedded pattern and can specify its settings.

• [On:User Can Chng. Some Setg.]

Printing of the embedded pattern is mandatory.

From the Copier/Document Server screen, users can specify the embedded pattern settings except for type, color, and thickness.

• [On:User Cannot Change Settgs.]

Printing of the embedded pattern is mandatory.

Users cannot specify the embedded pattern settings from the Copier/Document Server screen.

- 8. Press [OK] twice.
- 9. Log out.



For details of the settings to specify the pattern using the machine, see "Administrator Tools",
 Connecting the Machine/ System Settings.

## Enabling embedded pattern printing in the Printer function

1. Log in as the machine administrator from the control panel.

- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [▼Next] three times.
- 5. Press [Unauthorized Copy Prevention Printing: Printer].
- 6. Press [Change] for "Unauthorized Copy Prevention Setting".
- 7. Press [On], and then press [OK].
- 8. Press [Change] for "Compulsory Unauthorized Copy Prevention".
- 9. Specify whether or not to make printing of the embedded pattern mandatory.
  - [Driver / Command]

Printing of the embedded pattern is not mandatory.

Using the printer driver, users can choose whether or not to print with the embedded pattern and can specify its settings.

[Driver/Command (Most Settings)]

Printing of the embedded pattern is mandatory.

Using the printer driver, users can specify the embedded pattern settings except for type, color, and thickness.

• [Machine Setting(s)]

Printing of the embedded pattern is mandatory.

Users cannot specify the embedded pattern settings using the printer driver.

- 10. Press [OK] twice.
- 11. Log out.



For details of the settings to specify the pattern using the machine, see "Administrator Tools",
 Connecting the Machine/ System Settings.

# **Enabling Detect Data Security for Copying**

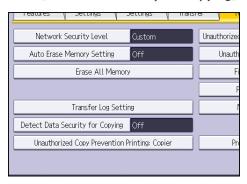
To use this function, the Copy Data Security Unit must be installed.

If a document printed is copied, faxed, scanned, or stored in the Document Server, the copy is grayed out.



- If a document that is not copy-guarded is copied, faxed, scanned, or stored, the copy or stored file
  is not grayed out.
- 1. Log in as the machine administrator from the control panel.

- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [▼Next] three times.
- 5. Press [Detect Data Security for Copying].



6. Press [On].

If you do not want to specify "Detect Data Security for Copying", select [Off].

- 7. Press [OK].
- 8. Log out.

# 6

# **Printing User Information on Paper**

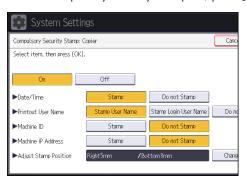
The start time of the print job, information on the person who prints it (name or login user name), machine number and machine's IP address can be compulsorily embedded on printed sheets. This function is called Compulsory Security Stamp.

Always printing out information on the person printing the job is effective for discouraging information leakage. It can also be used for identifying sources of information leakage.

Compulsory Security Stamp can be used with copying, Document Server, faxing and printing.

- 1. Log in as the machine administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [▼Next] four times.
- 5. Select the function(s) for Compulsory Security Stamp.
  - To set the copy function to be stamped, press [Compulsory Security Stamp:Copier].
  - To set the Document Server to be stamped, press [Compulsory Security Stamp:Doc. Srvr.].
  - To set the fax function to be stamped, press [Compulsory Security Stamp:Facsimile].
  - To set the printer function to be stamped, press [Compulsory Security Stamp:Printer].
- 6. Press [On], and then select the data to be stamped.

To turn Compulsory Security Stamp off, press [Off].



• Date/Time

The job start time will be printed.

- Printout User Name
  - Stamp User Name

The "Name" in the "Names" in the Address Book will be printed.

Stamp Login User Name

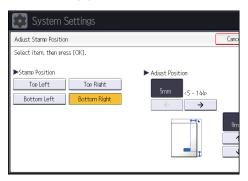
The "Login User Name" in the "Auth. Info" in the Address Book will be printed.

The numbers displayed as the "Serial No. of Machine" in [Inquiry] will be printed.

• Machine IP Address

The machine's IP address will be printed. If there are both IPv4 and IPv6 addresses, the IPv4 address will be printed. If no IP address has been configured, this will be left blank.

- 7. Press [Change] for "Adjust Stamp Position".
- 8. Set the stamp position.



- 9. Press [OK] twice.
- 10. Log out.

## 6

# Enforced Storage of Documents to be Printed on a Printer

By making it compulsory to keep jobs in the machine before printing them, you can prevent information leakage due to users failing to collect prints or leaving prints unattended. The following print jobs are subject to compulsory storage.

- Normal Print
- Sample Print
- Store and Print
- 1. Log in as the machine administrator from the control panel.
- 2. Press [Printer Features].
- 3. Press [System].
- 4. Press [▼Next] twice.
- 5. Press [Restrict Direct Print Jobs].
- 6. Press [Automatchly. Store Jobs].
- 7. Press [OK].
- 8. Log out.
- If you select [Cncl All Direct Prt Jobs], the print jobs will be cancelled without being stored.
- For information on how to print stored documents, see "Printing Stored Documents", Print.

# 7. Managing the Machine

This chapter describes the functions for enhancing the security of the machine and operating the machine effectively.

# **Managing Log Files**

Collecting the logs stored in this machine allows you to track detailed data on access to the machine, user identities, usage of the machine's various functions, and error histories.

The logs can be deleted periodically to make hard disk space available, and they can be encrypted to prevent leaking of information.

The logs can be viewed using Web Image Monitor or using the log collection server. Collected logs can be converted to CSV files and downloaded all at once. They cannot be read directly from the hard disk.

## Log types

Three types of logs are stored on this machine: the job log, access log, and eco-friendly log.

- Job Log
  - Stores details of user file-related operations such as copying, printing, and saving in Document Server, and control panel operations such as sending and receiving faxes, sending scan files and printing reports (the configuration list, for example).
- Access Log
  - Stores details of login/logout activities, stored file operations such as creating, editing, and deleting, service engineer operations such as hard disk formatting, system operations such as viewing log transfer results, and security operations such as specifying settings for encryption, unprivileged access detection, user lockout, and firmware authentication.
- Eco-friendly Log
   Main power ON, OFF, transitions in power status, job run times or time interval be

Main power ON, OFF, transitions in power status, job run times or time interval between jobs, paper consumption per hour, power consumption.



- For details about the log collection server, see the user's manual of the log collection server.
- When using the log collection server you must configure the log transfer settings on the log collection server.

# Using Web Image Monitor to Manage Log Files

You can specify the types of log to store in the machine and the log collection level. You can also encrypt, bulk delete, or download log files.

# Logs That Can Be Managed Using Web Image Monitor

The following tables explain the items in the job log and access log that the machine creates when you enable log collection using Web Image Monitor. If you require log collection, use Web Image Monitor to configure it. This setting can be specified in [Logs] under [Configuration] in Web Image Monitor.

## Job log information items

Job Log Item	Log Type Attribute	Content			
Copier: Copying	Copier: Copying	Details of normal and Sample Copy jobs.			
Copier: Copying and Storing	Copier: Copying and Storing	Details of files stored in Document Server that were also copied at the time of storage.			
Document Server: Storing	Document Server: Storing	Details of files stored using the Document Server screen.			
Document Server: Stored File Downloading	Document Server: Stored File Downloading	Details of files stored in Document Server and downloaded using Web Image Monitor or DeskTopBinder.			
Stored File Printing	Stored File Printing	Details of files printed using the Document Server screen.			
Scanner: Sending	Scanner: Sending	Details of sent scan files.			
Scanner: URL Link Sending and Storing	Scanner: URL Link Sending and Storing	Details of scan files stored in Document Server and whose URLs were sent by e-mail at the time of storage.			
Scanner: Sending and Storing	Scanner: Sending and Storing	Details of scan files stored in Document Server that were also sent at the time of storage.			
Scanner: Storing	Scanner: Storing	Details of scan files stored in Document Server.			

/

Job Log Item	Log Type Attribute	Content		
Scanner: Stored File Downloading	Scanner: Stored File Downloading	Details of scan files stored in Document Server and downloaded using Web Image Monitor, DeskTopBinder or Desk Top Editor For Production.		
Scanner: Stored File Sending	Scanner: Stored File Sending	Details of stored scan files that were also sent.		
Scanner: Stored File URL Link Sending	Scanner: Stored File URL Link Sending	Details of stored scan files whose URLs were sent by e-mail.		
Printer: Printing	Printer: Printing	Details of normal print jobs.		
Printer: Locked Print (Incomplete)	Printer: Locked Print (Incomplete)	Log showing Locked Print documents temporarily stored on the machine.		
Printer: Locked Print	Printer: Locked Print	Log showing Locked Print documents temporarily stored on the machine and then printed from the control panel or through Web Image Monitor.		
Printer: Sample Print (Incomplete)	Printer: Sample Print (Incomplete)	Log showing Sample Print documents temporarily stored on the machine.		
Printer: Sample Print	Printer: Sample Print	Log showing Sample Print documents temporarily stored on the machine and then printed from the control panel or through Web Image Monitor.		
Printer: Hold Print (Incomplete)	Printer: Hold Print (Incomplete)	Log showing Hold Print documents temporarily stored on the machine.		
Printer: Hold Print	Printer: Hold Print	Log showing Hold Print documents temporarily stored on the machine and then printed from the control panel or through Web Image Monitor.		
Printer: Stored Print	Printer: Stored Print	Details of Stored Print files stored on the machine.		
Printer: Store and Normal Print	Printer: Store and Normal Print	Details of Stored Print files that were printed at the time of storage (when "Job Type:" was set to "Store and Print" in printer properties).		

Job Log Item	Log Type Attribute	Content			
Printer: Stored File Printing	Printer: Stored File Printing	Details of Stored Print files printed from the control panel or Web Image Monitor.			
Printer: Document Server Sending	Printer: Document Server Sending	Details of files stored in Document Server when "Job Type:" was set to "Document Server" in printer properties.			
Report Printing	Report Printing	Details of reports printed from the control panel.			
Result Report Printing/ Emailing	Result Report Printing/ Emailing	Details of job results printed from the control panel or notified by e-mail.			
Scanner: TWAIN Driver Scanning	Scanner: TWAIN Driver Scanning	Details of stored scan files that were sent using Network TWAIN Scanner.			
Printer: Hold Print File Printing	Printer: Hold Print File Printing	When a document is held for printing and stored temporarily on the machine, this logs the time a user specifies it be printed via the control panel or Web Image Monitor.			
Fax: Sending	Fax: Sending	Details of faxes sent from the machine.			
Fax: LAN-Fax Sending	Fax: LAN-Fax Sending	Details of fax files sent from PCs.			
Fax: Storing	Fax: Storing	Details of fax files stored on the machine using the facsimile function.			
Fax: Stored File Printing	Fax: Stored File Printing	Details of fax files stored on the machine and printed using the facsimile function.			
Fax: Stored File Downloading	Fax: Stored File Downloading	Details of fax files stored in Document Server and downloaded using Web Image Monitor or DeskTopBinder.			
Fax: Receiving	Fax: Receiving	Details of storage of received fax files.			
Fax: Receiving and Delivering	Fax: Receiving and Delivering	Details of faxes that received and delivered by the machine.			
Fax: Receiving and Storing	Fax: Receiving and Storing	Details of fax files that received and stored by the machine.			

# Access log information items

Access Log Item	Log Type Attribute	Content			
Login	Login	Times of login and identity of logged in users.			
Logout	Logout	Times of logout and identity of logged out users.			
File Storing	File Storing	Details of files stored in Document Server.			
Stored File Deletion	Stored File Deletion	Details of files deleted from Document Server.			
All Stored Files Deletion	All Stored Files Deletion	Details of deletions of all Document Server files.			
HDD Format	HDD Format	Details of hard disk formatting.			
Unauthorized Copying	Unauthorized Copying	Details of documents scanned with "Data Security for Copying".			
All Logs Deletion	All Logs Deletion	Details of deletions of all logs.			
Log Setting Change	Log Setting Change	Details of changes made to log settings.			
Transfer Log Result	Transfer Log Result	Log of the result of log transfer to Remote Communication Gate S.			
Log Collection Item Change	Log Collection Item Change	Details of changes to job log collection levels, access log collection levels, and types of log collected.			
Collect Encrypted Communication Logs	Collect Encrypted Communication Logs	Log of encrypted transmissions between the utility, Web Image Monitor or outside devices.			
Access Violation	Access Violation	Details of failed access attempts.			
Lockout	Lockout	Details of lockout activation.			
Firmware: Update	Firmware: Update	Details of firmware updates.			
Firmware: Structure Change	Firmware: Structure Change	Details of structure changes that occurred when an SD card was inserted or removed, or when an unsupported SD card was inserted.			

Access Log Item	Log Type Attribute	Content		
Firmware: Structure	Firmware: Structure	Details of checks for changes to firmware module structure made at times such as when the machine was switched on.		
Machine Data Encryption Key Change	Machine Data Encryption Key Change	Details of changes made to encryption keys using "Machine Data Encryption Key Change" setting.		
Firmware: Invalid	Firmware: Invalid	Details of checks for firmware validity made at times such as when the machine was switched on.		
Date/Time Change	Date/Time Change	Details of changes made to date and time settings.		
File Access Privilege Change	File Access Privilege Change	Log for changing the access privilege to the stored files.		
Password Change	Password Change	Details of changes made to the login password.		
Administrator Change	Administrator Change	Details of changes of administrator.		
Address Book Change	Address Book Change	Details of changes made to address book entries.		
Capture Error	Capture Error	Details of file capture errors.		
Machine Configuration	Machine Configuration	Log of changes to the machine's settings.		
Back Up Address Book	Back Up Address Book	Log of when data in the Address Book is backed up.		
Restore Address Book	Restore Address Book	Log of when data in the Address Book is restored.		
Enhanced Print Volume Use Limitation: Tracking Permission Result	Enhanced Print Volume Use Limitation: Tracking Permission Result	Log of when a tracking error occurs.		
Counter Clear Result: Selected User(s)	Counter Clear Result: Selected User(s)	Log of when the counter for an individual user is cleared.		

Access Log Item	Log Type Attribute	Content
Counter Clear Result: All Users	Counter Clear Result: All Users	Log of when the counters for all users are cleared.
Import Device Setting Information	Import Device Setting Information	Log of when a device setting information file is imported.
Export Device Setting Information	Export Device Setting Information	Log of when a device setting information file is exported.
Creating/Deleting Folders	Creating/Deleting Folders	Log reporting when folders are created and deleted.

There is no "Login" log made for SNMPv3.

If the hard disk is formatted, all the log entries up to the format are deleted and a log entry indicating the completion of the format is made.

"Access Violation" indicates the system has experienced frequent remote DoS attacks involving logon attempts through user authentication.

The first log made following power on is the "Firmware: Structure" log.

## **Eco-friendly log information items**

Eco-friendly Log Item	Log Type Attribute	Content			
Main Power On	Main Power On	Log of when the main power switch is turned on.			
Main Power Off	Main Power Off	Log of when the main power switch is turned off.			
Power Status Transition Result	Power Status Transition Result	Log of the results of transitions in power status.			
Job Related Information	Job Related Information	Log of job-related information.			
Paper Usage	Paper Usage	Log of the amount of paper used.			
Power Consumption	Power Consumption	Log of power consumption.			

# Attributes of Logs You Can Download

If you use Web Image Monitor to download logs, a CSV file containing the information items shown in the following table is produced.

Note that a blank field indicates an item is not featured in a log.

## File output format

- Character Code Set: UTF-8
- Output Format: CSV (Comma-Separated Values)
- File Names of Job Logs and Access Logs: "machine name +\_log.csv"
- File names for Eco-friendly Logs: "machine name+\_ecolog.csv"

## Order of log entries

Log entries are printed in ascending order according to Log ID.

#### File structure

The data title is printed in the first line (header line) of the file.

## Differences in log data formatting

Job log

Multiple lines appear in the order of common items (job log and access log), Source (job input data), and Target (job output data). The same log ID is assigned to all lines corresponding to a single job log entry.

	Start Date/Time	 Result	 Access Result	Source	 Print File Name	Target	:	Stored File Name
1—	20XX-12-03T15:43:03.0	 Completed						
2—		 Completed		Report			:	
3 <b>—</b>		 Completed				Print		

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### 1. Common items

Each item in the common items is displayed on a separate line.

#### Source

"Result" and "Status" in the common items and the job log input entry appear.

If there are multiple sources, multiple lines appear.

## 3. Target

"Result" and "Status" in the common items and the job log output entry appear.

If there are multiple targets, multiple lines appear.

Access log

The common items and access log entries appear on separate lines.

· Eco-friendly log

Eco-friendly log entries appear on separate lines.

## Common items (Job log and Access log)

## Start Date/Time

Indicates the start date and time of an operation or event.

## **End Date/Time**

Indicates the end date and time of an operation or event.

## Log Type

Details of the log type.

For details about the information items contained in each type of log, see page 198 "Logs That Can Be Managed Using Web Image Monitor".

#### Result

Indicates the result of an operation or event.

The following log items are recorded only when the logged operations are executed successfully:

"Document Server: Stored File Downloading", "Stored File Printing", "Scanner: Storing", "Scanner: Stored File Sending", "Printer: Stored File Printing", and "Fax: Stored File Downloading" (Job logs) and "File Storing" and "Stored File Deletion" (Access logs).

Value	Content
Succeeded	The operation or event completed successfully.
Failed	The operation or event was unsuccessful.
<blank></blank>	The operation or event is still in progress.

## **Operation Method**

Indicates the operation procedure.

Value	Content	
Control Panel	Control panel	
Driver	Driver	
Utility	Utility	
Web	Web	
Email	E-mail	

## Status

Indicates the status of an operation or event.

Value	Content
Completed	The operation or event completed successfully on a job log entry.
Failed	The operation or event was unsuccessful on a job log entry.
Succeeded	The operation or event completed successfully on an access log entry.
Password Mismatch	An access error has occurred because of a password mismatch.
User Not Programmed	An access error has occurred because the user is not registered.
Other Failures	An access error has occurred because of an unspecified failure.
User Locked Out	An access error has occurred because the user is locked out.
File Limit Exceeded	An access error has occurred because the file limit has been exceeded.
Transfer Cancelled	An access error has occurred because of a transfer cancellation.
Power Failure	An access error has occurred because of a power failure.
Lost File	An access error has occurred because the file has been lost.
Functional Problem	An access error has occurred because of a functional problem.
Communication Failure	An access error has occurred because of a communication failure.
Communication Result Unknown	An access error has occurred because of an unknown communication result.
Failure in some or all parts	Clearing user-specific counter or all-user counter failed.
Importing/Exporting by Other User	Importing or exporting is executing by another user.
Connection Failed with Remote Machine	A connection to an output destination failed.

Value	Content
Write Error to Remote Machine	An error occurred in writing to an output destination.
Specified File: Incompatible	The specified file is incompatible.
Specified File: Format Error	A format error occurred with the specified file.
Specified File: Not Exist	The specified file cannot be found.
Specified File: No Privileges	There are no privileges for operating the specified file.
Specified File: Access Error	An error occurs in accessing the specified file.
Memory Storage Device Full	The external media is full.
Memory Storage Device Error	An abnormality is found in the external media.
Encryption Failed	Encryption failed.
Decoding Failed	Decoding failed.
Common Key Not Exist	There are no common keys.
Connection Error	A communication error occurred.

# Cancelled: Details

Indicates the status in which the operation or event was unsuccessful.

Value	Content
Cancelled by User	A user canceled an operation.
Input Failure	It terminated abnormally during input.
Output Failure	It terminated abnormally during output.
Other Error	An error is detected prior to execution of a job or others.
Power Failure	Power is lost.
External Charge Unit Disconnected	The accounting device is unplugged during operation.
Insufficient No. of Original for Overlay	Pages are missing from a manuscript during execution of the overlaid copying.
Exceed Max. Stored Page (File Storage)	The storage capacity of pages on Document Server is exceeded.

Value	Content
Exceed Max. Stored File (File Storage)	The storage capacity of documents on Document Server is exceeded.
Hard Disk Full (File Storage Memory)	The hard disk capacity on Document Server is exceeded.
Exceeded Max. Email Size	The limit to e-mail size is exceeded.
Exceeded Max. File Size	The size limit for one document is exceeded.
Scanner Error	A read error occurred with the automatic document feed.
Timeout	A time-out occurred.
Exceed Max. Stored Page (Image Area)	The number of pages that can be captured is exceeded.
Hard Disk Full (Image Area)	The hard disk capacity for capture is exceeded.
Specified Folder to Store does not Exist	The specified folder to store cannot be found.
Password for Folder Specified to Store is Incorrect	The password for specified folder to store is incorrect.
Folder is Locked	Folder is locked.
Memory Full	The memory range for processing data becomes full.
Print Data Error	An attempt to use a PDL or a port not configured on the machine has been made.
Data Transfer Interrupted	<ul> <li>The following case is recorded;</li> <li>A different type of driver is used.</li> <li>A network malfunction occurs.</li> <li>A job is cancelled by the LAN-Fax driver.</li> <li>A fax communication failure occurs.</li> </ul>
Reception Error	Fax failed to be received.
Over Job Limit	The number of jobs that can be received is exceeded.
Specifying Destination Error	An illegal address or an address with 41 or more digits is specified.

Value	Content
Specifying Line Error	An error occurred in the line specified.
Authentication Failed (Access Restricted)	Device authentication failed.
Exceeded Print Volume Use Limitation	The logged in user exceeds their paper usage limit.
No Privilege	The user does not have permission to access a document or function.
Unavailable Size to Store	The size of paper specified (including irregular sizes) is of a size that cannot be stored.
Transmission Failed (Data Deleted)	A document is deleted or an undelivered document exceeds its wait time and is deleted.
Not Entered Document Password	The password for a document is not input.
Connection Failed with Destination	The specified server or folder is not found.
Authentication Failed with Destination	Authentication with the destination failed.
Transmission Failed with Memory Full	The destination memory is full.
Line Busy	The destination is busy.
No Response	There is not response from the destination.
Not Facsimile Destination	The destination is not a fax machine.
Invalid Device Certificate	The following case is recorded;  There is no device certificate.  Its valid period is elapsed.  If the e-mail address of the administrator and that of the certificate do not match.
Invalid Expiration Date: Destination's Certificate	The valid period of the destination certificate is expired.

Value	Content
Invalid Device/Destination's Certificate	Both the destination certificate and the device certificate are invalid.

## **User Entry ID**

Indicates the user's entry ID.

This is a hexadecimal ID that identifies users who performed job or access log-related operations.

Value	Content
0x0000000	Indicates other operations
0x0000001 - 0xfffffeff	For general users and user code
0xfffff80	System operations
Oxffffff81	System operations, Operations that were performed by non- authenticated users
0xfffff86	Supervisor
0xfffff87	Administrator
0xfffff88	Administrator 1
0xfffff89	Administrator 2
0xfffff8a	Administrator 3
0xfffff8b	Administrator 4

## User Code/User Name

Identifies the user code or user name of the user who performed the operation.

If an administrator performed the operation, this ID will contain the login name of that administrator.

## Log ID

Identifies the ID that is assigned to the log.

This is a hexadecimal ID that identifies the log.

# Access log information items

## **Access Log Type**

Indicates the type of access.

Value	Content
Authentication	User authentication access
Stored File	Stored file access
System	System access
Network Attack Detection/ Encrypted Communication	Network attack or encrypted communication access
Firmware	Firmware verification access
Address Book	Address book access
Device Settings	Changes made to a setting in the User Tools menu.

## **Authentication Server Name**

Indicates the name of the server where authentication was last attempted.

## No. of Authentication Server Switches

Indicates the number of times server switching occurred when the authentication server was unavailable.

You can check whether or not the authentication server is available.

The number of server switches is indicated as 0 to 4.

"0" indicates the authentication server is available.

## Logout Mode

Mode of logout.

Value	Content
by User's Operation	Manual logout by the user
by Auto Logout Timer	Automatic logout following a timeout

## Login Method

Indicates the route by which the authentication request is received.

Value	Content
Control Panel	The login was performed through the control panel.
via Network	The login was performed remotely through a network computer.
Others	The login was performed through another method.

## **Login User Type**

Indicates the type of login user.

Value	Content
User	General user
Guest	Guest user
User Administrator	User administrator
Machine Administrator	Machine administrator
Network Administrator	Network administrator
File Administrator	File administrator
Supervisor	Supervisor
Customer Engineer (Service Mode)	Customer engineer
Others	Login requests from users other than those specified above

## Target User Entry ID

Indicates the entry ID of the target user.

This is a hexadecimal ID that indicates users to whom the following settings are applied:

- Lockout
- Password Change

# Target User Code/User Name

User code or user name of the user whose data was accessed.

If the administrator's data was accessed, the administrator's user name is logged.

## Address Book Registration No.

Indicates the registration number of the user performing the operation.

#### **Address Book Operation Mode**

Indicates the method applied for changing the data registered in the Address Book.

#### Address Book Change Item

Indicates which item in the Address Book is changed.

#### Address Book Change Request IP Address

Indicates the IP address type (IPv4/IPv6) of the user using the Address Book.

#### Lockout/Release

Indicates the lockout status.

Value	Content
Lockout	Activation of password lockout
Release	Deactivation of password lockout

#### Lockout/Release Method

Indicates the method applied for releasing the lockout.

Value	Content
Manual	The machine is unlocked manually.
Auto	The machine is unlocked by the lockout release timer.

#### **Lockout Release Target Administrator**

Indicates which administrator(s) is (are) released when releasing the lockout.

#### **Counter to Clear**

Indicates which counter is reset for each user.

#### **Export Target**

Indicates the settings to be included in the device setting file to be exported.

Value	Content
System Settings	System Settings
Copier Features	Copier Features
Facsimile Features	Facsimile Features
Printer Features	Printer Features
Scanner Features	Scanner Features

Value	Content
Program (Copier)	Program (Copier)
Program (Scanner)	Program (Scanner)
Program (Document Server)	Program (Document Server)
Browser Features	Browser Features
Web Image Monitor Setting	Web Image Monitor Setting
Web Service Settings	Web Service Settings
System/Copier SP	System/Copier SP
Scanner SP	Scanner SP
Printer SP	Printer SP
Facsimile SP	Facsimile SP

#### **Target File Name**

Indicates the name of the device information file to be imported/exported.

#### Stored File ID

Identifies a created or deleted file.

This is a hexadecimal ID that indicates created or deleted stored files.

#### Stored File Name

Indicates the name of a created or deleted file.

#### Folder Number

Indicates the folder number.

#### Folder Name

Indicates the folder name.

#### **Creating/Deleting Folders**

Indicates the operations performed on folders.

Value	Content
Delete Folder	Folder deleted
New Folder	Folder created

#### **File Location**

Region of all file deletion. "Document Server" indicates a deletion of all files from the machine's hard disk.

#### **Collect Job Logs**

Indicates the status of the job log collection setting.

Value	Content
Active	Job log collection setting is enabled.
Inactive	Job log collection setting is disabled.
Not Changed	No changes have been made to the job log collection setting.

#### **Collect Access Logs**

Indicates the status of the access log collection setting.

Value	Content
Active	Access log collection setting is enabled.
Inactive	Access log collection setting is disabled.
Not Changed	No changes have been made to the access log collection setting.

#### **Collect Eco-friendly Logs**

Indicates the status of the eco-friendly log collection setting.

Value	Content
Active	Eco-friendly log collection setting is enabled.
Inactive	Eco-friendly log collection setting is disabled.
Not Changed	No changes have been made to the eco-friendly log collection setting.

#### **Transfer Logs**

Indicates the status of the log transfer setting.

Value	Content
Active	Log transfer setting is enabled.

#### **Encrypt Logs**

Indicates the status of the log encryption setting.

Value	Content
Active	Log encryption setting is enabled.
Inactive	Log encryption setting is disabled.
Not Changed	No changes have been made to the log transfer setting.

#### Log Type

If a log's collection level setting has been changed, this function indicates details of the change.

Value	Content
Job Log	Job log
Access Log	Access log
Eco-friendly Log	Eco-friendly log

#### Log Collect Level

Indicates the level of log collection.

Value	Content
Level 1	Level 1
Level 2	Level 2
User Settings	User settings

#### **Encryption/Cleartext**

Indicates whether communication encryption is enabled or disabled.

Value	Content
Encryption Communication	Encryption is enabled.

Value	Content
Cleartext Communication	Encryption is disabled.

#### Machine Port No.

Indicates the machine's port number.

#### **Protocol**

Destination protocol.

"Unknown" indicates the destination's protocol could not be identified.

#### IP Address

Destination IP address.

#### Port No.

Destination port number.

This is in decimal.

#### **MAC Address**

Destination MAC (physical) address.

#### **Primary Communication Protocol**

Indicates the primary communication protocol.

#### **Secondary Communication Protocol**

Indicates the secondary communication protocol.

#### **Encryption Protocol**

Indicates the protocol used to encrypt the communication.

#### **Communication Direction**

Indicates the direction of communication.

Value	Content
Communication Start Request Receiver (In)	The machine received a request to start communication.
Communication Start Request Sender (Out)	The machine sent a request to start communication.

#### **Communication Start Log ID**

Indicates the log ID for the communication start time.

This is a hexadecimal ID that indicates the time at which the communication started.

#### **Communication Start/End**

Indicates the times at which the communication started and ended.

#### **Network Attack Status**

Indicates the machine's status when network attacks occur.

Value	Content
Violation Detected	An attack on the network was detected.
Recovered from Violation	The network recovered from an attack.
Max. Host Capacity Reached	The machine became inoperable due to the volume of incoming data reaching the maximum host capacity.
Recovered from Max. Host Capacity	The machine became operable again following reduction of the volume of incoming data.

#### Network Attack Type

Identifies network attack types.

Value	Content
Password Entry Violation	Password entry violation
Device Access Violation	Device access violation

#### **Network Attack Type Details**

Indicates details of network attack types.

Value	Content
Authentication Error	Authentication error
Encryption Error	Encryption error

#### **Network Attack Route**

Identifies the route of the network attack.

Value	Content
Attack from Control Panel	Attack by an unauthorized operation using the machine's control panel

Value	Content
Attack from Other than Control Panel	Attack by means other than an unauthorized operation using the machine's control panel

#### Login User Name used for Network Attack

Identifies the login user name that the network attack was performed by.

#### Add/Update/Delete Firmware

Indicates the method used to add, update, or delete the machine's firmware.

Value	Content
Updated with SD Card	An SD card was used to perform the firmware update.
Added with SD Card	An SD card was used to install the firmware.
Deleted with SD Card	An SD card was used to delete the firmware.
Moved to Another SD Card	The firmware was moved to another SD card.
Updated via Remote	The firmware was updated from a remote computer.
Updated for OtherReasons	The firmware update was performed using a method other than any of the above.

#### Module Name

Firmware module name.

#### **Parts Number**

Firmware module part number.

#### Version

Firmware version.

#### Machine Data Encryption Key Operation

Indicates the type of encryption key operation performed.

Value	Content
Back Up Machine Data Encryption Key	An encryption key backup was performed.
Restore Machine Data Encryption Key	An encryption key was restored.

Value	Content
Clear NVRAM	The NVRAM was cleared.
Start Updating Machine Data Encryption Key	An encryption key update was started.
Finish Updating Machine Data Encryption Key	An encryption key update was finished.

#### **Machine Data Encryption Key Type**

Identifies the type of the encryption key.

Value	Content
Encryption Key for Hard Disk	Encryption key for hard disk
Encryption Key for NVRAM	Encryption key for NVRAM
Device Certificate	Device certificate

#### Validity Error File Name

Indicates the name of the file in which a validity error was detected.

#### **Configuration Category**

Indicates the categories with changed settings.

Value	Content
User Lockout Policy	User lockout policy
Auto Logout Timer	Auto logout timer
Device Certificate	Device certificate
IPsec	IPsec
Compulsory Security Stamp	Compulsory security stamp
S/MIME	S/MIME
WIM Auto Logout Timer	Web Image Monitor auto logout timer

#### Configuration Name / Configuration Value

Indicates the attributes of the categories.

Indicates the values of the attributes.

Attribute	Description
Lockout	Whether the lockout is active (Active) or inactive (Inactive) is recorded.
Number of Attempts before Lockout	The number of times a user may enter a login password is recorded.
Lockout Release Timer	Whether the lockout release timer is active (Active) or inactive (Inactive) is recorded.
Lock Out User for	The time until lockout release is recorded.
Auto Logout Timer	Whether Auto Logout Timer is set to (On) or (Off) is recorded.
Auto Logout Timer (seconds)	The time until the auto logout operates is recorded.
Operation Mode	The type of operation is recorded.
Certificate No.	The number of the certificate to be used is recorded.
Certificate No.: IEEE 802.1X (WPA/WPA2)	The number of the certificate for applications is recorded.  When a certificate is not used, "Do not Use" is recorded.
Certificate No.: S/MIME	The number of the certificate for applications is recorded.  When a certificate is not used, "Do not Use" is recorded.
Certificate No.: IPsec	The number of the certificate for applications is recorded.  When a certificate is not used, "Do not Use" is recorded.
Certificate No.: Digital Signature PDF	The number of the certificate for applications is recorded.  When a certificate is not used, "Do not Use" is recorded.
Certificate No.: Digital Signature PDF/A	The number of the certificate for applications is recorded.  When a certificate is not used, "Do not Use" is recorded.
IPsec	Whether IPsec is active (Active) or inactive (Inactive) is recorded.
Encryption Key Auto Exchange: Setting 1-4: Remote Address	The remote address is recorded.

Attribute	Description
Encryption Key Auto	The security level is recorded.
Exchange: Setting 1-4, Default: Security Level	When [Authentication Only] is selected, "Authentication Only" is recorded.
	When [Authentication and Low Level Encryption] is selected, "Authentication and Low Level Encryption" is recorded.
	When [Authentication and High Level Encryption] is selected, "Authentication and High Level Encryption" is recorded.
	When [User Settings] is selected, "User Settings" is recorded.
Encryption Key Auto Exchange: Setting 1-4, Default: Authentication Method	The authentication method used for the auto key exchange format is recorded. Either "PSK" or "Certificate" is recorded.
Compulsory Security Stamp	Whether [Compulsory Security Stamp] is set to (On) or (Off) is recorded.
Operation Mode	The mode of operation is recorded.
Scanner: Email Sending	The signature is recorded when the scanner is used for sending e-mail.
Fax: Transferring	The signature is recorded when transferring by fax.
Fax: Email Sending	The signature is recorded when the fax is used for sending email.
Fax: Notification Email Sending	The signature is recorded when the fax is used for sending email notification.
Document Server (Utility): Stored File Transferring	The signature is recorded when Document Server (utility) is used for transferring documents stored on it.
WIM Auto Logout Timer (minutes)	Web Image Monitor's auto logout timer log is recorded in increments of one minute.

#### **Destination Server Name**

Indicates the name of the destination server to which the tracking information failed to be sent if the log type is "Enhanced Print Volume Use Limitation: Tracking Permission Result".

Indicates the name of the server from which the data export or import request is issued if the log type is import or export of preference information.

#### **HDD Format Partition**

Indicates the initial status of each hard disk partition.

#### **Access Result**

Indicates the results of logged operations.

Value	Content
Completed	An operation completed successfully.
Failed	An operation completed unsuccessfully.

#### Job log (source)

#### Source

Indicates the source of the job file.

Value	Content
Scan File	The job file was scanned.
Stored File	The job file was stored on the hard disk.
Printer	The job file was sent from the printer driver.
Received File	The job file was received over the network.
Report	The job file was a printed report.

#### Start Date/Time

Dates and times "Scan File", "Received File" and "Printer" operations started.

#### **End Date/Time**

Dates and times "Scan File", "Received File" and "Printer" operations ended.

#### Stored File ID

Indicates the ID of data that is output as a stored file.

This is a decimal ID that identifies the stored file.

#### Stored File Name

Names of "Stored File" files.

#### Folder Number

Indicates the number of the folder in which the file has been stored.

#### Folder Name

Indicates the name of the folder in which the file has been stored.

#### **Print File Name**

Name of "Printer" files.

#### Job log (target)

Printing stored faxes from the Fax screen before transmission will not be recorded in the job log.

#### **Target**

Type of the job target.

Value	Content
Print	Print
Store	Store
Send	Send

#### Start Date/Time

Dates and times "Print", "Store", and "Send" operations started.

#### **End Date/Time**

Dates and times "Print", "Store", and "Send" operations ended.

#### **Destination Name**

Names of "Send" destinations.

#### **Destination Address**

IP address, path, or e-mail address of "Send" destinations.

#### Stored File ID

Indicates the ID of data that is output as a store file.

This is a decimal ID that identifies the stored file.

Stored File ID logs are not logged for documents processed using fax functions.

#### Stored File Name

Indicates the name of the stored file when Target Type is "Store".

Stored File Name logs are not logged for documents processed using fax functions.

#### Folder Number

Indicates the number of the folder in which you have stored the file.

#### **Folder Name**

Indicates the name of the folder in which you have stored the file.

#### **Eco-friendly log information items**

#### Start Date/Time

The event start date and time is recorded.

#### **End Date/Time**

The event end date and time is recorded.

#### **Log Type**

The type of eco-friendly log is recorded.

Value	Content
Main Power On	Main power on
Main Power Off	Main power off
Power Status Transition Result	Power status transition result
Job Related Information	Job related information
Paper Usage	Paper usage
Power Consumption	Power consumption

#### Log Result

Whether the event has ended or not is displayed.

Value	Content
Completed	Completed
Failed	Failed

#### Result

The result of the event is recorded.

Value	Content
Succeeded	Succeeded
Failed	Failed

#### Log ID

Identifies the ID that is assigned to the log. This is a hexadecimal ID that identifies the log.

#### **Power Mode**

The power status of the machine (after state transition) is logged.

Value	Content
Standby	Standby status
Low Power	Low power status
Silent	Silent status
HDD On	HDD on status
Engine Off	Engine off status
Controller Off	Controller off status
STR	STR status
Silent Print	Silent print status
Low Power Print	Low power print status
Fusing Unit Off	Fusing unit off status

#### **Log Type**

The type of job log is recorded.

#### Job Interval (seconds)

Indicates the elapsed time from the start of the previous job to the start of the present job.

#### Job Duration (seconds)

Indicates the elapsed time from the start of a job to its end.

#### Paper Usage (Large Size)

Indicates the number of one-sided prints per hour on large paper.

Large size means A3 (11 × 17 inches) or larger.

#### Paper Usage (Small Size)

Indicates the number of one-sided prints per hour on small paper.

Small size means smaller than A3 (11  $\times$  17 inches).

#### Paper Usage (2 Sided: Large Size)

Indicates the number of two-sided prints per hour on large paper.

Large size means A3 (11 × 17 inches) or larger.

#### Paper Usage (2 Sided: Small Size)

Indicates the number of two-sided prints per hour on small paper.

Small size means smaller than A3 ( $11 \times 17$  inches).

#### **Detected Power**

The power consumption status of the machine is measured and registered in the log while the machine is being used.

Value	Content
Controller Standby	Controller standby mode
STR	Suspend to RAM (STR) mode
Main Power Off	The main power is turned off.
Scanning/Printing	Simultaneous scanning and printing
Printing	Machine's printing status
Scanning	Machine's printing status
Engine Standby	Engine's standby status
Engine Low	Engine's low-power status
Engine Night	Engine's silent status
Engine Total	Machine's total electricity consumption
Fusing Unit Off	Fusing unit off status

#### Power Consumption(Wh)

Indicates the power consumption in each power state.

### **Specifying Log Collect Settings**

Enable the collection settings for each kind of log and configure the collection level.

#### Job Log Collect Level

If "Job Log Collect Level" is set to [Level 1], all job logs are collected.

#### **Access Log Collect Level**

If "Access Log Collect Level" is set to [Level 1], the following information items are recorded in the access log:

- HDD Format
- All Logs Deletion
- Log Setting Change
- Log Collection Item Change

If "Access Log Collect Level" is set to [Level 2], all access logs are collected.

#### **Eco-friendly Log Collect Level**

If "Eco-friendly Log Collect Level" is set to [Level 1], eco-friendly logs are not collected.

If "Eco-friendly Log Collect Level" is set to [Level 2], all eco-friendly logs are collected.

- 1. Log in as the machine administrator from Web Image Monitor.
- Point to [Device Management], and then click [Configuration].
- 3. Click [Logs] under "Device Settings".
- 4. Select [Active] for each function: "Collect Job Logs", "Collect Access Logs" and "Collect Eco-friendly Logs".
- Specify the collection level for each function, "Job Log Collect Level", "Access Log Collect Level", and "Eco-friendly Log Collect Level".

When a level is changed, the selection status of log details changes according to the level.

To change individual items of the log details, configure the setting for each item. Even if the collection level is set to [Level 1] or [Level 2], once individual items of the log details are changed, the level changes to [User Settings].

- 6. Click [OK].
- 7. "Updating..." appears. Wait for about one or two minutes, and then click [OK].
  If the previous screen does not reappear after you click [OK], wait for a while, and then click the web browser's refresh button.
- 8. Log out.



• The greater "Access Log Collect Level" setting value, the more logs are collected.

#### Specifying Log Encryption

Use the following procedure to enable/disable log encryption.

To encrypt the logs, it is necessary to set the collection setting to active for job log, access log, or eco-friendly log.

If the data stored in the machine has been encrypted, the log files will still be encrypted, regardless of this setting.

Log in as the machine administrator from Web Image Monitor.

- 2. Point to [Device Management], and then click [Configuration].
- 3. Click [Logs] under "Device Settings".
- 4. Select [Active] in the [Encrypt Logs] area under "Common Settings for All Logs".

To disable log encryption, select [Inactive].

5. Click [OK].

A confirmation message appears.

- 6. Click [OK].
- 7. Log out.

#### **Downloading Logs**

Use the following procedure to convert the logs stored in the machine into a CSV file for simultaneous batch download.

To collect logs, set the collection setting for the job log, access log and eco-friendly log to [Active].

This setting can be specified in [Logs] under [Configuration] in Web Image Monitor.

- 1. Log in as the machine administrator from Web Image Monitor.
- 2. Point to [Device Management], and then click [Configuration].
- 3. Click [Download Logs] under "Device Settings".
- 4. Click [Logs to Download] and select the type of log to download.

The security log includes two kinds of logs: job log and access log.

- 5. Click [Download].
- 6. Specify the folder in which you want to save the file.
- 7. Click [Back].
- 8. Log out.



- Downloaded logs contain data recorded up till the time you click the [Download] button. Any logs
  recorded after the [Download] button is clicked will not be downloaded. The "Result" field of the
  log entry for uncompleted jobs will be blank.
- Download time may vary depending on the number of logs.
- If an error occurs while the CSV file is downloading or being created, the download is canceled and details of the error are included at the end of the file.
- If a log is downloaded successfully, "Download completed." will appear in the last line of the log file.
- For details about saving CSV log files, see your browser's Help.

- Downloaded log files use UTF-8 character encoding. To view a log file, open it using an application that supports UTF-8.
- For details about the items contained in the logs, see page 204 "Attributes of Logs You Can Download".

#### Number of Logs That Can Be Kept on the Machine

When the maximum number of job log, access log or eco-friendly log that can be kept on the machine is exceeded and new logs are generated, old logs are overwritten by new ones. If the logs are not downloaded periodically, it may not be possible to record the old logs onto files.

When using Web Image Monitor to manage logs, download the logs at an interval appropriate to the conditions in the table.

After downloading the logs, perform a batch deletion of the logs.

If you change the [Collect] / [Do not Collect] setting for log collection, you must perform a batch deletion of the logs.

#### Maximum number of logs that can be stored in the machine

Log types	Maximum number of logs
Job logs	4000
Access logs	12000
Eco-friendly logs	4000

#### Estimated number of logs created per day

Log types	Number of logs created per day
Job logs	100
Access logs	This number is based on 100 operations such as initialization and access operations over the Web, and 200 job entries (two entries per job: one login and one logout).
Eco-friendly logs	100

According to these conditions, the machine can maintain logs for 40 days without overwriting, but to be cautious, we recommend downloading after half that time, 20 days, to leave room for error.

Manage downloaded log files appropriately under the responsibility of the machine administrator.



- During log downloads, do not perform operations that will create log entries, as logs that are in the
  process of downloading cannot be updated with new entries.
- Batch deletion of logs can be performed from the control panel or through Web Image Monitor.

#### Notes on Operation When the Number of Log Entries Reaches Maximum

If the number of logs that can be stored on the machine exceeds the specified maximum limit, old logs are overwritten by new logs. The maximum number of logs that can be stored is defined for each of the job log, access log and eco-friendly log.

The job log and access log are downloaded as one file.

"If logs are downloaded without overwriting" below indicates that the job log and access log are mixed after download.

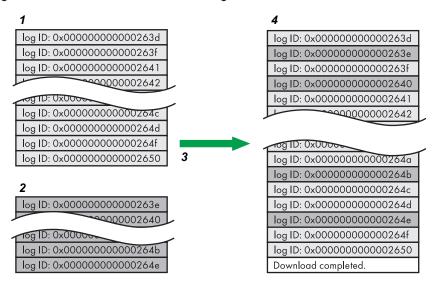
"If logs are downloaded during overwriting" below indicates that part of the access log is overwritten.

In this example, part of the access log is overwritten by a downloaded log and deleted.

The eco-friendly log is downloaded as an independent file.

Log entries are overwritten in the order of priority. Log entries with higher priority will not be overwritten or deleted.

#### If logs are downloaded without overwriting

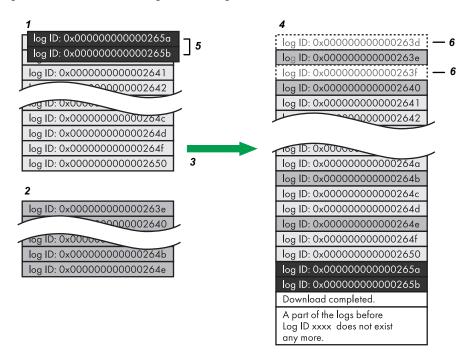


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- 1. Access log
- 2. Job log
- 3. Download

#### 4. Downloaded logs

#### If logs are downloaded during overwriting



- 1. Access log
- 2. Job log
- 3. Download
- 4. Downloaded logs
- 5. Overwriting
- 6. Deleted by overwriting

To determine whether or not overwriting occurred while the logs were downloading, check the message in the last line of the downloaded logs.

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- If overwriting did not occur, the last line will contain the following message: Download completed.
- If overwriting did occur, the last line will contain the following message: Download completed. A part of the logs before Log ID xxxx does not exist any more.



 If overwriting has occurred, a part of the logs will have been erased by the overwriting, so check the log "Log ID xxxx" and more recent logs.

#### **Printer Job Logs**

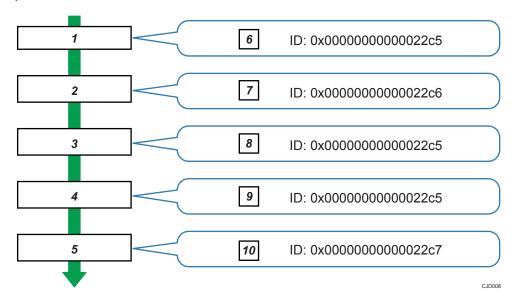
Print Log entries are made before the login entry is made in the Access Log.

Details of series of jobs (including reception, processing, and output of the jobs' data) are combined into single entries.

When the machine receives a print job, it creates an ID for the job and records this in the job log. The machine then creates a login ID for the print job and records this in the access log. It then creates a job log entry detailing the job's processing and outputting (under the same login ID). When the machine has finished processing the job, it creates a logout entry and places this in the access log.

Entries detailing the reception, processing, and output of a series of print jobs are created in the job log first, and then the login and logout details of those jobs are recorded in the access log.

#### Print job flowchart



- 1. Print job data is received.
- 2. Authentication (login) data is received.
- 3. Print job is processed.
- 4. Print job is output.
- 5. Authentication (login) data is received.
- 6. An ID is assigned to the print job and recorded as an entry in the Job Log.
- 7. Authentication (login) data is recorded as an entry in the Access Log.
- 8. Information about the processing of the print job is recorded as an entry in the Job Log (using the same ID).

- Information about the outputting of the print job is recorded as an entry in the Job Log (using the same ID).
- 10. Authentication (logout) data is recorded as an entry in the Access Log.

#### **Deleting All Logs**

Use the following procedure to delete all logs stored in the machine.

"Delete All Logs" appears if one of the job log, access log, or eco-friendly log is set to [Active].

- 1. Log in as the machine administrator from Web Image Monitor.
- 2. Point to [Device Management], and then click [Configuration].
- 3. Click [Logs] under "Device Settings".
- 4. Click [Delete] under "Delete All Logs".
- 5. Click [OK].
- 6. Log out.

#### Disabling Log Transfer to the Log Collection Server

Use the following procedure to disable log transfer to the log collection server. Note that you can switch the log transfer setting to [Inactive] only if it is already set to [Active].

- 1. Log in as the machine administrator from Web Image Monitor.
- 2. Point to [Device Management], and then click [Configuration].
- 3. Click [Logs] under "Device Settings".
- 4. Select [Inactive] in the [Transfer Logs] area under "Common Settings for All Logs".
- 5. Click [OK].
- 6. Log out.

#### /

## Managing Logs from the Machine

You can specify settings such as whether or not to transfer logs to the log collection server and whether or not to delete all logs.

#### Disabling Log Transfer to the Log Collection Server

Use the following procedure to disable log transfer from the machine to the log collection server. Note that you can switch the log transfer setting to [Off] only if it is already set to [On].

For details about the log collection server, contact your sales representative.

For details about the transfer log setting, see the log collection server manual.

- 1. Log in as the machine administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [▼Next] three times.
- 5. Press [Transfer Log Setting].
- 6. Press [Off].
- 7. Press [OK].
- 8. Log out.

#### Specifying Delete All Logs

Use the following procedure to delete all logs stored in the machine.

Deleting all logs from the machine as a batch can be achieved only if the log collection server is in use or if the Web Image Monitor setting has been specified to collect job log, access log or eco-friendly log.

- 1. Log in as the machine administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [▼Next] three times.
- 5. Press [Delete All Logs].
- 6. Press [Yes].
- 7. Press [Exit].
- 8. Log out.

## Managing Logs from the Log Collection Server

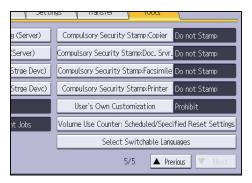
For details about using the log collection server to manage Log Files, see the manual supplied with the log collection server.

# Configuring the Home Screen for Individual Users

This allows each user to use their own home screen.

When a user logs in, their personalized home screen is displayed.

- 1. Log in as the machine administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [▼Next] four times.
- 5. Press [User's Own Customization].



- 6. Press [Allow], and then press [OK].
- 7. Log out.



- This can also be configured from Web Image Monitor. For details, see Web Image Monitor Help.
- The home information for each user is maintained even when "User's Own Customization" is set to [Prohibit]. When the setting is changed back to [Allow], the information can be used again.

#### Warnings About Using User's Own Home Screens

Consider these warnings before using this function.

- When a user is registered in the Address Book, a home screen is created for that user. At that time, their user's own home screen is configured with the default settings (arrangement of icons).
- If Menu Protect is set to either [Level 1] or [Level 2], the user cannot use that function's program registration, editing or delete. However, there is no restriction on adding icons to the user's own home screen.

- When Menu Protect has been set to [Level 1] or [Level 2], have the administrator create any necessary programs.
- Only the icons of functions an administrator has permitted to be used are displayed.
- When a user is deleted from the Address Book, that user's home screen information is also deleted.
- When a user has edited a program, the changes are reflected to all the users who have the program's icon distributed to their own home screen.
- When a user deletes a program, the icon of the program is deleted from all the user's home screens to which it is distributed.
- Because each user manages and uses their own home screen, the administrator cannot check each
  user's own home information (customized state of users' own home screens).

## **Configuring the Browser Functions**

#### **Precautions for Using the Browser Function**

The communication between the MFP and the server via a Web browser is exposed to the risk of unauthorized viewing and modification. Because of this, it is recommended to install the site certificates issued for the Web sites the MFP is allowed to browse and enable the machine's Site Certificate Check function in advance. By allowing the machine to access only the Web sites whose certificates are installed in the machine, you can prevent access to unauthorized Web sites.

It is recommended to enable [Site Certificate Check] especially when sending data using Extended JavaScript.

To enable [Site Certificate Check], it is necessary to enable the machine's SSL function and install site certificates.

For details about configuring SSL, see page 129 "Configuring SSL/TLS".

For details about installing site certificates, see page 160 "Configuring IEEE 802.1X Authentication".

The machine's Site Certificate Check settings can be specified only via Web Image Monitor.

See the related articles in the Web Image Monitor Help.

If [Site Certificate Check] is disabled and the user accesses an untrusted Web site, a warning message may appear.

If this is the case, the connected Web site may have a security problem. In such a case, the machine administrator must refer to page 242 "Troubleshooting", and then instruct the users to take appropriate measures accordingly.

Further, even if such a message does not appear, to minimize the risk of information leakages and unauthorized modification, the administrator should instruct the users to check the certificates and URLs of the connected Web sites so that access to unauthorized Web sites can be prevented.

#### Untrusted Web site

An "untrusted Web site" meets any of the following criteria:

- Its certificate has not been issued.
- Its certificate has been issued by an unknown source.
- Its certificate has expired.

#### **Changing the Browser Settings**

You can change the default settings for the browser functions.

- 1. Log in as the machine administrator from the control panel.
- 2. Press [Browser Features].

- 3. Press [Browser Default Settings].
- 4. Press the setting you want to change, and change the setting.
- 5. Press [OK].
- 6. Log out.

#### Home Screen by User

Specify the URL of your home screen.

#### Cache File

Specify whether or not to use cache files.

When using cache files, specify a size within a range between 1024 and 10240 KB.

To clear cache files, press [Clear Caches].

Default: [Do not use]

#### Keep the History by User

Specify whether or not to keep the history.

When keeping the history, specify a duration between 1 and 30 days.

Default: [Off]

#### **JavaScript**

Specify whether or not to activate JavaScript and its extended function.

When JavaScript is inactive, the JavaScript extensions are also inactive.

JavaScript

Default: [Active]

Extended JavaScript

Default: [Inactive]

#### **Use Cookies**

Specify whether or not to use cookies.

Up to 20 cookies are stored for access by any user.

The cookie created when the machine administrator uses the browser is automatically deleted when the machine administrator logs out.

Default: [On]

#### **Use Proxy Server**

Specify whether or not to use a proxy server.

When using a proxy server, specify "Proxy Server Name", "Proxy Port", "Proxy User Name", "Proxy Password", and "Exceptional Addresses".

Default: [Off]

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#### **User Agent**

Specify the user agent.

Default: [deviceBrowser]

#### **Default HTTP Request Method**

Specify the type of HTTP request method.

Default: [GET]

#### **Screen Settings**

Specify whether or not to display the URL bar and the horizontal scroll bar.

URL Bar

Default: [Display]

• Horizontal Scroll Bar

Default: [Display]

#### **Display Warning/Check**

Specify whether or not to display a confirmation message when you click a link to access another page or when you access an SSL-protected page.

· Check page move

Default: [Display]

Check security warning

Default: [Display]

#### **Bookmark**

You can register and manage bookmarks, including changing, deleting, importing and exporting.

#### **Preventing Setting Changes Using the Browser**

You can prevent the browser from being used to change the machine settings.

If set to [Prohibit], only settings specified in [Browser Default Settings] are enabled and those specified using the browser are disabled.

If set to [Allow], settings specified using the browser are enabled.

- 1. Log in as the machine administrator from the control panel.
- 2. Press [Browser Features].
- 3. Press [Settings per Users].
- 4. Press the setting you want to change, and change the setting.
- 5. Press [OK].
- 6. Log out.

Home Screen by User

Default: [Allow]

**Bookmarks by User** 

Default: [Allow]

**Use Proxy Server** 

Default: [Allow]

Keep the History by User

Default: [Allow]

Screen Settings by User

Default: [Allow]

#### Checking the Usage Status of the Browser Functions

The following logs can be used to check how the browser functions have been used.

- View Send Log
- View Download Log
- View Print Log
- 1. Log in as the machine administrator from the control panel.
- 2. Press [Browser Features].
- 3. Press [View Logs].
- 4. Press [View Send Log], [View Download Log], or [View Print Log].
- 5. Press [Exit].
- 6. Log out.

#### Troubleshooting

If the connected Web site has a security problem, a message may appear.

If this is the case, the machine administrator must check the message and instruct the users to take appropriate measures accordingly.

#### Messages

- "This site has a security problem. The certificate has expired."
- "This site has a security problem. The root certificate for verification does not exist."
- "This site has a security problem. Verification of the server to connect to cannot be performed."
- "This site has a security problem. The http subcontents are included in the https site."

 $\mbox{\ensuremath{\,^{\star}}}$  ] The connected Web site contains non-encrypted data.

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## **Managing Device Information**

#### **ACAUTION**

 Keep SD cards or USB flash memory devices out of reach of children. If a child accidentally swallows an SD card or USB flash memory device, consult a doctor immediately.

The machine's device information can be set by an administrator with privileges to manage everything — devices, users, networks and files.

The machine's device information can be exported to an external device as a device setting information file. By importing an exported device setting information file to the machine, you can use it as a backup file to restore device settings.

#### Data that can be imported and exported

- Copier / Document Server Features
- Printer Features
- Scanner Features
- Facsimile Features
- Browser Features
- Program (Document Server)
- Program (Copier)
- Program (Scanner)
- Web Image Monitor Setting
- Web Service Settings
- System Settings

#### Data that cannot be imported or exported

- Some System Settings \*1 \*2
- \*1 The setting for the date, settings that require the device certificate, and settings that need to be adjusted for each machine (for example, image adjustment settings) cannot be imported or exported.
- \*2 Settings only for executing functions and settings only for viewing cannot be imported or exported.
- Extended Feature Settings
- Address book
- Programs (fax function)
- Programs (printer function)
- User stamp in Copier / Document Server Features
- · Settings that can be specified via telnet
- @Remote-related data

- Counters
- EFI printer unit settings
- Settings that can only be specified via Web Image Monitor or Web Service (for example, Bonjour, SSDP setting)



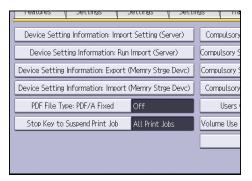
- The file format for exports is CSV.
- The device configuration of the machine importing the device setting information file must be the same as that of the machine, which exported the device setting information file. Otherwise, the device setting information file cannot be imported.
- Import/export is possible between machines only if their models, region of use, and the following device configuration match.
  - Input Tray
  - Output Tray
  - Whether or not equipped with the duplex function
  - Whether or not equipped with a finisher and the type of finisher
  - Whether or not equipped with a hard disk
  - Whether or not equipped with the Remote Machine function
- If the device configuration is changed, export the updated device setting information file.
- If there are machines with the same device configuration, you can specify their settings identically by importing the same device setting file.
- If the home screen contains JPG image files, they will also be exported.
- While a user is operating the machine, nothing can be imported or exported until the user completes the operation.
- During export and import, the machine cannot be otherwise operated.
- For details about SD card handling, see "Inserting/Removing a Memory Storage Device", Getting Started.

#### **Exporting Device Information**

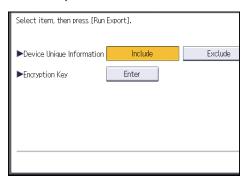
When exporting device information from the control panel, the data is saved on an SD card.

- Insert an SD card into the media slot on the side of the control panel.
   For details about inserting the SD card, see "Inserting/Removing a Memory Storage Device", Getting Started.
- 2. Log in from the control panel as an administrator with all privileges.
- 3. Press [System Settings].

- 4. Press [Administrator Tools].
- 5. Press [▼Next] four times.
- 6. Press [Device Setting Information: Export (Memry Strge Devc)].



7. Set the export conditions.



- Specify whether to [Include] or [Exclude] the "Device Unique Information". "Device Unique Information" includes the IP address, host name, fax number, etc.
- Specify an encryption key.
- 8. Press [Run Export].
- 9. Press [OK].
- 10. Press [Exit].
- 11. Log out.



• If import or export fails, you can check the log for the error. The log is stored in the same location as the exported device setting information file.

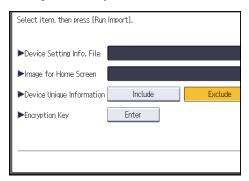
#### **Importing Device Information**

Import device information saved on an SD card.

1. Insert an SD card into the media slot on the side of the control panel.

For details about inserting the SD card, see "Inserting/Removing a Memory Storage Device", Getting Started.

- 2. Log in from the control panel as an administrator with all privileges.
- 3. Press [System Settings].
- 4. Press [Administrator Tools].
- 5. Press [▼Next] four times.
- 6. Press [Device Setting Information: Import (Memry Strge Devc)].
- 7. Configure the import conditions.



- Press [Select] of the "Device Setting Info. File" to select the file(s) to import.
- When inserting a file into a home screen, press [Select] for the Image for Home screen and select the file.
- Specify whether to [Include] or [Exclude] the "Device Unique Information". "Device Unique Information" includes the IP address, host name, fax number, etc.
- Enter the encryption key that was specified when the file was exported.
- 8. Press [Run Import].
- 9. Press [OK].
- 10. Press [Exit].

The machine restarts.



• If import or export fails, you can check the log for the error. The log is stored in the same location as the exported device setting information file.

#### **Troubleshooting**

If an error occurs, check the log's result code first. Values other than 0 indicate that an error occurred. The result code will appear in the circled area illustrated below.

#### Example of a log file

```
"ExecType", "Date", "SerialNo",PnP", "Model", "Destination","IP","Host","Storage","FileNam
e","FileID","TotalItem","NumOfOkItem","ResultCode","ResultName","Identifier"
"IMPORT"
"20XX-07-05T15:29:16+09:00"
"3C35-7M0014"
"Brand Name"
"Product Name"
"0"
"10"
"10.250.155.125"
"RNP00267332582D"
"SD"
"20XX07051519563C35-710220.csv"
"20XX07051519563C35-710220"
   0"
         REQUEST"
"TargetID","ModuleID","PrefID","Item","NgCode","NgName"
```

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If you cannot solve the problem or do not know how to solve it after checking the code, write down the error log entry, and then contact your service representative.

ResultCode	Cause	Solutions
2 (INVALID REQUEST)	A file import was attempted between different models or machines with different device configurations.	Import files exported from the same model with the same device configurations.
4 (INVALID OUTPUT DIR)	Failed to write the device information to the destination device.	Check whether the destination device is operating normally.
7 (MODULE ERROR)	An unexpected error has occurred during an import or export.	Turn the power off and then back on, and then try the operation again. If the error persists, contact your service representative.
8 (DISK FULL)	The available storage space on the external medium is insufficient.	Execute the operation again after making sure there is enough storage space.
9 (DEVICE ERROR)	Failed to write or read the log file.	Check whether the path to the folder for storing the file or the folder in which the file is stored is missing.

ResultCode	Cause	Solutions
10 (LOG ERROR)	Failed to write the log file. The hard disk is faulty.	Contact your service representative.
20 (PART FAILED)	Failed to import some settings.	The reason for the failure is logged in "NgName". Check the code.
		Reason for the Error (NgName)
		2 INVALID VALUE
		The specified value exceeds the allowable range.
		3 PERMISSION ERROR
		The permission to edit the setting is missing.
		4 NOT EXIST
		The setting does not exist in the system.
		5 INTERLOCK ERROR
		The setting cannot be changed because of the system status or interlocking with other specified settings.
		6 OTHER ERROR
		The setting cannot be changed for some other reason.
21 (INVALID FILE)	Failed to import the file because it is in the wrong format in the external medium.	Check whether the file format is correct. The log is in the form of a CSV file.
22 (INVALID KEY)	The encryption key is not valid.	Use the correct encryption key.

# **Managing Eco-friendly Counter**

When user authentication is being used, information on the eco-friendly counter is displayed at login.

The eco-friendly counter displays the ratio of use of color, duplex and combine printing to the total number of printed sheets.

How much toner and paper are being saved is indicated by the eco-friendly index. Higher eco-friendly index leads to greater resource saving.



- When Basic, Windows, LDAP or Integration Server authentication is used for user authentication, the machine compiles the data and displays the eco-friendly counter for each user.
- When user code authentication is used for user authentication, or when user authentication is not in use, the machine compiles the data and displays it's overall eco-friendly counter.

# Configuring the Display of Eco-friendly Counters

Set up the period for collecting data for the eco-friendly counter and an administrator's message.

- 1. Log in as the machine administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [VNext].
- 5. Press [Eco-friendly Counter Period / Administrator Message].
- 6. Change the settings.
- 7. Press [OK].
- 8. Press [Exit].
- 9. Log out.

#### **Count Period**

Set up the period for collecting data for the eco-friendly counter.

When [Specify Days] is selected, data for the eco-friendly counter is compiled for each number of days specified.

Default: [Do not Count]

#### Administrator Message

Select the message to be displayed when a user logs in.

If you select "Fixed Message 1" or "Fixed Message 2", a preset message is displayed.

If you select "User Message", the machine administrator can enter a message to be displayed.

Default: [Fixed Message 1]

#### **Display Information Screen**

Specify whether or not to display the information screen at user login.

Default: [Off]

# **Display Time**

Specify the timing for displaying the information screen.

Default: [Every Time Login]

# Clearing a Machine's Eco-friendly Counter

A machine's eco-friendly counter can be cleared.

- 1. Log in as the machine administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [Display / Clear Eco-friendly Counter].
- 5. Press [Clear Current Value] or [Clear Crnt. & Prev. Val.].
- 6. Press [OK].
- 7. Log out.

# Clearing Users' Eco-friendly Counters

By clearing the users' eco-friendly counter, all users' eco-friendly counters are cleared.

- 1. Log in as the machine administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [Display / Clear Eco-friendly Counter per User].
- 5. Press [Clear Current Value] or [Clear Crnt. & Prev. Val.].
- 6. Press [OK].
- 7. Log out.

# Managing the Address Book

# Specifying Auto Deletion of Address Book Data

Specify how the machine handles a request for auto registration after the registered data in the address book has reached the limit.

If you set this to [On], new user accounts are added by automatically deleting old user accounts. Accounts that have not been used for the longest time are deleted first.

If you set this to [Off], old user accounts are not deleted, so new user accounts cannot be added once the limit has been reached.

- 1. Log in as the user administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [Auto Delete User in Address Book].
- 5. Select [On], and then press [OK].
- 6. Log out.

# **U** Note

- The data is automatically deleted only when the machine receives a request for data registration.
   Auto deletion is not executed if user accounts are manually added.
- Only user accounts with user codes or login user names and passwords will be automatically deleted.

# Deleting All Data in the Address Book

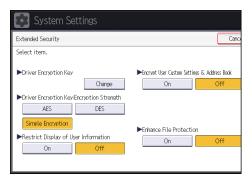
You can delete all the data registered in the Address Book.

- Log in as the user administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [Delete All Data in Address Book].
- 5. Press [Yes], and then press [Exit].
- 6. Log out.

# **Specifying the Extended Security Functions**

In addition to providing basic security through user authentication and each administrator's specified limits to access the machine, security can also be increased by encrypting transmitted data and data in the Address Book.

- 1. Log in from the control panel as an administrator with privileges.
- 2. Press [System Settings].
- Press [Administrator Tools].
- 4. Press [VNext].
- 5. Press [Extended Security].
- 6. Press the setting you want to change, and change the settings.



- 7. Press [OK].
- 8. Log out.



• The operation privileges of an administrator differs depending on the setting.

#### **Driver Encryption Key**

This can be specified by the network administrator.

Specify the string of text for decrypting the login passwords or file passwords sent from the driver when user authentication is ON.

To specify the driver encryption key, register the encryption key specified using the machine in the driver.

For details, see page 166 "Specifying a Driver Encryption Key".

#### **Driver Encryption Key: Encryption Strength**

This can be specified by the network administrator.

Specify the encryption strength for sending jobs from the driver to the machine.

The machine confirms the encryption strength of the password appended to a job and processes it.

If [Simple Encryption] is specified, all jobs that pass user authentication are accepted.

If [DES] is specified, jobs encrypted with DES or AES are accepted.

If [AES] is specified, jobs encrypted with AES are accepted.

If you select [AES] or [DES], specify the encryption settings using the printer driver. For details about specifying the printer driver, see the printer driver Help.

Default: [Simple Encryption]

#### Restrict Display of User Information

This can be specified by the machine administrator.

This can be specified if user authentication is specified. When the job history is checked using a network connection for which authentication is not available, all personal information can be displayed as "\*\*\*\*\*\*\*". For example, when someone not authenticated as an administrator checks the job history using SNMP in SmartDeviceMonitor for Admin/Device Manager NX Lite, personal information can be displayed as "\*\*\*\*\*\*\* so that users cannot be identified. Because information identifying registered users cannot be viewed, unauthorized users are prevented from obtaining information about the registered files.

Default: [Off]

# **Encrypt User Custom Settings & Address Book**

This can be specified by the user administrator.

Encrypt the individual settings of the machine's users and the data in the Address Book.

Even if information on an internal part has been leaked, encryption prevents the individual user settings or the Address Book data from being read.

For details, see page 91 "Protecting the Address Book".

Default: [Off]

#### **Enhance File Protection**

This can be specified by the file administrator.

By specifying a password, you can limit operations such as printing, deleting, and sending files, and can prevent unauthorized people from accessing the files. However, it is still possible for the password to be cracked.

By specifying "Enhance File Protection", files are locked and so become inaccessible if an invalid password is entered ten times. This can protect the files from unauthorized access attempts in which a password is repeatedly guessed.

When "Enhance File Protection" is specified, (1) appears in the lower right corner of the screen.

The locked files can only be unlocked by the file administrator.

When files are locked, you cannot select them even if the correct password is entered.

Default: [Off]

# Restrict Use of Destinations (Fax), Restrict Use of Destinations (Scanner)

This can be specified by the user administrator.

The available fax and scanner destinations are limited to the destinations registered in the Address Book.

A user cannot directly enter the destinations for transmission.

If "Restrict Use of Destinations (Scanner)" is set to [On], you can register fax numbers only.

If you specify the setting to receive e-mails via SMTP, you cannot use "Restrict Use of Destinations (Fax)" and "Restrict Use of Destinations (Scanner)".

The destinations searched by "LDAP Search" can be used.

For details, see page 73 "Restricting Usage of the Destination List".

Default: [Off]

#### Restrict Adding of User Destinations (Fax), Restrict Adding of User Destinations (Scanner)

This can be specified by the user administrator.

If you set "Restrict Adding of User Destinations (Fax)" and/or "Restrict Adding of User Destinations (Scanner)" to [Off], users will be able to register a fax or scanner destination in the Address Book simply by entering the destination and then pressing [Prg. Dest.]. If you set these functions to [On], the [Prg. Dest.] key will not appear. Users will still be able to enter a destination directly using the fax or scanner screen, but cannot then register that destination in the Address Book by pressing [Prg. Dest.].

Also, note that even if you set these functions to [On], users registered in the address book can change their passwords. Only the user administrator can change items other than the password.

Default: [Off]

#### Transfer to Fax Receiver

This can be specified by the machine administrator.

If you use [Forwarding] or [Transfer Box] under the fax function, files stored in the machine can be transferred or delivered.

To prevent stored files being transferred by mistake, select [Prohibit] for this setting.

#### Default: [Do not Prohibit]

If you select [Prohibit] for this setting, the following functions are disabled:

- Forwarding
- Transfer Box
- Delivery from Personal Box
- Information Box
- Delivery of Mail Received via SMTP
- Routing Received Documents

For details, see "Reception Functions", Fax.

#### **Authenticate Current Job**

This can be specified by the machine administrator.

This setting lets you specify whether or not authentication is required for operations such as canceling jobs under the copier and printer functions.

If you select [Login Privilege], authorized users and the machine administrator can operate the machine. When this is selected, authentication is not required for users who logged in to the machine before [Login Privilege] was selected.

If [Access Privilege] is specified, any user who performed a copy or print job can cancel the job. Also, the machine administrator can cancel the user's copy or print job.

Even if you select [Login Privilege] and log on to the machine, you cannot cancel a copy or print job that is being processed if you are not privileged to use the copy and printer functions.

You can specify "Authenticate Current Job" only if "User Authentication Management" was specified.

Default: [Off]

#### @Remote Service

This can be specified by the machine administrator.

Communication via HTTPS for @Remote Service is disabled if you select [Prohibit].

When setting it to [Prohibit], consult with your service representative.

If it is set to [Proh. Some Services], it becomes impossible to change settings via a remote connection, providing optimally secure operation.

Default: [Do not Prohibit]

#### **Update Firmware**

This can be specified by the machine administrator.

Specify whether to allow firmware updates on the machine. Firmware update means having a service representative update the firmware or updating the firmware via the network.

If you select [Prohibit], firmware on the machine cannot be updated.

If you select [Do not Prohibit], there are no restrictions on firmware updates.

Default: [Do not Prohibit]

#### **Change Firmware Structure**

This can be specified by the machine administrator.

Specify whether to prevent changes in the machine's firmware structure. The Change Firmware Structure function detects when the SD card is inserted, removed or replaced.

If you select [Prohibit], the machine stops during startup when a firmware structure change is detected and a message requesting administrator login is displayed. After the machine administrator logs in, the machine finishes startup with the updated firmware.

/

The administrator can confirm if the updated structure change is permissible or not by checking the firmware version displayed on the control panel screen. If the firmware structure change is not permissible, contact your service representative before logging in.

When "Change Firmware Structure" is set to [Prohibit], administrator authentication must be enabled.

After [Prohibit] is specified, disable administrator authentication. When administrator authentication is enabled again, you can return the setting to [Do not Prohibit].

If you select [Do not Prohibit], firmware structure change detection is disabled.

Default: [Do not Prohibit]

# **Password Policy**

This can be specified by the user administrator.

This setting lets you specify [Complexity Setting] and [Minimum Character No.] for the password. By making this setting, you can limit the available passwords to only those that meet the conditions specified in "Complexity Setting" and "Minimum Character No.".

If you select [Level 1], specify the password using a combination of two types of characters selected from upper-case letters, lower-case letters, decimal numbers, and symbols such as #.

If you select [Level 2], specify the password using a combination of three types of characters selected from upper-case letters, lower-case letters, decimal numbers, and symbols such as #.

Default: [Off], Minimum required number of characters not specified

### Settings by SNMPv1, v2

This can be specified by the network administrator.

When the machine is accessed using the SNMPv1, v2 protocol, authentication cannot be performed, allowing machine administrator settings such as the paper setting to be changed. If you select [Prohibit], the setting can be viewed but not specified with SNMPv1, v2.

Default: [Do not Prohibit]

#### **Security Setting for Access Violation**

This can be specified by the machine administrator.

When logging in to the machine via a network application, a user may be locked out erroneously because the number of authentication attempts of the user does not match the number of attempts logged internally.

For example, access may be denied when a print job for multiple sets of pages is sent from an application.

If you select [On] under "Security Setting for Access Violation", you can prevent such authentication errors.

- On
  - Denial Durtn. for Accs. Viol.

/

Specify the time to limit repeated access by a user.

Use the number keys to enter the time between "0" and "60", and then press [#].

Default: [15]

Managed User Host Limit

Specify the number of user accounts to manage under "Security Setting for Access Violation".

Use the number keys to enter the number between "50" and "200", and then press [#]. Default: [200]

• Password Entry Host Limit

Specify the number of passwords to manage under "Security Setting for Access Violation".

Use the number keys to enter the number between "50" and "200", and then press [#]. Default: [200]

Status Monitor Interval

Specify the monitoring interval of "Managed User Host Limit" and "Password Entry Host Limit".

Use the number keys to enter the time between "1" and "10", and then press [#].

Default: [3]

Off

Default: [Off]

#### **Password Entry Violation**

This can be specified by the machine administrator.

If the number of authentication requests exceeds the setting, the system classifies the access session as a password attack. The access session is recorded in the Access Log and the log data is sent to the machine administrator by e-mail.

If the "Max. Allowed No. of Access" is set to [0], password attacks are not detected.

• Max. Allowed No. of Access

Specify the maximum number of allowable authentication attempts.

Use the number keys to enter the number between "0" and "100", and then press [#].

Default: [30]

Measurement Time

Specify the interval to count the number of repeated failed authentication attempts. When the measurement time is over, the logged counts of failed authentication attempts are cleared.

Use the number keys to enter the time between "1" and "10", and then press [#].

Default: [5]



- Depending on the values of the settings for [Max. Allowed No. of Access] and [Measurement Time], you may frequently receive violation detection e-mail.
- If violation detection e-mail is received frequently, check the content and review the setting values.

#### **Device Access Violation**

This can be specified by the machine administrator.

If the number of log in requests exceeds the setting, the system classifies the access session as an access violation. The access session is recorded in the Access Log and the log data is sent to the machine administrator by e-mail. Also, a message is displayed on the control panel and on Web Image Monitor.

If the "Max. Allowed No. of Access" is set to [0], over access is not detected.

In "Authentication Delay Time", you can specify response delay time for log-in requests to prevent the system from becoming unavailable when an access violation is detected.

In "Simultns. Access Host Limit", you can specify the limit number of hosts accessing the machine at one time. If the number of access exceeds the setting, monitoring becomes unavailable and the detected unavailability is recorded in the Log.

• Max. Allowed No. of Access

Specify the maximum number of allowable access attempts.

Use the number keys to enter the number between "0" and "500", and then press [#].

Default: [100]

Measurement Time

Specify the interval to count the number of excessive access. When the measurement time is over, the logged counts of access are cleared.

Use the number keys to enter the number between "10" and "30", and then press [#].

Default: [10]

• Authentication Delay Time

Specify the authentication delay time when an access violation is detected.

Use the number keys to enter the number between "0" and "9", and then press [#].

Default: [3]

• Simultns. Access Host Limit

Specify the number of acceptable authentication attempts when authentications are delayed due to an access violation.

Use the number keys to enter the number between "50" and "200", and then press [#].

Default: [200]



- Depending on the values of the settings for [Max. Allowed No. of Access] and [Measurement Time], you may frequently receive violation detection e-mail.
- If violation detection e-mail is received frequently, check the content and review the setting values.

# **Other Security Functions**

This is an explanation of the settings for preventing leakage of information.

It also explains the functions that are restricted when user authentication is used.

#### Fax Function

#### Not displaying destinations and senders in reports and lists

This can be specified by the machine administrator.

In [Facsimile Features], you can specify whether to display destinations and sender names by setting "Switch 04, Bit No. 4" and "Switch 04, Bit No. 5" in [Parameter Setting], under [Initial Settings]. Making this setting helps prevent information leaks, because unintended users cannot read destinations and sender names on both the sending and receiving side.

For details, see "Facsimile Features", Fax.

#### Stored Reception File User Setting

This can be specified by the file administrator.

In [Facsimile Features], you can specify which users can manage fax files stored on the hard disk by setting [Stored Reception File User Setting] to [On], under [Reception Settings]. To access the machine over the network, specified users must enter their user codes or login user names and passwords. Only authorized users can manage fax files stored on the hard disk.

For details, see "Facsimile Features", Fax.

#### Printing the Journal

When user authentication is specified, the Journal is automatically set not to be printed in order to prevent automatic printing of personal information in transmission history. Also, if more than 200 transmissions are made, transmissions shown in the Journal are overwritten each time a further transmission is made.

To prevent the transmission history from being overwritten, perform the following procedures:

- In [Facsimile Features], set "Switch 03, Bit 7" in [Parameter Setting] under [Initial Settings] to change the setting for automatically printing the Journal.
- In [Facsimile Features], set "Switch 21, Bit 4" in [Parameter Setting] under [Initial Settings] to send the Journal by e-mail.

For details, see "Facsimile Features", Fax.

#### Scanner Function

#### **Print & Delete Scanner Journal**

When user authentication is enabled, "Print & Delete Scanner Journal" is automatically set to [Do not Print: Disable Send] in order to prevent personal information in transmission/delivery history from being automatically printed. In this case, the scanner is automatically disabled when the journal history exceeds 250 transmissions/deliveries. When this happens, select [Print Scanner Journal] or [Delete Scanner Journal]. To print the scanner journal automatically, set [Print and Delete All] for "Print & Delete Scanner Journal".

For details, see "Scanner Features", Scan.

#### **WSD** scanner function

WSD scanner function is automatically disabled when user authentication is specified. Even if automatically disabled, it can be enabled from "Initial Settings" available in Web Image Monitor.

For details, see "Preparing to Use WSD Scanner (Push Type)" and "Preparing to Use WSD Scanner (Pull Type)", Scan.

# System Status

Pressing the [Check Status] key on the control panel allows you to check the machine's current status and settings. If administrator authentication has been specified, [Machine Address Info] is displayed in [Maintnc./Inquiry/Mach. Info] only if you have logged in to the machine as an administrator.

# **Confirming Firmware Validity**

When the machine starts up, this function verifies the validity of its firmware.

If an error occurs during the verification, a verification error is displayed on the control panel.

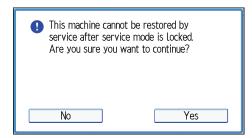
Note that this can also be checked on Web Image Monitor after startup of the machine. If an error occurs in the verification of Web Image Monitor itself, Web Image Monitor cannot be used, so check the display on the control panel.

# **Restricting a Customer Engineer Operation**

You can restrict the customer engineer's access to the service mode.

Service mode is used by a customer engineer for inspection or repair. If you set "Service Mode Lock" to [On], service mode cannot be used unless the machine administrator logs on to the machine and cancels the service mode lock to allow a customer engineer to operate the machine for inspection and repair. This ensures that the inspection and repair are done under the supervision of the machine administrator.

- 1. Log in as the machine administrator from the control panel.
- 2. Press [System Settings].
- 3. Press [Administrator Tools].
- 4. Press [▼Next] twice.
- 5. Press [Service Mode Lock].
- 6. Press [On], and then press [OK].
- 7. Press [Yes].



8. Log out.

# **Additional Information for Enhanced Security**

This section explains the settings that you can configure to enhance the machine's security.

# Settings You Can Configure Using the Control Panel

Use the control panel to configure the security settings shown in the following table.

# **System Settings**

Tab	ltem	Setting
Timer Settings	Auto Logout Timer	On: 180 seconds or less.
		See page 70 "Auto Logout".
Administrator Tools	User Authentication Management	Select [Basic Auth.], and then set "Printer Job Authentication" to [Entire].
		See page 37 "Basic Authentication".
Administrator Tools	Administrator Authentication Management→User	Select [On], and then select [Administrator Tools] for "Available Settings".  See page 15 "Configuring Administrator
	Management	Authentication".
Administrator Tools	Administrator Authentication Management→Machine	Select [On], and then select each of "Available Settings".
	Management	See page 15 "Configuring Administrator Authentication".
Administrator Tools	Administrator Authentication Management→Network	Select [On], and then select [Interface Settings], [File Transfer], and [Administrator Tools] for "Available Settings".
	Management	See page 15 "Configuring Administrator Authentication".
Administrator Tools	Administrator Authentication	Select [On], and then select [Administrator Tools] for "Available Settings".
	Management→File Management	See page 15 "Configuring Administrator Authentication".

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Tab	ltem	Setting
Administrator Tools	Extended Security >> Settings by SNMPv1, v2	Prohibit See page 253 "Specifying the Extended Security Functions".
Administrator Tools	Extended Security Driver Encryption Key:Encryption Strength	AES See page 253 "Specifying the Extended Security Functions".
Administrator Tools	Extended Security → Authenticate Current Job	Access Privilege See page 253 "Specifying the Extended Security Functions".
Administrator Tools	Extended Security > Password Policy	"Complexity Setting": Level 1 or higher, "Minimum Character No.": 8 or higher See page 253 "Specifying the Extended Security Functions".
Administrator Tools	Network Security Level	Level 2  To acquire the machine status through printer driver or Web Image Monitor, set "SNMP" to Active on Web Image Monitor.  See page 119 "Specifying Network Security Level".
Administrator Tools	Service Mode Lock	On See page 263 "Restricting a Customer Engineer Operation".
Administrator Tools	Machine Data Encryption Settings	Select [Encrypt], and then select [All Data] for "Carry over all data or file system data only (without formatting), or format all data.".  If [Encrypt] is already selected, further encryption settings are not necessary.  See page 95 "Encrypting Data on the Hard Disk".

#### **Scanner Features**

Tab	ltem	Setting
Initial Settings	Menu Protect	Level 2
		See page 76 "Specifying Menu Protect".

## **Facsimile Features**

Tab	ltem	Setting
Reception Settings	Stored Reception File User Setting	Select [On], and then specify the users or groups who can perform operations on the received documents.  See page 261 "Other Security Functions".
Initial Settings	Menu Protect	Level 2 See page 76 "Specifying Menu Protect".



• The SNMP setting can be specified in [SNMP] under [Configuration] in Web Image Monitor.

# Settings You Can Configure Using Web Image Monitor

Use Web Image Monitor to configure the security settings shown in the following table.

Category	ltem	Setting
Device Settings→ Logs	Collect Job Logs	Active
Device Settings→ Logs	Collect Access Logs	Active
Security→User Lockout Policy	Lockout	Active For details, see page 68 "User Lockout Function".
Security→User Lockout Policy	Number of Attempts before Lockout	5 times or less. For details, see page 68 "User Lockout Function".

Category	ltem	Setting
Security→User Lockout Policy	Lockout Release Timer	Set to [Active] or [Inactive].  When setting to [Active], set the Lockout release timer to 60 minutes or more.  For details, see page 68 "User Lockout Function".
Security→User Lockout Policy	Lock Out User for	When setting "Lockout Release Timer" to [Active], set the Lockout release timer to 60 minutes or more.  For details, see page 68 "User Lockout Function".
Network→ SNMPv3	SNMPv3 Function	Inactive To use SNMPv3 functions, set "SNMPv3 Function" to [Active], and set "Permit SNMPv3 Communication" to [Encryption Only]. Because SNMPv3 enforces authentication for each packet, Login log will be disabled as long as SNMPv3 is active.
Security > Network Security	FTP	Inactive Before specifying this setting, set "Network Security Level" to [Level 2] on the control panel.
Security	S/MIME	"Encryption Algorithm": AES-128 bit, AES-256 bit, or 3DES-168 bit You must register the user certificate in order to use S/MIME.
Address Book→ Detail Input→Add User/Change→ Email	User Certificate	You must register the user certificate in order to use S/MIME.



- The administrator must indicate which strength level is to be specified for the encryption algorithm.
- For details about specifying an encryption algorithm and registering a user certificate, see page 135 "Configuring S/MIME".

# Settings You Can Configure When IPsec Is Available/Unavailable

All communication to and from machines on which IPsec is enabled is encrypted.

If your network supports IPsec, we recommend you enable it.

# Settings you can configure when IPsec is available

If IPsec is available, configure the settings shown in the following table to enhance the security of the data traveling on your network.

# Control panel settings

#### **System Settings**

Tab	ltem	Setting
Interface Settings	IPsec	Active
Interface Settings	Permit SSL / TLS Communication	Ciphertext Only

# Web Image Monitor settings

Category	ltem	Setting
Security→IPsec→ Encryption Key Auto Exchange Settings	Edit→Security Level	Authentication and High Level Encryption

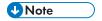
# Settings you can configure when IPsec is unavailable

If IPsec is not available, configure the settings shown in the following table to enhance the security of the data traveling on your network.

### Control panel settings

### **System Settings**

Tab	ltem	Setting
Interface Settings	IPsec	Inactive
Interface Settings	Permit SSL / TLS Communication	Ciphertext Only



• You can set "IPsec" and "Permit SSL/TLS Communication" using Web Image Monitor.

# Securing data when IPsec is unavailable

The following procedures make user data more secure when IPsec is unavailable.

Administrators must inform users to carry out these procedures.

#### Fax

Sending and receiving faxes without using IP-Fax

When sending faxes, specify destinations by fax number, Internet Fax destination, e-mail address, or folder destination. Do not specify destinations by IP-Fax destination. For details about specifying the destination for a facsimile, see "Specifying a Destination", Fax.

#### **Printer**

Printing with protocols that support encryption

To use the printer functions, specify sftp as the protocol, or specify IPP and enable SSL/TLS. For details about sftp, see "Printing Files Directly from Windows", Connecting the Machine/System Settings.

For details about IPP settings, see "Installing the Printer Driver for the Selected Port", Driver Installation Guide.

For details about SSL/TLS settings, see page 129 "Configuring SSL/TLS".

#### Scanner

· Sending the URL address of stored files

Send the URL of scanned files to destinations by configuring [Send Settings] in [Scanner Features], instead of sending the actual scanned files. For details, see "Sending the URL by Email", Scan.

- Managing scanned files using Web Image Monitor
   Use Web Image Monitor through your network to view, delete, send, and download scanned files.
- S/MIME authentication function

When sending scanned files attached to e-mail, protect them by applying an S/MIME certificate. To do this, configure the "Security" settings prior to sending. For details about sending e-mail from the scanner, see "Security Settings to E-mails", Scan.



 For details about enabling and disabling IPsec using the control panel, see "Interface Settings", Connecting the Machine/ System Settings.

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• For details about specifying the IPsec setting via Web Image Monitor, see page 142 "Configuring IPsec".

# 8. Troubleshooting

This chapter describes what to do if the machine does not function properly.

# If a Message is Displayed

This section explains how to deal with problems if a message appears on the screen during user authentication.

If a message not shown below is displayed, follow the message to resolve the problem.

# "You do not have the privileges to use this function."

The privileges to use the function is not specified.

If this appears when trying to use a function:

- The function is not specified in the Address Book management setting as being available.
- The user administrator must decide whether to additionally assign the privileges to use the function.

If this appears when trying to specify a machine setting:

- The administrator differs depending on the machine settings you wish to specify.
- Using the list of settings, the administrator responsible must decide whether to additionally assign the privileges to use the function.

#### "Authentication has failed."

The cause depends on the error code.

For details, see page 273 "If an Error Code is Displayed".

# "Administrator Authentication for User Management must be set to on before this selection can be made."

User administrator privileges have not been enabled in [Administrator Authentication Management].

 To specify Basic authentication, Windows authentication, LDAP authentication, or Integration Server authentication, you must first enable user administrator privileges in [Administrator Authentication Management].

For details, see page 15 "Configuring Administrator Authentication".

# "Failed to obtain URL."

The machine cannot connect to the server or cannot establish communication.

- Make sure the server's settings, such as the IP address and host name, are specified correctly on the machine.
- Make sure the host name of the UA Server is specified correctly.

# "Failed to obtain URL."

The machine is connected to the server, but the UA service is not responding properly.

• Make sure the UA service is specified correctly.

# "Failed to obtain URL."

SSL is not specified correctly on the server.

• Specify SSL using Authentication Manager.

### "Failed to obtain URL."

Server authentication failed.

• Make sure server authentication is specified correctly on the machine.

"The selected file(s) contained file(s) without access privileges. Only file(s) with access privileges will be deleted."

You have tried to delete files without the privileges to do so.

• Files can be deleted by the owner or file administrator. To delete a file which you are not privileged to delete, contact the owner.



• If a service call message appears, contact your service representative.

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# If an Error Code is Displayed

When authentication fails, the message "Authentication has failed." appears with an error code. The following lists provide solutions for each error code. If the error code that appears is not on the lists, write down the error code and contact your service representative.

### Error code display position



#### 1. Error code

An error code appears.

#### **Basic Authentication**

# B0103-000

A TWAIN operation occurred during authentication.

• Make sure no other user is logged on to the machine, and then try again.

#### B0104-000

Failed to decrypt password.

- A password error occurred.
  - Make sure the password is entered correctly.
- Either [DES] or [AES] is selected for "Driver Encryption Key: Encryption Strength".
  - You can make access by specifying the driver encryption key.
- A driver encryption key error occurred.
  - Make sure that the encryption key is correctly specified on the driver.

# B0105-000

A login user name was not specified but a DeskTopBinder operation was performed.

• Specify the DeskTopBinder login user name correctly.

A login user name or password error occurred.

Make sure the login user name and password are entered correctly and then log in.

# B0206-002 : Case 2

The user attempted authentication from an application on the "System Settings" screen, where only the administrator has authentication ability.

- Only the administrator has login privileges on this screen.
- Log in as a general user from the application's login screen.

# B0206-003

An authentication error occurred because the user name contains a space, colon (:), or quotation mark (").

- Recreate the account if the account name contains any of these prohibited characters.
- If the account name was entered incorrectly, enter it correctly and log in again.

# B0207-001

An authentication error occurred because the Address Book is being used at another location.

• Wait a few minutes and then try again.

### B0208-000 / B0208-002

The account is locked because you have reached the maximum number of failed authentication attempts allowed.

Ask the user administrator to unlock the account.

## Windows Authentication

### W0103-000

A TWAIN operation occurred during authentication.

• Make sure no other user is logged in to the machine, and then try again.

# W0104-000

Failed to encrypt password.

• A password error occurred.

Make sure the password is entered correctly.

• Either [DES] or [AES] is selected for "Driver Encryption Key: Encryption Strength".

You can make access by specifying the driver encryption key.

• A driver encryption key error occurred.

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Make sure that the encryption key is correctly specified on the driver.

# W0105-000

A login user name was not specified but a DeskTopBinder operation was performed.

• Set the DeskTopBinder login user name correctly.

#### W0206-002

The user attempted authentication from an application on the "System Settings" screen, where only the administrator has authentication ability.

- Only the administrator has login privileges on this screen.
- Log in as a general user from the application's login screen.

# W0206-003

An authentication error occurred because the user name contains a space, colon (:), or quotation mark (").

- Recreate the account if the account name contains any of these prohibited characters.
- If the account name was entered incorrectly, enter it correctly and log in again.

#### W0207-001

An authentication error occurred because the Address Book is being used at another location.

• Wait a few minutes and then try again.

#### W0208-000 / W0208-002

The account is locked because you have reached the maximum number of failed authentication attempts allowed.

• Ask the user administrator to unlock the account.

#### W0400-102

Kerberos authentication failed because the server is not functioning correctly.

• Make sure that the server is functioning properly.

#### W0400-107 : Case 1

The UserPrincipleName (user@domainname.xxx.com) form is being used for the login user name.

- The user group cannot be obtained if the UserPrincipleName (user@domainname.xxx.com) form is
- Use "sAMAccountName(user)" to log in, because this account allows you to obtain the user group.

# W0400-107 : Case 2

Current settings do not allow group retrieval.

 Make sure the user group's group scope is set to "Global Group" and the group type is set to "Security" in group properties.

- Make sure the account has been added to user group.
- Make sure the user group name registered on the machine and the group name on the DC (domain controller) are exactly the same. The DC is case sensitive.
- Make sure that "Use Auth. Info at Login" has been specified in "Auth. Info" in the user account registered on the machine.
- If there is more than one DC, make sure that a confidential relationship has been configured between each DC.

# W0400-107 : Case 3

The domain name cannot be resolved.

• Make sure that DNS/WINS is specified in the domain name in "Interface Settings".

# W0400-200

Due to the high number of authentication attempts, all resources are busy.

• Wait a few minutes and then try again.

#### W0400-202 : Case 1

The SSL settings on the authentication server and the machine do not match.

• Make sure the SSL settings on the authentication server and the machine match.

# W0400-202 : Case 2

The user entered sAMAccountName in the user name to log in.

• If a user enters sAMAccountName as the login user name, ldap\_bind fails in a parent/subdomain environment. Use UserPrincipleName for the login name instead.

#### W0406-003

An authentication error occurred because the user name contains a space, colon (:), or quotation mark (").

- Recreate the account if the account name contains any of these prohibited characters.
- If the account name was entered incorrectly, enter it correctly and log on again.

# W0406-101

Authentication cannot be completed because of the high number of authentication attempts.

- Wait a few minutes and then try again.
- If the situation does not return to normal, make sure that an authentication attack is not occurring.
- Notify the administrator of the screen message by e-mail, and check the system log for signs of an authentication attack.

# W0406-107 : Case 1

Cannot connect to the authentication server.

- Make sure that connection to the authentication server is possible.
- Use the "Ping Command" in "Interface Settings" to check the connection.

#### W0406-107 : Case 2

A login name or password error occurred.

- Make sure that the user is registered on the server.
- Use a registered login user name and password.

#### W0406-107 : Case 3

A domain name error occurred.

• Make sure that the Windows authentication domain name is specified correctly.

#### W0406-107 : Case 4

Cannot resolve the domain name.

Specify the IP address in the domain name and confirm that authentication is successful.

If authentication was successful:

- If the top-level domain name is specified in the domain name (such as domainname.xxx.com), make sure that DNS is specified in "Interface Settings".
- If a NetBIOS domain name is specified in domain name (such as DOMAINNAME), make sure that WINS is specified in "Interface Settings".

If authentication was unsuccessful:

- Make sure that Restrict LM/NTLM is not set in either "Domain Controller Security Policy" or "Domain Security Policy".
- Make sure that the ports for the domain control firewall and the firewall on the machine to the domain control connection path are open.
- Under Windows 7/8, if the Windows firewall is activated, create a firewall rule in the Windows firewall's "Advanced settings" to authorize ports 137 and 139.
- Under Windows XP, if the Windows firewall is activated, open the properties for "Network Connections", and then click "Settings" on the "Advanced" tab. On the "Exceptions" tab, specify ports 137 and 139 as exceptions.
- In the Properties window for "Network Connections", open TCP/IP properties. Then click detail settings, WINS, and then check the "Enable NetBIOS over TCP/IP" box and set number 137 to "Open".

## W0406-107 : Case 5

Kerberos authentication failed.

• Kerberos authentication settings are not correctly configured.

Make sure the realm name, KDC (Key Distribution Center) name and corresponding domain name are specified correctly.

- The KDC and machine timing do not match.
  - Authentication will fail if the difference between the KDC and machine timing is more than 5 minutes. Make sure the timing matches.
- Kerberos authentication will fail if the realm name is specified in lower-case letters. Make sure the realm name is specified in capital letters.
- Kerberos authentication will fail if automatic retrieval for KDC fails.

Ask your service representative to make sure the KDC retrieval settings are set to "automatic retrieval".

If automatic retrieval is not functioning properly, switch to manual retrieval.

#### W0409-000

Authentication timed out because the server did not respond.

• Check the network configuration, or settings on the authenticating server.

#### W0511-000

The authentication server login name is the same as a user name already registered on the machine. (Names are distinguished by the unique attribute specified in LDAP authentication settings.)

- Delete the old, duplicated name or change the login name.
- If the authentication server has just been changed, delete the old name on the server.

# W0606-004

Authentication failed because the user name contains language that cannot be used by general users.

• Do not use "other", "admin", "supervisor" or "HIDE\*" in general user accounts.

# W0607-001

An authentication error occurred because the Address Book is being used at another location.

• Wait a few minutes and then try again.

#### W0612-005

Authentication failed because no more users can be registered. (The number of users registered in the Address Book has reached capacity.)

• Ask the user administrator to delete unused user accounts in the Address Book.

#### W0707-001

An authentication error occurred because the Address Book is being used at another location.

• Wait a few minutes and then try again.

# LDAP Authentication

# L0103-000

A TWAIN operation occurred during authentication.

• Make sure no other user is logged in to the machine, and then try again.

#### L0104-000

Failed to encrypt password.

• A password error occurred.

Make sure the password is entered correctly.

• Either [DES] or [AES] is selected for "Driver Encryption Key: Encryption Strength".

You can make access by specifying the driver encryption key.

• A driver encryption key error occurred.

Make sure that the encryption key is correctly specified on the driver.

# L0105-000

A login user name was not specified but a DeskTopBinder operation was performed.

• Set the DeskTopBinder login user name correctly.

#### L0206-002

A user attempted authentication from an application on the "System Settings" screen, where only the administrator has authentication ability.

- Only the administrator has login privileges on this screen.
- Log in as a general user from the application's login screen.

#### L0206-003

An authentication error occurred because the user name contains a space, colon (:), or quotation mark (").

- Recreate the account if the account name contains any of these prohibited characters.
- If the account name was entered incorrectly, enter it correctly and log in again.

#### L0207-001

An authentication error occurred because the Address Book is being used at another location.

• Wait a few minutes and then try again.

#### L0208-000 / L0208-002

The account is locked because you have reached the maximum number of failed authentication attempts allowed.

• Ask the user administrator to unlock the account.

# L0306-018

The LDAP server is not correctly configured.

Make sure that a connection test is successful with the current LDAP server configuration.

#### L0307-001

An authentication error occurred because the Address Book is being used at another location.

· Wait a few minutes and then try again.

# L0400-210

Failed to obtain user information in LDAP search.

- The login attribute's search criteria might not be specified or the specified search information is unobtainable.
- Make sure the login name attribute is specified correctly.

# L0406-003

An authentication error occurred because the user name contains a space, colon (:), or quotation mark (").

- Recreate the account if the account name contains any of these prohibited characters.
- If the account name was entered incorrectly, enter it correctly and log in again.

#### L0406-200

Authentication cannot be completed because of the high number of authentication attempts.

- Wait a few minutes and then try again.
- If the situation does not return to normal, make sure that an authentication attack is not occurring.
- Notify the administrator of the screen message by e-mail, and check the system log for signs of an authentication attack.

#### L0406-201

Authentication is disabled in the LDAP server settings.

• Change the LDAP server settings in administrator tools, in "System Settings".

## L0406-202 / L0406-203 : Case 1

There is an error in the LDAP authentication settings, LDAP server, or network configuration.

- Make sure that a connection test is successful with the current LDAP server configuration.
  - If connection is not successful, there might be an error in the network settings.
  - Check the domain name or DNS settings in "Interface Settings".
- Make sure the LDAP server is specified correctly in the LDAP authentication settings.
- Make sure the login name attribute is entered correctly in the LDAP authentication settings.
- Make sure the SSL settings are supported by the LDAP server.

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# L0406-202 / L0406-203 : Case 2

A login user name or password error occurred.

- Make sure the login user name and password are entered correctly.
- Make sure a usable login name is registered on the machine.

Authentication will fail in the following cases:

If the login user name contains a space, colon (:), or quotation mark (").

If the login user name exceeds 128 bytes.

# L0406-202 / L0406-203 : Case 3

There is an error in the simple encryption method.

• Authentication will fail if the password is left blank in simple authentication mode.

To allow blank passwords, contact your service representative.

In simple authentication mode, the DN of the login user name is obtained in the user account.

Authentication fails if the DN cannot be obtained.

Make sure there are no errors in the server name, login user name/password, or information entered for the search filter.

#### L0406-204

Kerberos authentication failed.

- Kerberos authentication settings are not correctly configured.
  - Make sure the realm name, KDC (Key Distribution Center) name, and supporting domain name are specified correctly.
- The KDC and machine timing do not match.
  - Authentication will fail if the difference between the KDC and machine timing is more than 5 minutes. Make sure the timing matches.
- Kerberos authentication will fail if the realm name is specified in lower-case letters. Make sure the
  realm name is specified in capital letters.

#### L0409-000

Authentication timed out because the server did not respond.

- Contact the server or network administrator.
- If the situation does not return to normal, contact your service representative.

#### L0511-000

The authentication server login name is the same as a user name already registered on the machine. (Names are distinguished by the unique attribute specified in the LDAP authentication settings.)

• Delete the old, duplicated name or change the login name.

• If the authentication server has just been changed, delete the old name on the server.

# L0606-004

Authentication failed because the user name contains language that cannot be used by general users.

• Do not use "other", "admin", "supervisor" or "HIDE\*" in general user accounts.

### L0607-001

An authentication error occurred because the Address Book is being used at another location.

• Wait a few minutes and then try again.

# L0612-005

Authentication failed because no more users can be registered. (The number of users registered in the Address Book has reached capacity.)

• Ask the user administrator to delete unused user accounts in the Address Book.

### L0707-001

An authentication error occurred because the Address Book is being used at another location.

• Wait a few minutes and then try again.

# Integration Server Authentication

# 10103-000

A TWAIN operation occurred during authentication.

• Make sure no other user is logged in to the machine, and then try again.

# 10104-000

Failed to decrypt password.

• A password error occurred.

Make sure the password is entered correctly.

• Either [DES] or [AES] is selected for "Driver Encryption Key: Encryption Strength".

You can make access by specifying the driver encryption key.

• A driver encryption key error occurred.

Make sure that the encryption key is correctly specified on the driver.

#### 10105-000

A login user name was not specified but a DeskTopBinder operation was performed.

• Set the DeskTopBinder login user name correctly.

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# 10206-002

A user attempted authentication from an application on the "System Settings" screen, where only the administrator has authentication ability.

- Only the administrator has login privileges on this screen.
- · Log in as a general user from the application's login screen.

### 10206-003

An authentication error occurred because the user name contains a space, colon (:), or quotation mark (").

- Recreate the account if the account name contains any of these prohibited characters.
- If the account name was entered incorrectly, enter it correctly and log in again.

#### 10207-001

An authentication error occurred because the Address Book is being used at another location.

• Wait a few minutes and then try again.

# 10208-000 / 10208-002

The account is locked because you have reached the maximum number of failed authentication attempts allowed.

• Ask the user administrator to unlock the account.

# 10406-003

An authentication error occurred because the user name contains a space, colon (:), or quotation mark (").

- Recreate the account if the account name contains any of these prohibited characters.
- If account name was entered incorrectly, enter it correctly and log in again.

# 10406-301 : Case 1

The URL could not be obtained.

• Obtain the URL using Obtain URL in Integration Server authentication.

#### 10406-301 : Case 2

A login user name or password error occurred.

- Make sure the login user name and password are entered correctly.
- Make sure that a usable login name is registered on the machine.

Authentication will fail in the following cases:

If the login user name contains a space, colon (:), or quotation mark (").

If the login user name exceeds 128 bytes.

Authentication timed out because the server did not respond.

- Contact the server or network administrator.
- If the situation does not return to normal, contact your service representative.

# 10511-000

The authentication server login name is the same as a user name already registered on the machine. (Names are distinguished by the unique attribute specified in the LDAP authentication settings.)

- Delete the old, duplicated name or change the login name.
- If the authentication server has just been changed, delete the old name on the server.

#### 10606-004

Authentication failed because the user name contains language that cannot be used by general users.

• Do not use "other", "admin", "supervisor" or "HIDE\*" in general user accounts.

# 10607-001

An authentication error occurred because the Address Book is being used at another location.

• Wait a few minutes and then try again.

# 10612-005

Authentication failed because no more users can be registered. (The number of users registered in the Address Book has reached capacity.)

• Ask the user administrator to delete unused user accounts in the Address Book.

# 10707-001

An authentication error occurred because the Address Book is being used at another location.

• Wait a few minutes and then try again.

# If the Machine Cannot Be Operated

If the following conditions arise while users are operating the machine, provide the instructions on how to deal with them.

Condition	Cause	Solution
Cannot perform the following:  Print with the printer driver  Connect with the TWAIN driver  Send or print with the LAN-Fax driver	User authentication has been rejected.	Confirm the user name and login name with the administrator of the network in use if using Windows authentication, LDAP authentication, or Integration Server authentication.  Confirm with the user administrator if using Basic authentication.
Cannot perform the following:  Print with the printer driver  Connect with the TWAIN driver  Send or print with the LAN-Fax driver	The encryption key specified in the driver does not match the machine's driver encryption key.	Specify the driver encryption key registered in the machine. For details, see page 166 "Specifying a Driver Encryption Key".
Cannot connect with the TWAIN driver.	The SNMPv3 account, password, and encryption algorithm do not match settings specified on this machine.	Specify the account, password and the encryption algorithm of SNMPv3 registered in the machine using network connection tools.
Cannot authenticate using the TWAIN driver.	Another user is logging in to the machine.	Wait for the user to log out.
Cannot authenticate using the TWAIN driver.	Authentication is taking time because of operating conditions.	Make sure the LDAP server setting is correct.  Make sure the network settings are correct.
Cannot authenticate using the TWAIN driver.	Authentication is not possible while the machine is editing the Address Book data.	Wait until editing of the Address Book data is complete.

Condition	Cause	Solution
After starting "User Management Tool" or "Address Management Tool" in SmartDeviceMonitor for Admin/Device Manager NX Lite and entering the correct login user name and password, a message that an incorrect password has been entered appears.	"Driver Encryption Key:Encryption Strength" is not set correctly. Alternatively, "SSL/TLS" has been enabled although the required certificate is not installed in the computer.	Set "Driver Encryption Key:Encryption Strength" to [Simple Encryption]. Alternatively, enable "SSL/TLS", install the server certificate in the machine, and then install the certificate in the computer. For details, see page 253 "Specifying the Extended Security Functions" and page 129 "Configuring SSL/TLS".
Cannot log in to the machine using [Document Server (MFP): Authentication/Encryption] in DeskTopBinder.	"Driver Encryption Key:Encryption Strength" is not set correctly. Alternatively, "SSL/TLS" has been enabled although the required certificate is not installed in the computer.	Set "Driver Encryption Key:Encryption Strength" to [Simple Encryption]. Alternatively, enable "SSL/TLS", install the server certificate in the machine, and then install the certificate in the computer. For details, see page 253 "Specifying the Extended Security Functions" and page 129 "Configuring SSL/TLS".
Cannot access the machine using ScanRouter EX Professional V3 / ScanRouter EX Enterprise V2.	"Driver Encryption Key:Encryption Strength" is not set correctly. Alternatively, "SSL/TLS" has been enabled although the required certificate is not installed in the computer.	Set "Driver Encryption Key:Encryption Strength" to [Simple Encryption]. Alternatively, enable "SSL/TLS", install the server certificate in the machine, and then install the certificate in the computer. For details, see page 253 "Specifying the Extended Security Functions" and page 129 "Configuring SSL/ TLS".

Condition	Cause	Solution
Cannot connect to the ScanRouter delivery software.	The ScanRouter delivery software may not be supported by the machine.	Update to the latest version of the ScanRouter delivery software.
Cannot access the machine using ScanRouter EX Professional V2.	ScanRouter EX Professional V2 does not support user authentication.	ScanRouter EX Professional V2 does not support user authentication.
Cannot log out when using the copying or scanner functions.	The original has not been scanned completely.	When the original has been scanned completely, press [#], remove the original, and then log out.
"Prg. Dest." does not appear on the fax or scanner screen for specifying destinations.	"Restrict Adding of User Destinations (Fax)" and/or "Restrict Adding of User Destinations (Scanner)" is set to [On] in "Restrict Use of Destinations (Fax)" and/or "Restrict Use of Destinations (Scanner)" under "Extended Security", so only the user administrator can register destinations in the Address Book on the fax or scanner screen.	Registration must be done by the user administrator.

Condition	Cause	Solution
Cannot send e-mail from the scanner.  Similarly:  Cannot select an address.  Cannot specify a signature.  Cannot store data in a media.	<ul> <li>The following are possible causes:</li> <li>The validity period of the user certificate (destination certificate) has expired.</li> <li>The validity period of the device certificate (S/MIME) has expired.</li> <li>The device certificate (S/MIME) does not exist or is invalid.</li> <li>The validity period of the device certificate (PDF with digital signature or PDF/A with digital signature) has expired.</li> <li>The device certificate (PDF with digital signature or PDF/A with digital signature or is invalid.</li> <li>The administrator's e-mail address is incorrect.</li> </ul>	<ul> <li>Install a user certificate (destination certificate). You can install a user certificate (destination certificate) from the Web Image Monitor address book. The user certificate (destination certificate) itself must be prepared in advance.</li> <li>Install a device certificate for S/MIME.</li> <li>Install a device certificate for PDF with digital signature or PDF/A with digital signature.</li> <li>For details, see page 124 "Protecting the Communication Path via a Device Certificate".</li> <li>Specify the administrator's e-mail address.</li> <li>For details, see "File Transfer", Connecting the Machine/ System Settings.</li> </ul>

Condition	Cause	Solution
Cannot transfer faxed documents.  Similarly:  Cannot select an address.  Cannot specify a signature.	<ul> <li>The following are possible causes:</li> <li>The validity period of the user certificate (destination certificate) has expired.</li> <li>The validity period of the device certificate (S/MIME) has expired.</li> <li>The device certificate (S/MIME) does not exist or is invalid.</li> <li>The validity period of the device certificate (PDF with digital signature or PDF/A with digital signature) has expired.</li> <li>The device certificate (PDF with digital signature or PDF/A with digital signature) does not exist or is invalid.</li> <li>The administrator's e-mail address is incorrect.</li> </ul>	<ul> <li>Install a user certificate (destination certificate). You can install a user certificate (destination certificate) from the Web Image Monitor address book. The user certificate (destination certificate) itself must be prepared in advance.</li> <li>Install a device certificate for S/MIME.</li> <li>Install a device certificate for PDF with digital signature or PDF/A with digital signature.</li> <li>For details, see page 124 "Protecting the Communication Path via a Device Certificate".</li> <li>Specify the administrator's e-mail address.</li> <li>For details, see "File Transfer", Connecting the Machine/ System Settings.</li> </ul>
User authentication is disabled, yet stored files do not appear.	User authentication might have been disabled without "All Users" being selected for user access to stored files.	Re-enable user authentication, and select [All Users] as the access permission setting of the files you want to display. For details, see page 175 "Managing Stored Files".

Condition	Cause	Solution
User authentication is disabled, yet destinations specified using the machine do not appear.	User authentication might have been disabled without "All Users" being selected for "Protect Destination".	Re-enable user authentication, and select [All Users] as the access permission setting of the destinations you want to display.  For details, see page 91  "Protecting the Address Book".
Cannot print when user authentication has been enabled.	User authentication may not be specified in the printer driver.	Specify user authentication in the printer driver. For details, see the printer driver Help.
[Finish Job and Limit] is selected in "Machine action when limit is reached", but the current job is canceled before it is finished.	Depending on the application you are using, the machine might recognize a job as multiple jobs, causing cancelation of the job before it is finished.	Reset the print volume use setting for the user by, for example, clearing the print volume use counter, and then perform printing again.  For details, see page 88  "Clearing Print Volume Use Counters".
If you try to interrupt a job while copying or scanning, an authentication screen appears.	With this machine, you can log out while copying or scanning. If you try to interrupt copying or scanning after logging out, an authentication screen appears.	Only the user who executed a copying or scanning job can interrupt it.  Wait until the job has completed or check with the user who executed the job.  The machine administrator can delete jobs.
After executing "Encrypt User Custom Settings & Address Book", the "Exit" message does not appear despite waiting a long time.	Authentication may be taking time because a large number of items are registered in the address book. Alternatively, a file may be corrupt or the hard disk may be faulty.	If the screen has still not updated even though the "File System Data Only" time specified in accordance with page 95 "Encrypting Data on the Hard Disk" has elapsed, contact your service representative.

# List of Operation Privileges for Settings

This chapter specifies a list of the administrator and user operation privileges for the machine settings when administrator authentication or user authentication is enabled.

## How to Read

### **Understanding headers**

User

The user administrator has privileges for this operation.

• Mach

The machine administrator has privileges for this operation.

N/W

The network administrator has privileges for this operation.

File

The file administrator has privileges for this operation.

Unset

The logged in user has privileges for this operation.

In cases where no settings are selected in "Available Settings" of [Administrator Authentication Management].

Set

The logged in user has privileges for this operation.

Status when settings are selected in "Available Settings" of [Administrator Authentication Management].

Lv. 1

In cases where the [Menu Protect] setting is set to [Level 1].

Lv.2

In cases where the [Menu Protect] setting is set to [Level 2].

### Understanding the symbols

R/W: Execute, change and reading possible.

R: Reading is possible.

-: Execute, change and reading are not possible.

# **System Settings**

When administrator authentication is set, the restrictions to user operations differ depending on the configurations in "Available Settings".

### [General Features]

Settings	User	Mach	N/W	File	Unset	Set
[Program / Change / Delete User Text]	R	R/W	R	R	R/W	R
[Panel Key Sound]	R	R/W	R	R	R/W	R
[Warm-up Beeper]	R	R/W	R	R	R/W	R
[Copy Count Display]	R	R/W	R	R	R/W	R
[Function Priority]	R	R/W	R	R	R/W	R
[Function Key Allocation]	R	R/W	R	R	R/W	R
[Screen Color Setting]	R	R/W	R	R	R/W	R
[Print Priority]	R	R/W	R	R	R/W	R
[Function Reset Timer]	R	R/W	R	R	R/W	R
[Output: Copier]	R	R/W	R	R	R/W	R
[Output: Document Server]	R	R/W	R	R	R/W	R
[Output: Facsimile]	R	R/W	R	R	R/W	R
[Output: Printer]	R	R/W	R	R	R/W	R
[Key Repeat]	R	R/W	R	R	R/W	R
[System Status/Job List Display Time]	R	R/W	R	R	R/W	R
[ADF Original Table Elevation]* 1	R	R/W	R	R	R/W	R
[External Keyboard]	R	R/W	R	R	R/W	R
[Compatible ID]	R	R/W	R	R	R/W	R

<sup>\*1</sup> This item may not be displayed depending on the model being used.

## [Tray Paper Settings]

Settings	User	Mach	N/W	File	Unset	Set
[Paper Tray Priority: Copier]	R	R/W	R	R	R/W	R
[Paper Tray Priority: Facsimile]	R	R/W	R	R	R/W	R
[Paper Tray Priority: Printer]	R	R/W	R	R	R/W	R
[Tray Paper Size: Tray 1-4]	R	R/W	R	R	R/W	R
[Printer Bypass Paper Size]	R	R/W	R	R	R/W	R
[Paper Type: Bypass Tray]	R	R/W	R	R	R/W	R
[Paper Type: Tray 1-4]	R	R/W	R	R	R/W	R
[Paper Type: LCT]	R	R/W	R	R	R/W	R
[Cover Sheet Tray]	R	R/W	R	R	R/W	R
[Slip Sheet Tray]	R	R/W	R	R	R/W	R
[Double Feed Detect]	R	R/W	R	R	R/W	R

### [Timer Settings]

Settings	User	Mach	N/W	File	Unset	Set
[Sleep Mode Timer]	R	R/W	R	R	R/W	R
[Low Power Mode Timer]	R	R/W	R	R	R/W	R
[System Auto Reset Timer]	R	R/W	R	R	R/W	R
[Copier / Document Server Auto Reset Timer]	R	R/W	R	R	R/W	R
[Facsimile Auto Reset Timer]	R	R/W	R	R	R/W	R
[Printer Auto Reset Timer]	R	R/W	R	R	R/W	R
[Scanner Auto Reset Timer]	R	R/W	R	R	R/W	R
[Set Date]	R	R/W	R	R	R/W	R
[Set Time]	R	R/W	R	R	R/W	R
[Auto Logout Timer]	R	R/W	R	R	R/W	R

Settings	User	Mach	N/W	File	Unset	Set
[Fusing Unit Off Mode (Energy Saving) On/Off]	R	R/W	R	R	R/W	R
[Weekly Timer]	R	R/W	R	R	R/W	R

### [Interface Settings]

### [Network]

Settings	User	Mach	N/W	File	Unset	Set
[Machine IPv4 Address]*1	R	R	R/W	R	R/W	R
[IPv4 Gateway Address]	R	R	R/W	R	R/W	R
[Machine IPv6 Address]	R	R	R	R	R	R
[IPv6 Gateway Address]	R	R	R	R	R	R
[IPv6 Stateless Address Autoconfiguration]	R	R	R/W	R	R/W	R
[DHCPv6 Configuration]	R	R	R/W	R	R/W	R
[DNS Configuration]*2	R	R	R/W	R	R/W	R
[DDNS Configuration]	R	R	R/W	R	R/W	R
[IPsec]	R	R	R/W	R	R/W	R
[Domain Name]*1	R	R	R/W	R	R/W	R
[WINS Configuration]	R	R	R/W	R	R/W	R
[Effective Protocol]	R	R	R/W	R	R/W	R
[NCP Delivery Protocol]	R	R	R/W	R	R/W	R
[NW Frame Type]	R	R	R/W	R	R/W	R
[SMB Computer Name]	R	R	R/W	R	R/W	R
[SMB Work Group]	R	R	R/W	R	R/W	R
[Ethernet Speed]	R	R	R/W	R	R/W	R
[LAN Type]	R	R	R/W	R	R/W	R
[Ping Command]	-	-	R/W	_	R/W	R

Settings	User	Mach	N/W	File	Unset	Set
[Permit SNMPv3 Communication]	R	R	R/W	R	R/W	R
[Permit SSL / TLS Communication]	R	R	R/W	R	R/W	R
[Host Name]	R	R	R/W	R	R/W	R
[Machine Name]	R	R	R/W	R	R/W	R
[IEEE 802.1X Authentication for Ethernet]	R	R	R/W	R	R/W	R
[Restore IEEE 802.1X Authentication to Defaults]	-	-	R/W	-	R/W	-

<sup>\* 1</sup> When auto-obtain is set, the data is read-only.

### [Parallel Interface]

Settings	User	Mach	N/W	File	Unset	Set
[Parallel Timing]	R	R/W	R	R	R/W	R
[Parallel Communication Speed]	R	R/W	R	R	R/W	R
[Selection Signal Status]	R	R/W	R	R	R/W	R
[Input Prime]	R	R/W	R	R	R/W	R
[Bidirectional Communication]	R	R/W	R	R	R/W	R
[Signal Control]	R	R/W	R	R	R/W	R

### [Wireless LAN]

[Wireless LAIN]						
Settings	User	Mach	N/W	File	Unset	Set
[Communication Mode]	R	R	R/W	R	R/W	R
[SSID Setting]	R	R	R/W	R	R/W	R
[Ad-hoc Channel]	R	R	R/W	R	R/W	R
[Security Method]	R	R	R/W	R	R/W	R
[Wireless LAN Easy Setup]	_	_	R/W	-	R/W	_
[Wireless LAN Signal]	R	R	R	R	R	R

<sup>\*2</sup> All administrators and users can run a test of connections.

Settings	User	Mach	N/W	File	Unset	Set
[Restore Factory Defaults]	_	_	R/W	-	R/W	_

### [Print List]

Settings	User	Mach	N/W	File	Unset	Set
[Print List]	_	_	R/W	_	R/W	-

## [File Transfer]

Settings	User	Mach	N/W	File	Unset	Set
[Delivery Option]*3	R	R/W	R	R	R/W	R
[Capture Server IPv4 Address]	R	R/W	R	R	R/W	R
[Fax RX File Transmission]	R	R/W	R	R	R/W	R
[SMTP Server]	R	R	R/W	R	R/W	R
[SMTP Authentication]*4	R	R/W	R	R	R/W	R
[POP before SMTP]	R	R/W	R	R	R/W	R
[Reception Protocol]	R	R/W	R	R	R/W	R
[POP3 / IMAP4 Settings]	R	R/W	R	R	R/W	R
[Administrator's E-mail Address]	R	R/W	R	R	R/W	R
[E-mail Communication Port]	R	R	R/W	R	R/W	R
[E-mail Reception Interval]	R	R	R/W	R	R/W	R
[Max. Reception E-mail Size]	R	R	R/W	R	R/W	R
[E-mail Storage in Server]	R	R	R/W	R	R/W	R
[Default User Name / Password (Send)]*4	R	R/W	R	R	R/W	R
[Program / Change / Delete E-mail Message]	R	R/W	R	R	R/W	R/W
[Auto Specify Sender Name]	R	R	R/W	R	R/W	R
[Fax E-mail Account]	R	R/W	R	R	R/W	R

Settings	User	Mach	N/W	File	Unset	Set
[Scanner Resend Interval Time]	R	R	R/W	R	R/W	R
[Number of Scanner Resends]	R	R	R/W	R	R/W	R

<sup>\*3</sup> The primary and secondary delivery server addresses are read-only.

### [Administrator Tools]

Settings	User	Mach	N/W	File	Unset	Set
[Address Book Management]	R/W	R/W *5	R/W *5	R/W *5	R/W *6	R*6
[Address Book: Program / Change / Delete Group]	R/W	R/W *5	R/W *5	R/W *5	R/W *6	R*6
[Address Book: Change Order]	R/W	_	_	-	R/W	_
[Print Address Book: Destination List]	R/W	_	_	_	R/W	R/W
[Address Book: Edit Title]	R/W	_	_	_	R/W	_
[Address Book: Switch Title]	R/W	_	_	_	R/W	R
[Backup/Restore: User Custom Settings & Address Book]	R/W	_	_	_	R/W	
[Data Carry-over Setting for Address Book Auto-program]	R/W	R	R	R	R/W	R
[Auto Delete User in Address Book]	R/W	_	_	_	R/W	_
[Delete All Data in Address Book]	R/W	_	_	_	R/W	_
[Display / Print Counter]	R	R/W	R	R	R/W	R/W
[Display / Clear / Print Counter per User]	R/W *7	R/W *8	R	R	R/W	-
[Display / Clear Eco-friendly Counter]	_	R/W	_	_	_	_
[Display / Clear Eco-friendly Counter per User]	-	R/W	-	-	_	_

<sup>\*4</sup> Passwords cannot be read.

Settings	User	Mach	N/W	File	Unset	Set
[Eco-friendly Counter Period / Administrator Message]	R	R/W	R	R	R	R
[Machine action when limit is reached]	R	R/W	R	R	R	R
[Print Volume Use Limitation: Unit Count Setting]	R	R/W	R	R	R	R
[Enhanced Print Volume Use Limitation]	R	R/W	R	R	R	R
[Print Volum. Use Limit.: Default Limit Value]	R/W	R	R	R	R	R
[Media Slot Use]	R	R/W	R	R	R	R
[User Authentication Management]	R	R/W	R	R	R/W	R
[Enhanced Authentication Management]	R	R/W	R	R	R/W	R
[Administrator Authentication Management]	R/W *9*10	R/W *10	R/W *10	R/W *10	R/W	-
[Program / Change Administrator]	R/W *11	R/W *11	R/W *11	R/W *11	_	-
[Key Counter Management]	R	R/W	R	R	R/W	R
[External Charge Unit Management]	R	R/W	R	R	R/W	R
[Enhanced External Charge Unit Management]	R	R/W	R	R	R/W	R
[Extended Security]						
• [Driver Encryption Key]	-	_	R/W	_	R/W	_
[Driver Encryption Key:Encryption Strength]	R	R	R/W	R	R/W	R
[Restrict Display of User Information]	R	R/W	R	R	R/W	R
[Encrypt User Custom Settings & Address Book]	R/W	R	R	R	R	R
• [Enhance File Protection]	R	R	R	R/W	R	R
[Restrict Use of Destinations (Fax)]	R/W	R	R	R	R	R

Settings	User	Mach	N/W	File	Unset	Set
[Restrict Adding of User Destinations     (Fax)]	R/W	R	R	R	R	R
• [Restrict Use of Destinations (Scanner)]	R/W	R	R	R	R	R
[Restrict Adding of User Destinations     (Scanner)]	R/W	R	R	R	R	R
• [Transfer to Fax Receiver]	R	R/W	R	R	R	R
• [Remote Diagnostics (Facsimile)]	_	_	_	_	R/W	_
[Authenticate Current Job]	R	R/W	R	R	R/W	R
• [@Remote Service]	R	R/W	R	R	R/W	R
• [Update Firmware]	R	R/W	R	R	_	_
[Change Firmware Structure]	R	R/W	R	R	_	_
• [Password Policy]	R/W	_	_	_	_	_
• [Settings by SNMPv1, v2]	R	R	R/W	R	R/W	R
[Security Setting for Access Violation]	_	R/W	_	_	_	_
[Password Entry Violation]	_	R/W	_	_	_	_
• [Device Access Violation]	_	R/W	_	_	_	_
[Auto Delete File in Document Server]	R	R	R	R/W	R/W	R
[Delete All Files in Document Server]	_	_	_	R/W	R/W	_
[Capture Priority]	_	R/W	_	_	R/W	R
[Capture: Delete All Unsent Files]	_	R/W	_	_	R/W	_
[Capture: Ownership]	_	R/W	_	_	R/W	R
[Capture: Public Priority]	_	R/W	_	-	R/W	R
[Capture: Owner Defaults]	_	R/W	_	_	R/W	R
[Program / Change / Delete LDAP Server]*4	_	R/W	_	-	R/W	R
[LDAP Search]	R	R/W	R	R	R/W	R

Settings	User	Mach	N/W	File	Unset	Set
[Service Test Call]	_	R/W	_	-	R/W	_
[Notify Machine Status]	_	R/W	_	_	R/W	_
[Service Mode Lock]	R	R/W	R	R	R/W	R
[Firmware Version]	R	R	R	R	R	R
[Network Security Level]	R	R	R/W	R	R	R
[Auto Erase Memory Setting]	R	R/W	R	R	R	R
[Erase All Memory]	_	R/W	_	_	_	_
[Delete All Logs]	_	R/W	_	_	R/W	_
[Transfer Log Setting]*12	R	R/W	R	R	R/W	R
[Detect Data Security for Copying]	R	R/W	R	R	R/W	R
[Unauthorized Copy Prevention Printing: Copier]	R	R/W	R	R	R/W	R
[Unauthorized Copy Prevention Printing: Document Server]	R	R/W	R	R	R/W	R
[Unauthorized Copy Prevention Printing: Printer]	R	R/W	R	R	R/W	R
[Fixed USB Port]	R	R/W	R	R	R/W	R
[Program / Change / Delete Realm]	_	R/W	_	_	R/W	R
[Machine Data Encryption Settings]	_	R/W	_	_	_	_
[Program / Change / Delete Remote Machine]	_	R/W	_	-	R/W	_
[Program / Delete Device Certificate]	_	_	R/W	_	_	_
[Device Setting Information: Export (Memry Strge Devc)]*13	_	_	_	-	_	-
[Device Setting Information: Import (Memry Strge Devc)]*13	-	-	_	-	_	-
[PDF File Type: PDF/A Fixed]	R	R/W	R	R	R/W	R

Settings	User	Mach	N/W	File	Unset	Set
[Stop Key to Suspend Print Job]	R	R/W	R	R	R/W	R
[Energy Saver Key to Change Mode]	R	R/W	R	R	R/W	R
[Compulsory Security Stamp:Copier]	R	R/W	R	R	R/W	R
[Compulsory Security Stamp:Doc. Srvr.]	R	R/W	R	R	R/W	R
[Compulsory Security Stamp:Facsimile]	R	R/W	R	R	R/W	R
[Compulsory Security Stamp:Printer]	R	R/W	R	R	R/W	R
[User's Own Customization]	R	R/W	R	R	R/W	R
[Volume Use Counter: Scheduled/Specified Reset Settings]	R	R/W	R	R	R	R
[Select Switchable Languages]	-	R/W	_	_	R/W	-

- \*4 Passwords cannot be read.
- \*5 Only changing headings and user searches are possible.
- \*6 The items that can be executed, changed and read differ according is set to access privilege.
- \*7 Can only be cleared.
- \*8 Can only be printed.
- \*9 Cannot be changed when using the individual authentication function.
- \*10 Only the administrator privilege settings can be changed.
- \*11 Administrators can only change their own accounts.
- \*12 Can only be changed to [Off].
- \*13 R/W is the administrator with all privileges that include user administrator, machine administrator, network administrator, and file administrator privileges.

## **Edit Home**

When administrator authentication is set, the restrictions to user operations differ depending on the configurations in "Available Settings".

### [Edit Home]

Settings	User	Mach	N/W	File	Unset	Set
[Move Icon]	R	R/W	R	R	R/W	R
[Delete Icon]	R	R/W	R	R	R/W	R
[Add Icon]	_	R/W	_	_	R/W	_
[Restore Default Icon Display]	_	R/W	_	_	R/W	_
[Insert Image on Home Screen]	_	R/W	_	_	R/W	_

Q

# **Copier / Document Server Features**

When administrator authentication is set, the restrictions to user operations differ depending on the "Menu Protect" setting.

### [General Features]

Settings	User	Mach	N/W	File	Lv.1	Lv.2
[Auto Image Density Priority]	R	R/W	R	R	R	R
[Original Type Priority]	R	R/W	R	R	R	R
[Original Photo Type Priority]	R	R/W	R	R	R	R
[Original Type Display]	R	R/W	R	R	R	R
[Paper Display]	R	R/W	R	R	R	R
[Original Orientation in Duplex Mode]	R	R/W	R	R	R	R
[Copy Orientation in Duplex Mode]	R	R/W	R	R	R	R
[Max. Copy Quantity]	R	R/W	R	R	R	R
[Auto Tray Switching]	R	R/W	R	R	R	R
[Alert Sound: Original left on Exposure Glass]	R	R/W	R	R	R	R
[Job End Call]	R	R/W	R	R	R	R
[Paper Settings Screen for Bypass]	R	R/W	R	R	R	R
[Customize Function: Copier]	R	R/W	R	R	R/W	R
[Customize Function: Document Server Storage]	R	R/W	R	R	R/W	R

### [Reproduction Ratio]

Settings	User	Mach	N/W	File	Lv.1	Lv.2
[Shortcut Reduce/Enlarge]	R	R/W	R	R	R	R
[Reproduction Ratio]	R	R/W	R	R	R	R
[Reduce/Enlarge Ratio Priority]	R	R/W	R	R	R	R
[Ratio for Create Margin]	R	R/W	R	R	R	R

### [Edit]

Settings	User	Mach	N/W	File	Lv. 1	Lv.2
[Front Margin: Left / Right]	R	R/W	R	R	R	R
[Back Margin: Left / Right]	R	R/W	R	R	R	R
[Front Margin: Top / Bottom]	R	R/W	R	R	R	R
[Back Margin: Top / Bottom]	R	R/W	R	R	R	R
[1 Sided →2 Sided Auto Margin: TtoT]	R	R/W	R	R	R	R
[1 Sided →2 Sided Auto Margin: TtoB]	R	R/W	R	R	R	R
[Erase Border Width]	R	R/W	R	R	R	R
[Erase Original Shadow in Combine]	R	R/W	R	R	R/W	R
[Erase Center Width]	R	R/W	R	R	R	R
[Front Cover Copy in Combine]	R	R/W	R	R	R/W	R
[Copy Order in Combine]	R	R/W	R	R	R/W	R
[Orientation: Booklet, Magazine]	R	R/W	R	R	R/W	R
[Copy on Designating Page in Combine]	R	R/W	R	R	R/W	R
[Image Repeat Separation Line]	R	R/W	R	R	R/W	R
[Double Copies Separation Line]	R	R/W	R	R	R/W	R
[Separation Line in Combine]	R	R/W	R	R	R/W	R

## [Stamp]

### [Background Numbering]

Settings	User	Mach	N/W	File	Lv. 1	Lv.2
[Size]	R	R/W	R	R	R/W	R
[Density]	R	R/W	R	R	R/W	R
[Stamp Color]	R	R/W	R	R	R	R

### [Preset Stamp]

Settings	User	Mach	N/W	File	Lv. 1	Lv.2
[Stamp Language]	R	R/W	R	R	R/W	R
[Stamp Priority]	R	R/W	R	R	R	R
[Stamp Format]: COPY	R	R/W	R	R	R/W *1	R
[Stamp Format]: URGENT	R	R/W	R	R	R/W *1	R
[Stamp Format]: PRIORITY	R	R/W	R	R	R/W *1	R
[Stamp Format]: For Your Info.	R	R/W	R	R	R/W *1	R
[Stamp Format]: PRELIMINARY	R	R/W	R	R	R/W *1	R
[Stamp Format]: For Internal Use Only	R	R/W	R	R	R/W *1	R
[Stamp Format]: CONFIDENTIAL	R	R/W	R	R	R/W *1	R
[Stamp Format]: DRAFT	R	R/W	R	R	R/W *1	R
[Stamp Color]: COPY	R	R/W	R	R	R	R
[Stamp Color]: URGENT	R	R/W	R	R	R	R
[Stamp Color]: PRIORITY	R	R/W	R	R	R	R
[Stamp Color]: For Your Info.	R	R/W	R	R	R	R
[Stamp Color]: PRELIMINARY	R	R/W	R	R	R	R
[Stamp Color]: For Internal Use Only	R	R/W	R	R	R	R
[Stamp Color]: CONFIDENTIAL	R	R/W	R	R	R	R
[Stamp Color]: DRAFT	R	R/W	R	R	R	R

 $<sup>^{\</sup>star}$  1 Only adjustments to print position can be set. The print position itself cannot be configured.

### [User Stamp]

Settings	User	Mach	N/W	File	Lv. 1	Lv.2
[Program / Delete Stamp]	R	R/W	R	R	R/W	R
[Stamp Format]: 1-4	R	R/W	R	R	R/W	R
[Stamp Color]: 1-4	R	R/W	R	R	R/W	R

### [Date Stamp]

Settings	User	Mach	N/W	File	Lv. 1	Lv.2
[Format]	R	R/W	R	R	R	R
[Font]	R	R/W	R	R	R/W	R
[Size]	R	R/W	R	R	R/W	R
[Superimpose]	R	R/W	R	R	R/W	R
[Stamp Color]	R	R/W	R	R	R	R
[Stamp Setting]	R	R/W	R	R	R/W *2	R

 $<sup>^{\</sup>star}2$  Only adjustments to print position can be set. The print position itself cannot be configured.

### [Page Numbering]

Settings	User	Mach	N/W	File	Lv. 1	Lv.2
[Stamp Format]	R	R/W	R	R	R	R
[Font]	R	R/W	R	R	R/W	R
[Size]	R	R/W	R	R	R/W	R
[Duplex Back Page Stamping Position]	R	R/W	R	R	R/W	R
[Page Numbering in Combine]	R	R/W	R	R	R/W	R
[Stamp on Designating Slip Sheet]	R	R/W	R	R	R/W	R
[Stamp Position:P1,P2]	R	R/W	R	R	R/W *3	R
[Stamp Position: 1/5,2/5]	R	R/W	R	R	R/W *3	R

Settings	User	Mach	N/W	File	Lv. 1	Lv.2
[Stamp Position:-1-,-2]	R	R/W	R	R	R/W *3	R
[Stamp Position:P.1,P.2]	R	R/W	R	R	R/W *3	R
[Stamp Position: 1,2]	R	R/W	R	R	R/W *3	R
[Stamp Position: 1-1, 1-2]	R	R/W	R	R	R/W *3	R
[Superimpose]	R	R/W	R	R	R/W	R
[Stamp Color]	R	R/W	R	R	R/W	R
[Page Numbering Initial Letter]	R	R/W	R	R	R	R

<sup>\*3</sup> Only adjustments to print position can be set. The print position itself cannot be configured.

## [Stamp Text]

Settings	User	Mach	N/W	File	Lv. 1	Lv.2
[Font]	R	R/W	R	R	R/W	R
[Size]	R	R/W	R	R	R/W	R
[Superimpose]	R	R/W	R	R	R/W	R
[Stamp Color]	R	R/W	R	R	R	R
[Stamp Setting]	R	R/W	R	R	R/W	R
[Change Job Serial No. for First Job]	R	R/W	R	R	R	R

### [Input / Output]

Settings	User	Mach	N/W	File	Lv. 1	Lv.2
[Switch to Batch]	R	R/W	R	R	R/W	R
[SADF Auto Reset]	R	R/W	R	R	R	R
[Rotate Sort: Auto Paper Continue]	R	R/W	R	R	R	R

Settings	User	Mach	N/W	File	Lv.1	Lv.2
[Memory Full Auto Scan Restart]	R	R/W	R	R	R	R
[Letterhead Setting]	R	R/W	R	R	R	R
[Staple Position]	R	R/W	R	R	R/W	R
[Punch Type]	R	R/W	R	R	R/W	R
[Simplified Screen: Finishing Types]	R	R/W	R	R	R/W	R

### [Adjust Color Image]

Settings	User	Mach	N/W	File	Lv.1	Lv.2
[Background Density of ADS (Full Color / Two-color)]	R	R/W	R	R	R/W	R
[Color Sensitivity]	R	R/W	R	R	R/W	R
[A.C.S. Sensitivity]	R	R/W	R	R	R/W	R
[A.C.S. Priority]	R	R/W	R	R	R/W	R

### [Administrator Tools]

Settings	User	Mach	N/W	File	Lv. 1	Lv.2	
[Menu Protect]	R	R/W	R	R	R	R	

## **Facsimile Features**

When administrator authentication is set, the restrictions to user operations differ depending on the "Menu Protect" setting.

### [General Settings]

Settings	User	Mach	N/W	File	Lv. 1	Lv.2
[Quick Operation Key 1-3]	R	R/W	R	R	R/W	R
[Switch Title]	R	R/W	R	R	R/W	R
[Search Destination]	R	R/W	R	R	R/W	R
[Communication Page Count]	R	R	R	R	R	R
[Adjust Sound Volume]	R	R/W	R	R	R/W	R
[Box Setting]	_	R/W	_	-	R	_
[Box Setting: Print List]	_	R/W	_	-	R/W	_
[On Hook Mode Release Time]	R	R/W	R	R	R/W	R
[Delete Recent Destinations]	_	R/W	_	_	_	_
[Auto Print Fax Journal]	R	R/W	R	R	R	R

### [Scan Settings]

Settings	User	Mach	N/W	File	Lv.1	Lv.2
[Program / Change / Delete Scan Size]	R	R/W	R	R	R/W	R

### [Send Settings]

Settings	User	Mach	N/W	File	Lv.1	Lv.2
[Max. E-mail Size]	R	R	R/W	R	R	R
[Program / Change / Delete Standard Message]	R	R/W	R	R	R	R
[Memory File Transfer]	_	R/W	_	-	_	_
[Backup File TX Setting]	R	R/W	R	R	R	R

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### [Reception Settings]

Settings	User	Mach	N/W	File	Lv. 1	Lv.2
[Reception File Settings]	R	R/W	R	R	R	R
[Switch Reception Mode]	R	R/W	R	R	R	R
[Program Special Sender]	_	R/W	_	_	_	_
[Program Special Sender: Print List]	_	R/W	_	_	_	_
[Stored Reception File User Setting]	R	R	R	R/W	R	R
[SMTP RX File Delivery Settings]	R	R/W	R	R	R	R
[2 Sided Print]	R	R/W	R	R	R/W	R
[Checkered Mark]	R	R/W	R	R	R/W	R
[Center Mark]	R	R/W	R	R	R/W	R
[Print Reception Time]	R	R/W	R	R	R/W	R
[Reception File Print Quantity]	R	R/W	R	R	R/W	R
[Paper Tray]	R	R/W	R	R	R/W	R
[Specify Tray for Lines]	R	R/W	R	R	R/W	R
[Folder Transfer Result Report]	R	R/W	R	R	R	R
[Remote Reception Setting per Line]	R	R/W	R	R	R	R

### [Initial Settings]

Settings	User	Mach	N/W	File	Lv. 1	Lv.2
[Parameter Setting]	R	R/W	R	R	R	R
[Parameter Setting: Print List]	_	R/W	_	_	R/W	_
[Program Closed Network Code]	_	R/W	_	_	R	_
[Program Memory Lock ID]	-	R/W	_	-	R	_
[Internet Fax Setting]	R	R/W	R	R	R	R
[Select Dial / Push Phone]	R	R/W	R	R	R	R

Settings	User	Mach	N/W	File	Lv.1	Lv.2
[Program Fax Information]	R	R/W	R	R	R	R
[Enable H.323]	R	R	R/W	R	R	R
[Enable SIP]	R	R	R/W	R	R	R
[H.323 Settings]	R	R	R/W	R	R	R
[SIP Settings]	R	R	R/W	R	R	R
[Program / Change / Delete Gateway]	R	R	R/W	R	R	R
[Menu Protect]	R	R/W	R	R	R	R
[E-mail Setting]	R	R/W	R	R	R	R
[Folder Setting]	R	R/W	R	R	R	R
[File Type to Transfer]	R	R/W	R	R	R	R
[Security for E-mail TX Results]	R	R/W	R	R	R	R

## **Printer Functions**

This section lists the printer function items that appear if [Printer] on the Home screen is pressed.

When administrator authentication is set, the restrictions to user operations differ depending on the "Menu Protect" setting.

### **Printer Functions**

Settings	User	Mach	N/W	File	Lv. 1	Lv.2
[Job List]	R	R	R	R	R	R
[Print Jobs]	R	R	R	R/W	R/W	R/W
[Print from Memory Storage Device]	_	_	_	_	R/W	R/W
[Job Reset]	R/W	R/W	R/W	R/W	R/W	R/W
[Job Operation]	R/W	R/W	R/W	R/W	R/W	R/W
[Form Feed]	R/W	R/W	R/W	R/W	R/W	R/W
[Spooling Job List]	R	R/W	R	R	R	R
[Error Log]	_	R	_	-	R	R

## **Printer Features**

When administrator authentication is set, the restrictions to user operations differ depending on the "Menu Protect" setting.

### [List / Test Print]

Settings	User	Mach	N/W	File	Lv. 1	Lv.2
[Multiple Lists]	-	R/W	_	-	R/W	R/W
[Configuration Page]	_	R/W	_	_	R/W	R/W
[Error Log]	_	R/W	_	_	R/W	R/W
[PCL Configuration / Font Page]	_	R/W	_	_	R/W	R/W
[PS Configuration / Font Page]	-	R/W	_	-	R/W	R/W
[PDF Configuration / Font Page]	_	R/W	_	_	R/W	R/W
[Hex Dump]	-	R/W	_	-	R/W	R/W

### [Data Management]

Settings	User	Mach	N/W	File	Lv. 1	Lv.2
[Menu Protect]	R	R/W	R	R	R	R
[List / Test Print Lock]	R	R/W	R	R	R	R
[Delete All Temporary Print Jobs]	-	_	_	R/W	_	_
[Delete All Stored Print Jobs]	-	_	_	R/W	_	_
[Auto Delete Temporary Print Jobs]	R	R	R	R/W	R	R
[Auto Delete Stored Print Jobs]	R	R	R	R/W	R	R
[4 Color Graphic Mode]	R	R/W	R	R	R	R

### [System]

Settings	User	Mach	N/W	File	Lv.1	Lv.2
[Print Error Report]	R	R/W	R	R	R	R
[Auto Continue]	R	R/W	R	R	R	R

Settings	User	Mach	N/W	File	Lv.1	Lv.2
[Store and Skip Errored Job]	R	R/W	R	R	R	R
[Memory Overflow]	R	R/W	R	R	R	R
[Auto Cancel Conf. for PDL Error Job]	R	R/W	R	R	R	R
[Auto Cancel for Print Job(s) on Error]	R	R/W	R	R	R	R
[Job Separation]	R	R/W	R	R	R	R
[Rotate Sort: Auto Paper Continue]	R	R/W	R	R	R	R
[Rotate by 180 Degrees]	R	R/W	R	R	R	R
[Print Compressed Data]	R	R/W	R/W	R	R	R
[Duplex]	R	R/W	R	R	R	R
[Copies]	R	R/W	R	R	R	R
[Blank Page Print]	R	R/W	R	R	R	R
[Reserved Job Waiting Time]	R	R/W	R	R	R	R
[Printer Language]	R	R/W	R	R	R	R
[Sub Paper Size]	R	R/W	R	R	R	R
[Page Size]	R	R/W	R	R	R	R
[Letterhead Setting]	R	R/W	R	R	R	R
[Tray Setting Priority]	R	R/W	R	R	R	R
[Edge to Edge Print]	R	R/W	R	R	R	R
[Default Printer Language]	R	R/W	R	R	R	R
[Tray Switching]	R	R/W	R	R	R	R
[Extended Auto Tray Switching]	R	R/W	R	R	R	R
[Jobs Not Printed As Machn. Was Off]	R	R/W	R	R	R	R
[Restrict Direct Print Jobs]	R	R/W	R	R	R	R
[Switch Initial Screen]	R	R/W	R	R	R	R

### [Host Interface]

Settings	User	Mach	N/W	File	Lv. 1	Lv.2
[I/O Buffer]	R	R/W	R	R	R	R
[I/O Timeout]	R	R/W	R	R	R	R

## [PCL Menu]

Settings	User	Mach	N/W	File	Lv.1	Lv.2
[Orientation]	R	R/W	R	R	R	R
[Form Lines]	R	R/W	R	R	R	R
[Font Source]	R	R/W	R	R	R	R
[Font Number]	R	R/W	R	R	R	R
[Point Size]	R	R/W	R	R	R	R
[Font Pitch]	R	R/W	R	R	R	R
[Symbol Set]	R	R/W	R	R	R	R
[Courier Font]	R	R/W	R	R	R	R
[Extend A4 Width]	R	R/W	R	R	R	R
[Append CR to LF]	R	R/W	R	R	R	R
[Resolution]	R	R/W	R	R	R	R

## [PS Menu]

Settings	User	Mach	N/W	File	Lv.1	Lv.2
[Job Timeout]	R	R/W	R	R	R	R
[Wait Timeout]	R	R/W	R	R	R	R
[Paper Selection Method]	R	R/W	R	R	R	R
[Swtchng. btwn. 1&2 Sided Prt. Func.]	R	R/W	R	R	R	R
[Data Format]	R	R/W	R	R	R	R
[Resolution]	R	R/W	R	R	R	R

Settings	User	Mach	N/W	File	Lv. 1	Lv.2
[Toner Saving]	R	R/W	R	R	R	R
[Color Setting]	R	R/W	R	R	R	R
[Color Profile]	R	R/W	R	R	R	R
[Process Color Model]	R	R/W	R	R	R	R
[Orientation Auto Detect]	R	R/W	R	R	R	R
[Gray Reproduction]	R	R/W	R	R	R	R

### [PDF Menu]

Settings	User	Mach	N/W	File	Lv.1	Lv.2
[Change PDF Password]	R	R/W	R	R	R	R
[PDF Group Password]	R	R/W	R	R	R	R
[Reverse Order Printing]	R	R/W	R	R	R	R
[Resolution]	R	R/W	R	R	R	R
[Toner Saving]	R	R/W	R	R	R	R
[Color Setting]	R	R/W	R	R	R	R
[Color Profile]	R	R/W	R	R	R	R
[Process Color Model]	R	R/W	R	R	R	R
[Orientation Auto Detect]	R	R/W	R	R	R	R

## **Scanner Features**

When administrator authentication is set, the restrictions to user operations differ depending on the "Menu Protect" setting.

### [General Settings]

Settings	User	Mach	N/W	File	Lv. 1	Lv.2
[Switch Title]	R	R/W	R	R	R	R
[Update Delivery Server Destination List]	-	R/W	_	_	_	_
[Search Destination]	R	R/W	R	R	R	R
[Ext. Auth.: Folder Path Overwrite Setting]	R	R/W	R	R	R	R
[PC Scan Command Standby Time]	R	R/W	R	R	R	R
[Destination List Display Priority 1]	R	R/W	R	R	R	R
[Destination List Display Priority 2]	R	R/W	R	R	R	R
[Print & Delete Scanner Journal]	R	R/W	R	R	R	R
[Print Scanner Journal]	R	R/W	R	R	R/W	R
[Delete Scanner Journal]	R	R/W	R	R	R/W	R
[Delete Recent Destinations]	R	R/W	R	R	R/W	R
[Use WSD or DSM]	R	R/W	R	R	R/W	R
[Use a Destination List that is not DSM]	R	R/W	R	R	R/W	R
[Program Setting for Destinations]	R	R/W	R	R	R	R

### [Scan Settings]

Settings	User	Mach	N/W	File	Lv.1	Lv.2
[A.C.S. Sensitivity Level]	R	R/W	R	R	R	R
[Wait Time for Next Orig.: Exposure Glass]	R	R/W	R	R	R	R
[Wait Time for Next Original(s): SADF]	R	R/W	R	R	R	R
[Background Density of ADS (Full Color)]	R	R/W	R	R	R	R

Settings	User	Mach	N/W	File	Lv.1	Lv.2
[Blank Page Detect]	R	R/W	R	R	R	R
[Reproduction Ratio]	R	R/W	R	R	R	R
[Program / Change / Delete Scan Size]	R	R/W	R	R	R	R

## [Send Settings]

Settings	User	Mach	N/W	File	Lv.1	Lv.2
[Compression (Black & White)]	R	R/W	R	R	R/W	R
[Compression Method (Black & White)]	R	R/W	R	R	R/W	R
[Compression (Gray Scale / Full Color)]	R	R/W	R	R	R/W	R
[Compression Method for High Compression PDF]	R	R/W	R	R	R/W	R
[High Compression PDF Level]	R	R/W	R	R	R/W	R
[OCR Scanned PDF: Blank Page Sensitivity]	R	R/W	R	R	R/W	R
[Max. E-mail Size]	R	R	R/W	R	R	R
[Divide & Send E-mail]	R	R	R/W	R	R	R
[Insert Additional E-mail Info]	R	R/W	R	R	R/W	R
[No. of Digits for Single Page Files]	R	R/W	R	R	R/W	R
[Stored File E-mail Method]	R	R/W	R	R	R/W	R
[Default E-mail Subject]	R	R/W	R	R	R	R

### [Initial Settings]

Settings	User	Mach	N/W	File	Lv. 1	Lv.2	
[Menu Protect]	R	R/W	R	R	R	R	

## **Browser Features**

When administrator authentication is set, the restrictions to user operations differ depending on the configurations in "Available Settings".

Settings	User	Mach	N/W	File	Unset	Set
[Browser Default Settings]	R	R/W	R	R	R/W	R
[Settings per Users]	R	R/W	R	R	R/W	R
[View Logs]	R	R	R	R	R	R

# **Extended Feature Settings**

### [Extended Feature Settings]

Settings	User	Mach	N/W	File	Unset	Set
[Startup Setting]	R	R/W	R	R	R	R
[Install]	R	R/W	R	R	R	R
[Uninstall]	R	R/W	R	R	R	R
[Extended Feature Info]	R	R/W	R	R	R	R
[Administrator Tools]	_	R/W	_	_	_	_
[Add.Program Startup Setting]	R	R/W	R	R	R	R
[Install Add.Program]	R	R/W	R	R	R	R
[Uninstall Add.Program]	R	R/W	R	R	R	R
[Add.Program Info]	R	R/W	R	R	R	R

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### Maintenance

When administrator authentication is set, the restrictions to user operations differ depending on the configurations in "Available Settings".

#### [Maintenance]

Settings	User	Mach	N/W	File	Unset	Set
[Auto Color Calibration]	_	R/W	_	-	R/W	-
[Color Registration]	_	R/W	_	-	R/W	_
[Plain Paper Setting]	_	R/W	_	_	R/W	_

## Web Image Monitor: Display Eco-friendly Counter

These settings are in [Status/Information].

Each user can only view his or her own counter.

Settings	User	Mach	N/W	File	Unset	Set
[Download]	_	R/W	_	_	_	_
[Device Total Counter]	_	R	_	_	_	_
[Counter per User]	_	R	_	_	R	R

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## Web Image Monitor: Job

These settings are in [Status/Information].

Users can only change jobs they themselves executed.

#### [Job List]

Settings	User	Mach	N/W	File	Unset	Set
[Current/Waiting Jobs]: [Change Order]	_	R/W	_	_	_	_
[Current/Waiting Jobs]: [Suspend Printing]/ [Resume Printing]	_	R/W	_	-	_	-
[Current/Waiting Jobs]: [Delete Reservation]	_	R/W	_	-	_	R/W
[Job History]	_	R	_	_	R	R*1

<sup>\*1</sup> Can be viewed if user code authentication is used for the user authentication method.

#### [Printer]

Settings	User	Mach	N/W	File	Unset	Set
[Spool Printing]: [Delete]	_	R/W	_	-	R	R/W
[Job History]	R	R/W	R	R	R	R
[Error Log]	_	R	_	-	R	R

#### [Fax History]

Settings	User	Mach	N/W	File	Unset	Set
[Transmission]	_	R	_	-	R	R*1
[Reception]	_	R	_	-	R	R*1
[LAN-Fax]	_	R	_	-	R	R*1

<sup>\*1</sup> Can be viewed when using user code authentication for the user authentication method.

#### [Document Server]

Settings	User	Mach	N/W	File	Unset	Set
[Print Job History]	_	R	_	_	R	R*1

<sup>\*1</sup> Can be viewed when using user code authentication for the user authentication method.

## Web Image Monitor: Device Settings

These settings are in [Configuration] in [Device Management].

When administrator authentication is set, the restrictions to user operations differ depending on the configurations in "Available Settings".

#### [System]

Settings	User	Mach	N/W	File	Unset	Set
[Device Name]	R	R	R/W	R	R/W	R
[Comment]	R	R	R/W	R	R/W	R
[Location]	R	R	R/W	R	R/W	R
[Display Panel Language]	R	R/W	R	R	R/W	R
[Spool Printing]	R	R/W	R	R	R/W	R
[Protect Printer Display Panel]	R	R/W	R	R	_	_
[Print Priority]	R	R/W	R	R	R/W	R
[Function Reset Timer]	R	R/W	R	R	R/W	R
[Energy Saver Key to Change Mode]	R	R/W	R	R	R/W	R
[Stop Key to Suspend Print Job]	R	R/W	R	R	R/W	R
[Permit Firmware Update]	R	R/W	R	R	_	_
[Permit Firmware Structure Change]	R	R/W	R	R	_	_
[Display IP Address on Device Display Panel]	R	R/W	R	R	_	_
[Media Slot Use]	R	R/W	R	R	R	R
[Compatible ID]	R	R/W	R	R	R/W	R
[PDF File Type: PDF/A Fixed]	R	R/W	R	R	R/W	R
[Output Tray]	R	R/W	R	R	R/W	R
[Paper Tray Priority]	R	R/W	R	R	R/W	R
[Cover Sheet Tray]	R	R/W	R	R	R/W	R
[Slip Sheet Tray]	R	R/W	R	R	R/W	R

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#### [Function Key Allocation/Function Priority]

Settings	User	Mach	N/W	File	Unset	Set
[Function Key Allocation]	R	R/W	R	R	R/W	R
[Function Priority]	R	R/W	R	R	R/W	R

#### [Paper]

Settings	User	Mach	N/W	File	Unset	Set
[Tray 1-4]	R	R/W	R	R	R/W	R
[Large Capacity Tray]	R	R/W	R	R	R/W	R
[Bypass Tray]	R	R/W	R	R	R/W	R

#### [Date/Time]

Settings	User	Mach	N/W	File	Unset	Set
[Set Date]	R	R/W	R	R	R/W	R
[Set Time]	R	R/W	R	R	R/W	R
[SNTP Server Name]	R	R/W	R	R	R/W	R
[SNTP Polling Interval]	R	R/W	R	R	R/W	R
[Time Zone]	R	R/W	R	R	R/W	R

#### [Timer]

Settings	User	Mach	N/W	File	Unset	Set
[Sleep Mode Timer]	R	R/W	R	R	R/W	R
[Low Power Mode Timer]	R	R/W	R	R	R/W	R
[System Auto Reset Timer]	R	R/W	R	R	R/W	R
[Copier/Document Server Auto Reset Timer]	R	R/W	R	R	R/W	R
[Facsimile Auto Reset Timer]	R	R/W	R	R	R/W	R
[Scanner Auto Reset Timer]	R	R/W	R	R	R/W	R

Settings	User	Mach	N/W	File	Unset	Set
[Printer Auto Reset Timer]	R	R/W	R	R	R/W	R
[Auto Logout Timer]	R	R/W	R	R	R/W	R
[Fusing Unit Off Mode On/Off]	R	R/W	R	R	R/W	R
[Weekly Timer]	R	R/W	R	R	R/W	R

#### [Logs]

Settings	User	Mach	N/W	File	Unset	Set
[Job Log]	R	R/W	R	R	R/W	R
[Access Log]	R	R/W	R	R	R/W	R
[Eco-friendly Logs]	R	R/W	R	R	R/W	R
[Transfer Logs]* 1	R	R/W	R	R	R/W	R
[Encrypt Logs]	R	R/W	R	R	R/W	R
[Classification Code]	R	R/W	R	R	R/W	R
[Delete All Logs]	_	R/W	_	_	R/W	_

<sup>\* 1</sup> Can only be changed to [Inactive].

#### [Download Logs]

Settings	User	Mach	N/W	File	Unset	Set
[Logs to Download]	_	R/W	_	_	_	_
[Download]	_	R/W	_	_	_	_

#### [Email]

Settings	User	Mach	N/W	File	Unset	Set
[Administrator Email Address]	_	R/W	_	_	R/W	R
[Signature]	_	R/W	_	_	R/W	R
[Reception Protocol]	_	R/W	_	-	R/W	R

Settings	User	Mach	N/W	File	Unset	Set
[Email Reception Interval]	_	_	R/W	_	R/W	R
[Max. Reception Email Size]	_	_	R/W	_	R/W	R
[Email Storage in Server]	_	_	R/W	_	R/W	R
[SMTP Server Name]	_	_	R/W	_	R/W	R
[SMTP Port No.]	_	_	R/W	_	R/W	R
[Use Secure Connection (SSL)]	_	_	R/W	_	R/W	R
[SMTP Authentication]	_	R/W	_	_	R/W	R
[SMTP Auth. Email Address]	_	R/W	_	_	R/W	R
[SMTP Auth. User Name]	_	R/W	_	_	R/W	_
[SMTP Auth. Password]*2	_	R/W	_	_	R/W	_
[SMTP Auth. Encryption]	_	R/W	_	_	R/W	R
[POP before SMTP]	_	R/W	_	_	R/W	R
[POP Email Address]	_	R/W	_	_	R/W	R
[POP User Name]	_	R/W	_	_	R/W	_
[POP Password]*2	_	R/W	_	_	R/W	_
[Timeout setting after POP Auth.]	_	R/W	_	_	R/W	R
[POP3/IMAP4 Server Name]	_	R/W	_	_	R/W	R
[POP3/IMAP4 Encryption]	_	R/W	_	_	R/W	R
[POP3 Reception Port No.]	_	_	R/W	_	R/W	R
[IMAP4 Reception Port No.]	_	_	R/W	_	R/W	R
[Fax Email Address]	_	R/W	_	_	R/W	R
[Receive Fax Email]	_	R/W	_	_	R/W	_
[Fax Email User Name]	-	R/W	_	-	R/W	-
[Fax Email Password]	-	R/W	_	-	R/W	-
[Email Notification E-mail Address]	_	R/W	_	_	R/W	R

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Settings	User	Mach	N/W	File	Unset	Set
[Receive Email Notification]	-	R/W	_	-	R/W	-
[Email Notification User Name]	-	R/W	_	-	R/W	_
[Email Notification Password]*2	-	R/W	_	-	R/W	_

<sup>\*2</sup> Passwords cannot be read.

#### [Auto Email Notification]

Settings	User	Mach	N/W	File	Unset	Set
[Notification Message]	R	R/W	R	R	R/W	R
[Groups to Notify]	R	R/W	R	R	R/W	R
[Select Groups/Items to Notify]	R	R/W	R	R	R/W	R
[Detailed Settings of Each Item]	R	R/W	R	R	R/W	R

#### [On-demand Email Notification]

Settings	User	Mach	N/W	File	Unset	Set
[Notification Subject]	R	R/W	R	R	R/W	R
[Notification Message]	R	R/W	R	R	R/W	R
[Access Restriction to Information]	R	R/W	R	R	R/W	R
[Receivable Email Address/Domain Name Settings]	R	R/W	R	R	R/W	R

#### [File Transfer]

Settings	User	Mach	N/W	File	Unset	Set
[SMB User Name]	_	R/W	_	-	R/W	_
[SMB Password]*2	_	R/W	_	_	R/W	_
[FTP User Name]	_	R/W	_	_	R/W	_
[FTP Password]*2	_	R/W	_	_	R/W	_
[NCP User Name]	_	R/W	_	_	R/W	_

Settings	User	Mach	N/W	File	Unset	Set
[NCP Password]*2	_	R/W	_	_	R/W	_

<sup>\*2</sup> Passwords cannot be read.

#### [User Authentication Management]

Settings	User	Mach	N/W	File	Unset	Set
[User Authentication Management]	R	R/W	R	R	R/W	R
[Printer Job Authentication Settings]	R	R/W	R	R	R/W	R
[User Code Authentication Settings]	R	R/W	R	R	R/W	R
[Basic Authentication Settings]	R	R/W	R	R	R/W	R
[Windows Authentication Settings]	R	R/W	R	R	R/W	R
[Group Settings for Windows Authentication]	R	R/W	R	R	R/W	R
[LDAP Authentication Settings]	R	R/W	R	R	R/W	R
[Integration Server Authentication Settings]	R	R/W	R	R	R/W	R
[Group Settings for Integration Server Authentication]	R	R/W	R	R	R/W	R

#### [Administrator Authentication Management]

Settings	User	Mach	N/W	File	Unset	Set
[User Administrator Authentication]	R/W	R	R	R	R	R
[Available Settings for User Administrator]	R/W	R	R	R	R	R
[Machine Administrator Authentication]	R	R/W	R	R	R	R
[Available Settings for Machine Administrator]	R	R/W	R	R	R	R
[Network Administrator Authentication]	R	R	R/W	R	R	R
[Available Settings for Network Administrator]	R	R	R/W	R	R	R
[File Administrator Authentication]	R	R	R	R/W	R	R

Settings	User	Mach	N/W	File	Unset	Set
[Available Settings for File Administrator]	R	R	R	R/W	R	R

#### [Program/Change Administrator]

Settings	User	Mach	N/W	File	Unset	Set
[User Administrator]	R/W	R	R	R	_	-
[Machine Administrator]	R	R/W	R	R	_	-
[Network Administrator]	R	R	R/W	R	_	_
[File Administrator]	R	R	R	R/W	_	-
[Login User Name]*1	R/W	R/W	R/W	R/W	_	-
[Login Password]*1	R/W	R/W	R/W	R/W	_	-
[Encryption Password]*1	R/W	R/W	R/W	R/W	_	-

<sup>\*1</sup> Administrators can only change their own accounts.

#### [Print Volume Use Limitation]

Settings	User	Mach	N/W	File	Unset	Set
[Machine Action When Limit is Reached]	R	R/W	R	R	R	R
[Print Volume Use Limitation: Unit Count Setting]	R	R/W	R	R	R	R
[Volume Use Counter: Scheduled/Specified Reset Settings]	R	R/W	R	R	R	R

#### [LDAP Server]

Settings	User	Mach	N/W	File	Unset	Set
[LDAP Search]	_	R/W	_	_	R/W	_
[Program]	_	R/W	_	_	R/W	_
[Change]	_	R/W	_	-	R/W	_
[Delete]	_	R/W	_	_	R/W	_

#### [Firmware Update]

Settings	User	Mach	N/W	File	Unset	Set
[Update]	_	R/W	_	_	_	_
[Firmware Version]	_	R	_	_	_	_

#### [Kerberos Authentication]

Settings	User	Mach	N/W	File	Unset	Set
[Encryption Algorithm]	-	R/W	_	_	_	_
[Realm 1-5]	_	R/W	_	_	_	_

#### [Program/Change/Delete Remote Machine]

Settings	User	Mach	N/W	File	Unset	Set
[Program]	_	R/W	_	-	R/W	_
[Change]	_	R/W	_	_	R/W	_
[Delete]	_	R/W	_	_	R/W	_

#### [Eco-friendly Counter Period/Administrator Message]

Settings User Mach N/W File Unset Set [Display Information Screen] R R/W R R R/W R [Display Time] R R/W R R/W R R [Count Period] R R/W R R R/W R [Count Period (Days)] R R/W R R R/W R [Administrator Message] R R/W R R R/W R

#### [Compulsory Security Stamp]

Settings	User	Mach	N/W	File	Unset	Set
[Copier]	R	R/W	R	R	R	R
[Document Server]	R	R/W	R	R	R	R

Settings	User	Mach	N/W	File	Unset	Set
[Facsimile]	R	R/W	R	R	R	R
[Printer]	R	R/W	R	R	R	R

#### [Unauthorized Copy Prevention: Copier]

Settings	User	Mach	N/W	File	Unset	Set
[Compulsory Unauthorized Copy Prevention]	R	R/W	R	R	R	R
[Unauthorized Copy Prevention Type]	R	R/W	R	R	R	R
[Mask Type for Pattern/Density/Effect]	R	R/W	R	R	R	R
[Prevention Text Settings]	R	R/W	R	R	R	R

#### [Unauthorized Copy Prevention: Document Server]

Settings	User	Mach	N/W	File	Unset	Set
[Compulsory Unauthorized Copy Prevention]	R	R/W	R	R	R	R
[Unauthorized Copy Prevention Type]	R	R/W	R	R	R	R
[Mask Type for Pattern/Density/Effect]	R	R/W	R	R	R	R
[Prevention Text Settings]	R	R/W	R	R	R	R

#### [Unauthorized Copy Prevention: Printer]

Settings	User	Mach	N/W	File	Unset	Set
[Unauthorized Copy Prevention Setting]	R	R/W	R	R	R	R
[Compulsory Unauthorized Copy Prevention]	R	R/W	R	R	R	R
[Unauthorized Copy Prevention Type]	R	R/W	R	R	R	R
[Mask Type for Pattern/Density/Effect]	R	R/W	R	R	R	R
[Prevention Text Settings]	R	R/W	R	R	R	R

## Web Image Monitor: Printer

These settings are in [Configuration] in [Device Management].

When administrator authentication is set, the restrictions to user operations differ depending on the "Menu Protect" setting.

#### [Basic Settings]

Settings	User	Mach	N/W	File	Lv. 1	Lv.2
[Print Error Report]	R	R/W	R	R	R	R
[Auto Continue]	R	R/W	R	R	R	R
[Memory Overflow]	R	R/W	R	R	R	R
[Auto Cancel Confirmation for PDL Error Job]	R	R/W	R	R	R	R
[Auto Cancel for Print Job(s) on Error]	R	R/W	R	R	R	R
[Job Separation]	R	R/W	R	R	R	R
[Rotate Sort: Auto Paper Continue]	R	R/W	R	R	R	R
[Auto Delete Temporary Print Jobs]	R	R	R	R/W	R	R
[Auto Delete Stored Print Jobs]	R	R	R	R/W	R	R
[Jobs Not Printed As Machine Was Off]	R	R/W	R	R	R	R
[Rotate by 180 Degrees]	R	R/W	R	R	R	R
[Print Compressed Data]	R	R/W	R/W	R	R	R
[Duplex]	R	R/W	R	R	R	R
[Copies]	R	R/W	R	R	R	R
[Blank Page Print]	R	R/W	R	R	R	R
[Reserved Job Waiting Time]	R	R/W	R	R	R	R
[Printer Language]	R	R/W	R	R	R	R
[Sub Paper Size]	R	R/W	R	R	R	R
[Page Size]	R	R/W	R	R	R/W	R
[Letterhead Setting]	R	R/W	R	R	R	R

Settings	User	Mach	N/W	File	Lv.1	Lv.2
[Tray Setting Priority]	R	R/W	R	R	R	R
[Paper Confirmation for Bypass Tray]	R	R/W	R	R	R	R
[Store and Skip Errored Job]	R	R/W	R	R	R	R
[Edge to Edge Print]	R	R/W	R	R	R	R
[Default Printer Language]	R	R/W	R	R	R	R
[Tray Switching]	R	R/W	R	R	R	R
[List/Test Print Lock]	R	R/W	R	R	R	R
[Extended Auto Tray Switching]	R	R/W	R	R	R	R
[Virtual Printer]	R	R/W	R	R	R	R
[Restrict Direct Print Jobs]	R	R/W	R	R	R	R
[Initial screen switch setting]	R	R/W	R	R	R	R
[Host Interface]	R	R/W	R	R	R	R
[PCL Menu]	R	R/W	R	R	R	R
[PS Menu]	R	R/W	R	R	R	R
[PDF Menu]	R	R/W	R	R	R	R

#### [Tray Parameters (PCL)]

Settings	User	Mach	N/W	File	Lv.1	Lv.2
[Tray Parameters (PCL)]	_	R/W	_	_	_	_

#### [Tray Parameters (PS)]

Settings	User	Mach	N/W	File	Lv.1	Lv.2
[Tray Parameters (PS)]	_	R/W	_	-	_	_

#### [PDF Temporary Password]

Settings	User	Mach	N/W	File	Lv. 1	Lv.2
[PDF Temporary Password]	_	_	_	_	R/W	R/W

#### [PDF Group Password]

Settings	User	Mach	N/W	File	Lv.1	Lv.2
[PDF Group Password]	_	R/W	_	_	_	_

#### [PDF Fixed Password]

Settings	User	Mach	N/W	File	Lv. 1	Lv.2
[PDF Fixed Password]	_	R/W	_	_	_	_

#### [Virtual Printer Settings]

Settings	User	Mach	N/W	File	Lv.1	Lv.2
[Virtual Printer Name]	R	R/W	R	R	R	R
[Protocol]	R	R/W	R	R	R	R
[Print Error Report]	R	R/W	R	R	R	R
[Job Separation]	R	R/W	R	R	R	R
[Rotate by 180 Degrees]	R	R/W	R	R	R	R
[Duplex]	R	R/W	R	R	R	R
[Copies]	R	R/W	R	R	R	R
[Blank Page Print]	R	R/W	R	R	R	R
[Sub Paper Size]	R	R/W	R	R	R	R
[Input Tray]	R	R/W	R	R	R/W	R/W
[Page Size]	R	R/W	R	R	R/W	R
[Paper Type]	R	R/W	R	R	R/W	R/W
[Output Tray]	R	R/W	R	R	R/W	R/W

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Settings	User	Mach	N/W	File	Lv. 1	Lv.2
[Letterhead Setting]	R	R/W	R	R	R	R
[Edge to Edge Print]	R	R/W	R	R	R	R
[PCL Menu]	R	R/W	R	R	R	R
[PS Menu]	R	R/W	R	R	R	R
[PDF Menu]	R	R/W	R	R	R	R
[RHPP Settings]	R	R/W	R	R	R/W	R/W

#### [Permissions for Printer Language to Operate File System]

Settings	User	Mach	N/W	File	Lv.1	Lv.2
[PJL]	R	R/W	R	R	R	R
[PDF, PostScript]	R	R/W	R	R	R	R

## Web Image Monitor: Fax

These settings are in [Configuration] in [Device Management].

When administrator authentication is set, the restrictions to user operations differ depending on the "Menu Protect" setting.

#### [Initial Settings]

Settings	User	Mach	N/W	File	Lv.1	Lv.2
[Closed Network Code]	_	R/W	_	_	_	_
[Internet Fax]	_	R/W	_	_	_	_
[Menu Protect]	_	R/W	_	_	_	_
[Program Memory Lock ID]	_	R/W	_	_	_	_
[Security for Email Transmission Results]	_	R/W	_	_	_	_
[Fax Information]	_	R/W	_	_	_	_
[Select Dial/Push Phone]	_	R/W	_	-	_	_

#### [Send / Reception Settings]

Settings	User	Mach	N/W	File	Lv.1	Lv.2
[Maximum Email Size]	_	_	R/W	_	_	_
[Switch Reception Mode]	_	R/W	_	_	_	_
[SMTP RX File Delivery Settings]	_	R/W	_	_	_	_
[2 Sided Print]	_	R/W	_	_	R/W	_
[Checkered Mark]	_	R/W	_	_	R/W	_
[Center Mark]	_	R/W	_	-	R/W	_
[Print Reception Time]	_	R/W	_	-	R/W	_
[Reception File Print Quantity]	_	R/W	_	-	R/W	_
[Paper Tray]	_	R/W	_	_	R/W	_
[Memory Lock Reception]	_	R/W	_	_	_	_

## [Reception File Settings]

Settings	User	Mach	N/W	File	Lv.1	Lv.2
[Output Mode Switch Timer]	_	R/W	_	-	_	_
[Prohibit Auto Print]	_	R/W	_	-	_	_
[Print Standby to Print Files]	_	R/W	_	_	_	_

#### [IP-Fax Settings]

Settings	User	Mach	N/W	File	Lv.1	Lv.2
[H.323]	-	_	R/W	-	_	_
[SIP]	_	_	R/W	_	_	_

#### [IP-Fax Gateway Settings]

Settings	User	Mach	N/W	File	Lv. 1	Lv.2
[Prefix] 1-50	_	_	R/W	_	_	_
[Protocol] 1-50	_	_	R/W	-	_	_
[Gateway Address] 1-50	_	_	R/W	-	_	_

#### [Parameter Settings]

Settings	User	Mach	N/W	File	Lv.1	Lv.2
[Just Size Printing]	_	R/W	_	_	_	_
[Combine 2 Originals]	_	R/W	_	_	_	_
[Convert to PDF When Transferring to Folder]	_	R/W	_	-	_	_
[Automatic Printing Report]	_	R/W	_	_	_	_
[Email]	_	R/W	_	_	_	_

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## Web Image Monitor: Scanner

These settings are in [Configuration] in [Device Management].

When administrator authentication is set, the restrictions to user operations differ depending on the "Menu Protect" setting.

#### [General Settings]

Settings	User	Mach	N/W	File	Lv.1	Lv.2
[Switch Title]	R	R/W	R	R	R	R
[Search Destination]	R	R/W	R	R	R	R
[PC Scan Command Standby Time]	R	R/W	R	R	R	R
[Destination List Display Priority 1]	R	R/W	R	R	R	R
[Destination List Display Priority 2]	R	R/W	R	R	R	R
[Print & Delete Scanner Journal]	R	R/W	R	R	R	R
[External Authentication: Folder Path Overwrite Setting]	R	R/W	R	R	R	R

#### [Scan Settings]

Settings	User	Mach	N/W	File	Lv.1	Lv.2
[A.C.S. Sensitivity Level]	R	R/W	R	R	R	R
[Wait Time for Next Original(s)]	R	R/W	R	R	R	R
[Background Density of ADS (Full Color)]	R	R/W	R	R	R	R
[Blank Page Detect]	R	R/W	R	R	R	R

#### [Send Settings]

Settings	User	Mach	N/W	File	Lv.1	Lv.2
[Compression (Black & White)]	R	R/W	R	R	R/W	R
[Compression (Gray Scale/Full Color)]	R	R/W	R	R	R/W	R
[OCR Scanned PDF: Blank Page Sensitivity]	R	R/W	R	R	R/W	R

Settings	User	Mach	N/W	File	Lv. 1	Lv.2
[High Compression PDF Level]	R	R/W	R	R	R/W	R
[Compression Method for High Compression PDF]	R	R/W	R	R	R/W	R
[Max. Email Size]	R	R	R/W	R	R*1	R*1
[Divide & Send Email]	R	R	R/W	R	R*1	R*1
[Insert Additional Email Info]	R	R/W	R	R	R/W	R
[No. of Digits for Single Page Files]	R	R/W	R	R	R/W	R
[Stored File Email Method]	R	R/W	R	R	R/W	R
[Default Email Subject]	R	R/W	R	R	R	R

<sup>\* 1</sup> When [Network Management] in [Administrator Authentication Management] is set to [Off], user privilege becomes R/W.

#### [Initial Settings]

Settings	User	Mach	N/W	File	Lv.1	Lv.2
[Menu Protect]	R	R/W	R	R	R	R
[Use WSD or DSM]	R	R/W	R	R	R	R
[Display WSD Destination List]	R	R/W	R	R	R	R
[Prohibit WSD Scan Command]	R	R/W	R	R	R	R
[Use a Destination List that is not DSM]	R	R/W	R	R	R	R

#### [Default Settings for Normal Screens on Device]

Settings	User	Mach	N/W	File	Lv.1	Lv.2
[Store File]	_	R/W	_	_	R	R
[Preview]	_	R/W	_	_	R	R
[Scan Settings]	_	R/W	_	_	R	R
[Send File Type]	_	R/W	_	_	R	R

#### [Default Settings for Simplified Screens on Device]

Settings	User	Mach	N/W	File	Lv. 1	Lv.2
[Scan Settings]	-	R/W	_	_	R	R
[Send File Type]	-	R/W	_	_	R	R

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## Web Image Monitor: Interface

These settings are in [Configuration] in [Device Management].

When administrator authentication is set, the restrictions to user operations differ depending on the configurations in "Available Settings".

#### [Interface Settings]

Settings	User	Mach	N/W	File	Unset	Set
[LAN Type]	_	_	R/W	_	R	_
[Network]	R	R	R	R	R	R
[MAC Address]	R	R	R	R	R	R
[Ethernet Security]	R	R	R/W	R	R/W	R
[Ethernet Speed]	R	R	R/W	R	R/W	R
[Bluetooth]	R	R	R/W	R	R/W	R
[Operation Mode]	R	R	R/W	R	R/W	R
[USB]	R	R/W	R	R	R/W	R
[USB Host]	R	R	R	R	R	R
[PictBridge]	R	R/W	R	R	R/W	R

#### [Wireless LAN Settings]

Settings	User	Mach	N/W	File	Unset	Set
[LAN Type]	_	_	R/W	_	R	_
[Network]	R	R	R	R	R	R
[MAC Address]	R	R	R	R	R	R
[Available Wireless LAN]	R	R	R	R	R	R
[Communication Mode]	R	R	R/W	R	R/W	R
[SSID]	R	R	R/W	R	R/W	R
[Channel]	R	R	R/W	R	R/W	_

Settings

[Security Method]	R	R	R/W	R	R/W	R
[WEP Settings]	R	R	R/W	R	R/W	R
[WPA2 Settings]	R	R	R/W	R	R/W	R

User

N/W

Mach

File

Unset

Set

## Web Image Monitor: Network

These settings are in [Configuration] in [Device Management].

When administrator authentication is set, the restrictions to user operations differ depending on the configurations in "Available Settings".

#### [IPv4]

Settings	User	Mach	N/W	File	Unset	Set
[IPv4]	R	R	R	R	R	R
[Host Name]	R	R	R/W	R	R/W	R
[DHCP]	R	R	R/W	R	R/W	R
[Domain Name]	R	R	R/W	R	R/W	R
[IPv4 Address]	R	R	R/W	R	R/W	R
[Subnet Mask]	R	R	R/W	R	R/W	R
[DDNS]	R	R	R/W	R	R/W	R
[WINS]	R	R	R/W	R	R/W	R
[Primary WINS Server]	R	R	R/W	R	R/W	R
[Secondary WINS Server]	R	R	R/W	R	R/W	R
[LLMNR]	R	R	R/W	R	R/W	R
[Scope ID]	R	R	R/W	R	R/W	R
[Details]	R	R	R/W	R	R/W	R

#### [IPv6]

Settings	User	Mach	N/W	File	Unset	Set
[IPv6]	R	R	R/W	R	R/W	R
[Host Name]	R	R	R/W	R	R/W	R
[Domain Name]	R	R	R/W	R	R/W	R
[Link-local Address]	R	R	R	R	R	R

Settings	User	Mach	N/W	File	Unset	Set
[Stateless Address]	R	R	R/W	R	R/W	R
[Manual Configuration Address]	R	R	R/W	R	R/W	R
[DHCPv6]	R	R	R/W	R	R/W	R
[DHCPv6 Address]	R	R	R	R	R	R
[DDNS]	R	R	R/W	R	R/W	R
[LLMNR]	R	R	R/W	R	R/W	R
[Details]	R	R	R/W	R	R/W	R

#### [NetWare]

Settings	User	Mach	N/W	File	Unset	Set
[NetWare]	R	R	R/W	R	R/W	R
[NetWare Print Settings]	R	R	R/W	R	R/W	R
[NCP Delivery]	R	R	R/W	R	R/W	R

#### [SMB]

Settings	User	Mach	N/W	File	Unset	Set
[SMB]	R	R	R/W	R	R/W	R
[Protocol]	R	R	R	R	R	R
[Workgroup Name]	R	R	R/W	R	R/W	R
[Computer Name]	R	R	R/W	R	R/W	R
[Comment]	R	R	R/W	R	R/W	R
[Share Name]	R	R	R	R	R	R
[Notify Print Completion]	R	R	R/W	R	R/W	R

#### [SNMP]

Settings	User	Mach	N/W	File	Unset	Set
[SNMP]	_	_	R/W	-	_	_
[Protocol]	_	_	R/W	-	_	_
[SNMPv1,v2 Setting]	_	_	R/W	-	_	_
[Community]	_	_	R/W	_	_	_

#### [SNMPv3]

Settings	User	Mach	N/W	File	Unset	Set
[SNMP]	_	_	R/W	-	_	_
[Protocol]	_	_	R/W	_	_	_
[SNMPv3 Setting]	_	_	R/W	_	_	_
[SNMPv3 Trap Communication Setting]	_	_	R/W	_	_	_
[Account] [(User)]	_	_	R/W	_	_	_
[Account] [(Network Administrator)]	_	_	R/W	_	_	_
[Account] [(Machine Administrator)]	_	R/W	_	_	_	_

#### [SSDP]

Settings	User	Mach	N/W	File	Unset	Set
[SSDP]	_	_	R/W	_	_	_
[UUID]	_	_	R	_	_	_
[Profile Expires]	_	_	R/W	_	_	_
[TTL]	_	_	R/W	_	_	_

#### [Bonjour]

Settings	User	Mach	N/W	File	Unset	Set
[Bonjour]	R	R	R/W	R	R/W	R

Settings	User	Mach	N/W	File	Unset	Set
[Local Hostname]	R	R	R	R	R	R
[Details]	R	R	R/W	R	R/W	R
[Print Order Priority]	R	R	R/W	R	R/W	R

#### [System Log]

Settings	User	Mach	N/W	File	Unset	Set
[System Log]	R	R	R	R	R	_

## Web Image Monitor: Security

These settings are in [Configuration] in [Device Management].

Settings	User	Mach	N/W	File	Unset	Set
[Network Security]	_	_	R/W	_	_	_
[Access Control]	_	_	R/W	_	_	_
[IPP Authentication]	_	_	R/W	_	-	_
[SSL/TLS]	_	_	R/W	_	-	_
[ssh]	_	_	R/W	_	R	R
[Site Certificate]	_	_	R/W	_	-	_
[Device Certificate]	_	_	R/W	_	-	_
[S/MIME]	_	_	R/W	_	-	_
[IPsec]	_	_	R/W	_	-	_
[User Lockout Policy]	_	R/W	-	_	-	_
[IEEE 802.1X]	_	_	R/W	_	-	_

## Web Image Monitor: @Remote

These settings are in [Configuration] in [Device Management].

Settings	User	Mach	N/W	File	Unset	Set
[Setup RC Gate]	_	R/W	_	_	_	-
[Update RC Gate Firmware]	_	R/W	_	_	_	_
[RC Gate Proxy Server]	_	R/W	_	_	_	_
[Notify Functional Problems of Device]	_	R/W	_	_	_	_

C

## Web Image Monitor: Webpage

These settings are in [Configuration] in [Device Management].

When administrator authentication is set, the restrictions to user operations differ depending on the configurations in "Available Settings".

#### [Webpage]

Settings	User	Mach	N/W	File	Unset	Set
[Webpage Language]	R	R	R/W	R	R/W	R
[Web Image Monitor Auto Logout]	R	R	R/W	R	R/W	R
[Set URL Target of Link Page]	R	R	R/W	R	R/W	R
[Set Help URL Target]	R	R	R/W	R	R/W	R
[WSD/UPnP Setting]	R	R	R/W	R	R/W	R
[Download Help File]	R/W	R/W	R/W	R/W	R/W	R/W

q

# Web Image Monitor: Extended Feature Settings

These settings are in [Configuration] in [Device Management].

Settings	User	Mach	N/W	File	Unset	Set
[Startup Setting]	_	R/W	_	_	_	-
[Extended Feature Info]	R	R	R	R	R	R
[Install]	_	R/W	_	_	_	_
[Uninstall]	_	R/W	_	_	-	_
[Administrator Tools]	_	R/W	_	_	_	_
[Additional Program Startup Setting]	_	R/W	_	_	_	_
[Install Additional Program]	_	R/W	_	_	_	_
[Uninstall Additional Program]	_	R/W	_	_	_	_
[Copy Extended Features]	_	R/W	_	_	_	_
[Copy Card Save Data]	_	R/W	_	_	_	_

## Web Image Monitor: Address Book

These settings are in [Device Management].

Settings	User	Mach	N/W	File	Unset	Set
[Add User]	R/W	_	_	-	R/W *1	R/W *1
[Change]	R/W	_	_	_	R/W *1	R/W *1
[Delete]	R/W	_	-	-	R/W *1	R/W *1
[Add Group]	R/W	_	-	-	R/W *1	R/W *1
[Data Carry-over Setting for Address Book Auto-program]	R/W	_	-	-	R/W *1	R/W *1
[Maintenance]	R/W	_	-	-	R/W *1	R/W *1

<sup>\* 1</sup> If either or both of [Restrict Adding of User Destinations (Fax)] or [Restrict Adding of User Destinations (Scanner)] of [Extended Security] are set to [On], when the machine is configured for basic authentication, users can only change the password of their own account.

q

## Web Image Monitor: Reset Printer Job

These settings are in [Device Management].

Settings	User	Mach	N/W	File	Unset	Set
[Reset Current Job]	_	R/W	_	_	_	-
[Reset All Jobs]	_	R/W	_	_	_	_

## Web Image Monitor: Reset the Machine

These settings are in [Device Management].

When administrator authentication is set, the restrictions to user operations differ depending on the configurations in "Available Settings".

Settings	User	Mach	N/W	File	Unset	Set
[Reset the Machine]	_	R/W	_	_	R/W	_

q

# Web Image Monitor: Device Home Management

These settings are in [Device Management].

When administrator authentication is set, the restrictions to user operations differ depending on the configurations in "Available Settings".

Settings	User	Mach	N/W	File	Unset	Set
[Edit Icons]	R	R/W	R	R	R/W	R
[Restore Default Icon Display]	_	R/W	_	_	R/W	-
[Home Screen Settings]	R	R/W	R	R	R/W	R

q

# Web Image Monitor: Screen Monitoring

These settings are in [Device Management].

Settings	User	Mach	N/W	File	Unset	Set
[Display Device's Screen]	_	R/W	_	_	_	_

q

# Web Image Monitor: Customize Screen per User

Users can change only their own settings.

Settings	User	Mach	N/W	File	Unset	Set
[Edit Icons]	_	_	_	_	_	R/W
[Restore Default Icon Display]	-	_	_	_	_	R/W
[Function Priority per User]	_	_	_	_	_	R/W

## Web Image Monitor: Document Server

These settings are in [Print Job/Stored File].

What users can do with stored files depends on their access privileges. For details, see page 362 "List of Operation Privileges for Stored Files".

Settings	User	Mach	N/W	File	Unset	Set
[New Folder]	_	_	_	R/W	R/W	R/W
[Edit Folder]	_	_	_	R/W	R/W	R/W
[Delete Folder]	_	_	_	R/W	R/W	R/W
[Unlock Folder]	_	_	_	R/W	_	_
[Print]	_	_	_	_	R/W	R/W
[Send]	_	_	_	_	R/W	R/W
[Delete]	_	_	_	R/W	R/W	R/W
[ Edit detailed information]	_	_	_	R/W	R/W	R/W
[Download]	_	_	_	_	R/W	R/W
[Unlock File]	_	_	_	R/W	_	_

## Web Image Monitor: Fax Received File

These settings are in [Print Job/Stored File].

Settings	User	Mach	N/W	File	Unset	Set
[Print]	_	_	_	-	R/W *1	R/W *1
[Delete]	_	_	-	-	R/W *1	R/W *1
[Download]	_	-	-	-	R/W *1	R/W *1
[ Edit detailed information]	_	_	-	-	R/W *1	R/W *1

<sup>\* 1</sup> Only the specified user can change a document when the machine is configured with [Facsimile Features] > [Reception Settings] > [Stored Reception File User Setting] set to [On].

q

## Web Image Monitor: Printer: Print Jobs

These settings are in [Print Job/Stored File].

Users can use the printer documents stored themselves or stored when user authentication is off.

The printer documents stored by other users are not displayed.

Settings	User	Mach	N/W	File	Unset	Set
[Print]	_	_	_	_	R/W *1	R/W *1
[Delete]	_	_	_	R/W	R/W *1	R/W *1
[ Edit detailed information]	_	_	_	R/W	R/W *1	R/W *1
[Unlock Job]	_	_	_	R/W	_	_

<sup>\*1</sup> Access to saved documents may be restricted, depending on the user's access privileges.

## List of Operation Privileges for Stored Files

#### **Understanding headers**

Read

Users configured for read privileges.

• Edit

Users configured for editing privileges.

• E/D

Users configured for edit/delete privileges.

Full

Users configured for full control privileges.

Owner

Either the user who registered a document or a user set up as the owner.

File

The file administrator.

#### Understanding the symbols

R/W: Can execute.

-: Cannot execute.

Settings	Read	Edit	E/D	Full	Owner	File
[Printing]	R/W	R/W	R/W	R/W	R/W	_
[Details]	R/W	R/W	R/W	R/W	R/W	R/W
[Preview]	R/W	R/W	R/W	R/W	R/W	_
[Change Access Priv.: Owner]	_	_	-	_	_	R/W
[Change Access Priv.: Permissions for Users/Groups]	-	_	-	R/W	R/W*1	R/W
[Change User Name]	_	_	_	-	_	R/W
[Change File Name]	_	R/W	R/W	R/W	R/W*1	_
[Change Password]	_	_	-	_	R/W	R/W
[Unlock Files]	_	_	-	_	_	R/W
[Delete File]	_	_	R/W	R/W	R/W*1	R/W

Settings	Read	Edit	E/D	Full	Owner	File
[Print Specified Page]	R/W	R/W	R/W	R/W	R/W	-

<sup>\* 1</sup> The owner can change operation privileges.

## List of Operation Privileges for Address Books

#### **Understanding headers**

Read

Users configured for read privileges.

• Edit

Users configured for editing privileges.

• E/D

Users configured for edit/delete privileges.

Full

Users configured for full control privileges.

Entry

User whose personal information is registered in the Address Book. The person who knows the user login name and password.

User

The user administrator.

#### Understanding the symbols

R/W: Execute, change and reading possible.

R: Reading is possible.

-: Execute, change and reading are not possible.

#### [Names]

Settings	Read	Edit	E/D	Full	Entry	User
[Name]	R	R/W	R/W	R/W	R/W	R/W
[Key Display]	R	R/W	R/W	R/W	R/W	R/W
[Display Priority]	R	R/W	R/W	R/W	R/W	R/W
[Registration No.]	R	R/W	R/W	R/W	R/W	R/W
[Select Title]	R	R/W	R/W	R/W	R/W	R/W

#### [Auth. Info]

Settings	Read	Edit	E/D	Full	Entry	User
[User Code]	_	_	_	_	_	R/W

Settings	Read	Edit	E/D	Full	Entry	User
[Login User Name]	_	_	_	_	R	R/W
[Login Password]	_	_	_	_	R/W *1	R/W *1
[SMTP Authentication]	-	_	_	_	R/W *1	R/W *1
[Folder Authentication]	_	R/W *1	R/W *1	R/W *1	R/W *1	R/W *1
[LDAP Authentication]	-	_	_	_	R/W *1	R/W *1
[Available Functions]	-	_	_	_	R	R/W
[Print Volum. Use Limit.]	-	_	_	_	R	R/W

<sup>\*1</sup> Passwords cannot be read.

#### [Protection]

Settings	Read	Edit	E/D	Full	Entry	User
[Use Name as]	R	R/W	R/W	R/W	R/W	R/W
[Protect Destination]: [Protection Code]	_	_	_	R/W *2	R/W *2	R/W *2
[Protect Destination]: [Protection Object]	_	R/W	R/W	R/W	R/W	R/W
[Protect Destination]: [Permissions for Users / Groups]	_	_	_	R/W	R/W	R/W
[Protect File(s)]: [Permissions for Users / Groups]	_	_	_	R/W	R/W	R/W

<sup>\*2</sup> The code for [Protection Code] cannot be read.

#### [Fax Dest.]

Settings	Read	Edit	E/D	Full	Entry	User
[Fax Destination]	R	R/W	R/W	R/W	R/W	R/W

Settings	Read	Edit	E/D	Full	Entry	User
[Select Line]	R	R/W	R/W	R/W	R/W	R/W
[Adv. Features]	R	R/W	R/W	R/W	R/W	R/W
[International TX Mode]	R	R/W	R/W	R/W	R/W	R/W
[Fax Header]	R	R/W	R/W	R/W	R/W	R/W
[Label Insertion]	R	R/W	R/W	R/W	R/W	R/W

#### [E-mail]

Settings	Read	Edit	E/D	Full	Entry	User
[E-mail Address]	R	R/W	R/W	R/W	R/W	R/W
[Use E-mail Address for]	R	R/W	R/W	R/W	R/W	R/W
[Send via SMTP Server]	R	R/W	R/W	R/W	R/W	R/W

#### [Folder]

Settings	Read	Edit	E/D	Full	Entry	User
[SMB/FTP/NCP]	R	R/W	R/W	R/W	R/W	R/W
[SMB]: [Path]	R	R/W	R/W	R/W	R/W	R/W
[FTP]: [Server Name]	R	R/W	R/W	R/W	R/W	R/W
[FTP]: [Path]	R	R/W	R/W	R/W	R/W	R/W
[FTP]: [Port Number]	R	R/W	R/W	R/W	R/W	R/W
[NCP]: [Path]	R	R/W	R/W	R/W	R/W	R/W
[NCP]: [Connection Type]	R	R/W	R/W	R/W	R/W	R/W
[Connection Test]	_	R/W	R/W	R/W	R/W	R/W

#### [Add to Group]

Settings	Read	Edit	E/D	Full	Entry	User
[Registration No.]	R	R/W	R/W	R/W	R/W	R/W

Settings	Read	Edit	E/D	Full	Entry	User
[Search]	_	R/W	R/W	R/W	R/W	R/W
[Switch Title]	R/W	R/W	R/W	R/W	R/W	R/W



When either or both of [Restrict Adding of User Destinations (Fax)] or [Restrict Adding of User
Destinations (Scanner)] of [Extended Security] are set to [On], regardless of the user's operation
privileges, access to the Address Book is rescinded from any user other than the user administrator.

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### Manuals for the IPDS card

Refer to the manuals that are relevant to what you want to do with the IPDS card.



Adobe<sup>®</sup> Acrobat<sup>®</sup> Reader<sup>®</sup>/Adobe Reader must be installed in order to view the manuals as PDF files.

#### IPDS Supplement (IPDS.pdf)

Explains about how to configure the IPDS card for the machine, and about items selectable from the Web browser.

#### IPDS Printing Configuration Guide (IPDS\_CONF.pdf) \*English Only

Explains about the environment necessary for connecting the mainframe to the machine and performing IPDS printing.

#### IPDS Technical Reference 1 (IPDS\_TEC1.pdf) \*English Only

Explains about commands and functions for IPDS printing.

#### IPDS Technical Reference 2 (IPDS\_TEC2.pdf)\*English Only

Explains about IPDS commands.



For details about the necessary environment and how to install the IPDS card and machine, consult
your sales or service representative. For details about the necessary environments and operation of
the mainframe, contact IBM.

### Notice

#### **Important**

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

In no event will the company be liable for direct, indirect, special, incidental, or consequential damages as a result of handling or operating the machine.

### How to Read This Manual

#### Symbols

This manual uses the following symbols:



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.



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

[]

Indicates the names of keys on the machine's display or control panels.

#### ſ

# 1. Getting Started

## **Book at a Glance**

This book is designed to help you configure the Ethernet Attachment for your printer.

# Server-to-Printer Attachments Described in this Book

This book describes the server-to-printer attachments described in the following table. Direct attachment of multiple machines to the printer, without the use of a print server, is also described for Windows systems.

Server Environment	Server-to-Printer Protocol	Data streams
AIX	TCP/IP	IPDS
System i	TCP/IP	IPDS
z/OS	TCP/IP	IPDS
Windows	TCP/IP	IPDS



- To print IPDS, you will need to install InfoPrint Manager for AIX, InfoPrint Manager for Windows, PSF for z/OS or PSF for i5/OS and OS/400 on the host.
- IPDS must use the TCP/IP protocol.

## **Configuration Checklist**

The information in this chapter applies to all users.

- Write down the NIC MAC address. The Ethernet MAC address is on the printer controller.
   If you are using TCP/IP, see the manual explaining the network functions provided by the supplier.
- 2. Power off the printer and connect the NIC to the LAN cable.
- 3. Power on the printer. Verify the connection to the LAN cable.
- 4. Configure your environment. Refer to one of the chapters in the following list.

#### Windows

page 11 "InfoPrint Manager for Windows"

#### System i

page 15 "Configuring System i for an IPDS Printer"

#### z/OS

page 25 "Sharing the PSF/400 Printer on the Network"

#### AIX

page 40 "Sharing the Network Printers on z/OS"

The following lists the default parameter values and other information for a NIC.

Parameter/Limit	Values	Affected Area
LPD port	TCP port 515	LPR printing
Raw port for printing	TCP port 2501	AIX
	TCP port 9100	System i
IPDS port	TCP port 5001	PSF for z/OS
		PSF for i5/OS and OS/400
		InfoPrint Manager

# 2. InfoPrint Manager for Windows

# Requirements - InfoPrint Manager for Windows

This machine supports the following version of InfoPrint Manager for Windows.

• InfoPrint Manager for Windows V2.2 or later.



When you install the InfoPrint Manager server software, you automatically install the InfoPrint
Manager Administration GUI and the InfoPrint Manager Operations GUI on the same system. You
can also install either the InfoPrint Manager Administration GUI or the InfoPrint Manager
Operations GUI on remote systems. The InfoPrint Manager Operations GUI provides a subset of
the functions available in the InfoPrint Manager Administration GUI. This subset includes operator
tasks.

# Configuration Checklist - InfoPrint Manager for Windows

Use this chapter to configure InfoPrint Manager to print using your printer.

- 1. If you have not already done so, install InfoPrint Manager.
- Decide which type of destination you want to define in InfoPrint Manager for this printer.
   See page 12 "Choosing an InfoPrint Manager Destination Type".
- Define the printer to InfoPrint Manager. See page 12 "Adding a PSF TCP/IP Printer".
- 4. Verify the configuration by submitting a print job.

#### Choosing an InfoPrint Manager Destination Type

InfoPrint Manager provides various Destination Support Systems (DSSs). The type that is most appropriate for your environment is based on what data stream you want to print (IPDS, PCL, or PostScript). Use the following table to determine what type to use.

Data Stream From Application	Data Stream To Printer	InfoPrint Manager Destination
IPDS, PCL, PS, ASCII, line data, DBCS ASCII, PDF, AFP	IPDS	PSF TCP/IP Printer

#### Adding a PSF TCP/IP Printer

Create a PSF TCP/IP destination to define a printer that receives IPDS jobs using the TCP/IP protocol. Before adding a PSF TCP/IP printer, complete the following worksheet:

Wizard Prompt	Description	Value
Name	The name for the actual destination object (8 character limit).	
	This name is case-sensitive.	
Server	The InfoPrint Manager server that controls this actual destination.	
TCP/IP address	The dotted-decimal IP address used to access this printer.	

Wizard Prompt	Description	Value
TCP/IP port	The port used by the printer for communication. (Typically, port 5001 is used.)	
Logical destination	The logical destination that directs jobs to this actual destination.  This name is case-sensitive.	Default Other:
Logical destination's server	The server that contains the logical destination. This name is case-sensitive.	
Queue	The queue for the target printer (actual destination). This name is case-sensitive.	Default Other:

- 1. Launch the InfoPrint Manager Administration GUI.
- 2. On the menu bar, select [Printer] / [Create] / [PSF] / [TCP/IP] to start the Create Printer Wizard.
- 3. Provide the worksheet information to the wizard. For assistance, refer to the InfoPrint Manager Administration GUI online help.
- 4. If you did not enable the printer with the Create Printer Wizard, use the InfoPrint Manager Administration GUI to enable it.

# 3. Configuring System i for an IPDS Printer

### Requirements - System i

This machine supports the following version of PSF for i5/OS and OS/400 (PSF/400).

• PSF for i5/OS and OS/400 (PSF/400) V5.4 or later.



• We recommend that you use the latest System i package and related software.

# Printing AFP, IPDS, PDF, PCL, and PostScript Files

Use this chapter to configure the printer on System i as an IPDS printer.

The printer configured as IPDS will print only IPDS files. With the InfoPrint Server for System i, PostScript, PDF, and PCL data streams can be transformed to AFP and printed to the printer as IPDS.

- AFP files are transformed directly by Print Services Facility (PSF/400 an integrated feature of OS/400), which then sends the transformed file to the printer.
- SCS files are transformed into IPDS by one of two conversion paths. The path recommended by IBM a straight SCS to device-independent IPDS transform is controlled by setting the IPDSPASTHR parameter to YES (see step 1 on page 22 "Configuring PSF/400 with CRTPSFCFG"). Setting IPDSPASTHR to YES provides the best performance because IPDS files are sent directly to the printer with no transform. If your SCS file requires any AFP processing, PSF/400 will automatically provide the requisite conversion.

# Configuration Checklist - System i

Authority Level Required

All of the following configuration steps carried out on the System i may require "create" or "change" authority.

1. Make sure the printer is set up.

For details about how to set up the printer, see page 9 "Configuration Checklist".

2. Using the printer's control panel or Web Image Monitor, set up the printer for IPDS by setting the parameters and values shown in the following table.

Menu	ltem	Setting
IPDS	Emulation Mode	Native
IPDS	Font Substitution	Off

- Set TCP/IP addresses for the printer, such as an IP address, gateway address, or subnet mask. See the manual explaining the network functions provided by the supplier.
- 4. If the printer and System i are not on the same LAN segment, verify that there is a route defined in the TCP/IP route list on the System i. If necessary, use the ADDTCPRTE command on the System i to create a route definition.
- Create or verify the existence of a System i TCP/IP interface for Token Ring or Ethernet.

For details about System i TCP/IP interface, see page 18 "Configuring a System i TCP/IP Interface".

6. Configure System i.

For details about how to configure System i, see page 21 "Configuring PSF/400 for IPDS".

- 7. Vary the printer ON using the VFYCFG command.
- 8. Verify that TCP/IP has been started using the STRTCP command.
- 9. Test your configuration.

For details about how to test your configuration, see page 24 "Verifying the IPDS Configuration on System i".

 To share the printer on the network, verify that the necessary parameters have been set correctly.

For details about sharing the printer on the network, page 25 "Sharing the PSF/400 Printer on the Network".



• If you have problems, see page 28 "Resolving System i Problems".

# Configuring a System i TCP/IP Interface



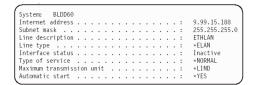
Do not enter the IP address of the printer or set the System i interface address to be the same as the
printer IP address. Also, do not add the printer to the System i TCP/IP interface list.

## Configuring the System i Interface with ADDTCPIFC

ADDTCPIFC is used to add a TCP/IP interface to System i. This step configures the System i for attachment to a TCP/IP network.

At the System i command line, enter a command in the form:
 ADDTCPIFC INTNETADR('9.99.15.188') LIND(ETHLAN) SUBNETMASK('255.255.255.0')

2. A completed screen should look like the following:



- The following parameters are required:
  - Internet Address

Internet address of the System i Ethernet LAN adapter.

Subnet Mask

The subnet mask for this System i TCP/IP interface (for example, 255.255.255.0).

· Line description

The name assigned to the System i line description. Each System i LAN adapter will have its own line description.



• Do not enter the IP address of the printer for Internet Address.

## Configuring a TCP/IP Host Table Entry

Although optional, we recommend that you create a TCP/IP host table entry.

Add the System i name and the IP address of the LAN adapter to the "Host Table Entries". Also, add the hostname and IP address of the printer to the list. You can access the host table entries function by using the CFGTCP command, then selecting option 10 from the menu.

You can also add entries to your host table for both the hostname and the fully qualified network name for your system. The entry should match what you configured for host and domain name. For example, if your hostname is "RCHASM03" and your domain name is "RCHLAND.IBM.COM", your fully qualified network name is "RCHASM03.RCHLAND.IBM.COM". In your host entry table, enter both RCHASM03 and RCHASM03.RCHLAND.IBM.COM.

# Configuring TCP/IP Keep Alive

Although optional, we recommend that you set the TCP/IP Keep-Alive time to 1 minute. This is the minimum value that can be set; the default is 120 minutes (2 hours). Setting the value to 1 minute causes System i to detect a lost printer connection faster.

To change the keep alive time, enter the command CHGTCPA. Change the first entry as shown below:

TCP keep alive . . . . . 1



• Please note that changing the TCP/IP Keep-Alive time changes all the System i settings.

# Configuring PSF/400 for IPDS

To configure IPDS on System i, you use the following commands:

**CRTDEVPRT** 

CRTPSFCFG (Optional)

## **Configuring PSF with CRTDEVPRT**

This section describes how to set up a device description on System i.

1. At the System i command line, enter a command in the form:

CRTDEVPRT DEVD(2705) DEVCLS(\*LAN) TYPE(\*IPDS) MODEL(0) LANATTACH(\*IP) AFP(\*YES) PORT(5001) FONT(11) FORMFEED(\*AUTOCUT)

RMTLOCNAME('128.9.12.134') USRDFNOBJ(AFP/NETWRKPRT \*PSFCFG)

TEXT('printer name')

2. A completed screen looks like this:

Display Device D i769SS1 V4R4M0 990521	escrip	tion	BLDAS44	01/19/00	age
	: [	EVD	2705	01/19/00	13:0/:
Option		PTION	*AII		
Category of device		PITON	*PRT		
Device class		EVCLS	*IAN		
Device type		YPE	*IPDS		
Device model		IODEL.	A		
LAN attachment		ANATTACH	*IP		
Advanced function printing		FP	*YFS		
Port number		ORT	5001		
Online at IPL		NITHE	*YFS		
		ONT	-1123		
Identifier		OHI	011		
Point size			*NONE		
Form feed		ORMFEED	*AUTOCUT		
Separator drawer		EPDRAWER			
Separator program		FPPGM	*NONF		
Library			-110112		
Printer error message		RTERRMSG	*INO		
Message queue		ISG0	*CTLD		
Current message queue		iouq	OSYSOPR		
Library			OSYS		
Activation timer		CTTMR	170		
Image configuration		MGCEG	*NONF		
Maximum pending requests		MAXPNDROS	6		
Print while converting		RTCVT	*YES		
Form definition		ORMDF	F1C10116		
Library	:		*LIBL		
Character identifier	: (	HRID	*SYSVAL		
Remote location		MTLOCNAME			
Name or address :			128.9.12.1	.34	
User-defined object		ISRDFNOBJ	NETWRKPE	-	
Library		PULLINGE	AFP		
Object type			*PSFCFG		
Data transform program		ISRDTATEM	*PSFCFG *NONE		
User-defined driver program		ISRDRVPGM	*NONE		
Dependent location name		ISKURVPGM IEPI OCNAMI			
Allocated to:		CFLUUNAMI	*HONE		
			OSYSARB		
Job name			USYSARB OSYS		
User			QS1S 075445		
Number		EXT			
User-defined options		EX I ISRDENOPT	printer	name	
user-defined options					

#### 3. Enter values for the following parameters:

• Device Description (DEVD)

The device description or name.

Device Class(DEVCLS)
 Specify \*LAN.

Device Type (TYPE)

Specify \*IPDS.

Device Model (MODEL)

Specify 0.

• LAN attachment (LANATTACH)

Specify \*IP.

Port Number (PORT)

Specify 5001, which is the printer's default port number. Use Web Image Monitor to set or view the IPDS port number.

• Font (FONT)

Enter an appropriate value.

• Form Feed (FORMFEED)

Specify \*AUTOCUT.

• Activation timer (ACTTMR)

This value specifies the number of seconds that PSF/400 waits for a printer to respond to an activation request. If only one system will be using the printer, use the default value (170 seconds). If more than one system will be using the printer, specify \*NOMAX, which will cause PSF/400 to wait indefinitely for a response to an activation request.

Remote Location (RMTLOCNAME)

Enter the IP address or hostname of the printer.

• User-Defined Object (USRDFNOBJ)

To use a PSF configuration object, specify its name and library here. The object type must be \*PSFCFG. A single PSF configuration object may be referenced by multiple device descriptions, if required.

## Configuring PSF/400 with CRTPSFCFG

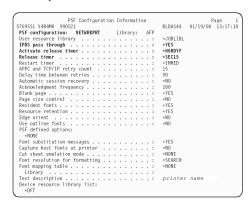
The PSF configuration object created with this command is used by PSF/400 when printing IPDS files only if the object is specified with the USRDFNOBJ parameter in the printer device description.

To configure System i for IPDS printing:

1. At the System i command line, enter a command in the form:

```
CRTPSFCFG PSFCFG(AFP/NETWRKPRT) IPDSPASTHR(*YES) RLSTMR(*SEC15)
TEXT('printer name')
```

#### 2. A completed screen looks like this:



#### 3. The following parameters are recommended:

PSF configuration (PSFCFG)

The name used for this PSF configuration object. The name must match the user-defined object name (USRDFNOBJ) in the printer DEVD.

• IPDS pass through (IPDSPASTHR)

To print SCS and IPDS files (which do not use AFP functions) with minimal processing, specify \*YES. PSF/400 transforms SCS into IPDS before printing.

- Activate release timer (ACTRLSTMR)
  - Specifies the point at which the release timer (RLSTMR) is activated. Set to \*NORDYF.
- Release timer (RLSTMR)

Specifies the amount of time to wait before a session or dialog is released, without terminating the writer. The ACTRLSTMR parameter specifies when this timer is to be activated. Verify that the IPDS TIMEOUT value on the printer is "O" or "OFF". Set the System i parameter to \*SEC15.

This releases the printer to service other jobs from other ports, 15 seconds after the last IPDS job has printed.

# Verifying the IPDS Configuration on System i

To test IPDS printing, do the following:

1. Vary on the line description if it is not already on.

```
VRYCFG CFGOBJ (line) CFGTYPE (*LIN) STATUS(*ON)
```

2. To start TCP/IP, enter:

STRTCP

3. Verify that the System i TCP/IP interface is active. Use the command:

WRKTCPSTS

and then select option 1.

- 4. Turn the printer on and wait until the printer's control panel displays READY.
- 5. To verify that the printer is connected to System i, ping the printer from a System i workstation with one of the following commands:

PING ip\_address'

or

PING hostname

where ip\_address is the TCP/IP address of the remote system printer, and hostname is the hostname you defined for the printer, if any.

6. If pings are successful, vary on the printer device description with the command:

```
VRYCFG (printer-device) CFGTYPE(*DEV) STATUS(*ON)
```

If the pings are not successful, see page 28 "Resolving System i Problems".

7. To use PSF/400 to send an IPDS file to the printer, enter:

STRPRTWTR DEV (printer device)

If you have problems printing, do the following:

- Print a network configuration page, see the manual explaining the network functions provided by the supplier.
- Verify that the IPDS port number matches the port number in the device description.

If you are still unable to print IPDS files, contact your service or sales representative.

# Sharing the PSF/400 Printer on the Network

To support printer sharing, the printer automatically switches among all logical ports. Basically, the printer prints one job at a time, and chooses the next job from the highest priority port. If the client does not end a job, then the printer applies the timeout value set for the print port.

To change the "time out" value, update the timeout value on Web Image Monitor for the appropriate port.

For details about if sharing an IPDS printer between multiple host systems, see page 53 "Sharing the Printer with IPDS host systems (PSF/400 or z/OS)".

#### Sharing the printer with other non-IPDS host systems using MID

Configure the System i to use MID (Managed IPDS Dialog) in order for the printer to be shared between the IPDS System i system and other non-IPDS systems, such as desktop PCs. The following PSF configuration parameters must be set on the System i in order for it to support MID requests from the printer.

Here is a System i example with MID Enabled:

## Sharing the printer with other IPDS host systems

Configure the System i without MID in order for the printer to be shared between multiple IPDS host systems. This configuration can also be used for sharing the printer with desktop PCs. The following PSF configuration does not grant MID requests from the printer.

Here is a System i example without MID:

```
Activate release timer.: *NORDYF
DISCINTV-25,
Release timer....: *SEC15
Restart timer....: *IMMED
```

To set up PSF/400 for shared printing without MID, set the following parameters:  $\frac{1}{2}$ 

Where Set	Parameter	Recommended Value	Description
CRTPSFCFG CHGPSFCFG	ACTRLSTMR	*NORDYF	Specifies the point at which the release timer (RLSTMR) is activated. Set to *NORDYF. This means that the release timer is activated when there are no spooled files in the printer's output queue with a status of RDY and the last page of the last spooled file processed has printed. *NORDYF is used so that all files with a status of RDY are printed before releasing the session (which does not terminate the writer, however).
CRTPSFCFG CHGPSFCFG	RLSTMR	*SEC15	Specifies the amount of time to wait before a session or dialog is released without terminating the writer.  The ACTRLSTMR parameter specifies when this timer is to be activated. Set the parameter to a value at least equal to the TIMEOUT value on the printer. We recommend *SEC15.

Where Set	Parameter	Recommended Value	Description
CRTDEVPRT	ACTTMR	*NOMAX	The value specifies the number of seconds that PSF/400 will wait for a printer to respond to an activation request. If only one system will be using the printer, use the default value (170 seconds). If more than one system will be using the printer, set the value to *NOMAX, which will cause PSF/400 to wait indefinitely for a response to an activation request.

# **Resolving System i Problems**

Use this section to resolve problems configuring System i on TCP/IP networks.

### Printer Cannot be PINGed

If you have problems pinging the printer:

- Verify the configuration of System i, including the printer and any intervening devices such as routers and bridges.
- Verify that the System i line description is varied on and the printer is turned on and displays a status of READY.
- Verify that the System i TCP/IP interface is active.

## If PSF/400 Terminates When Initialized

If PSF/400 terminates when you initialize it for IPDS printing and issues message PQT3603, check for the following error codes.

- 10 means an incorrect RMTLOCNAME has been specified for the printer.
- 15 means that PSF/400 timed out waiting for the printer's response. You should check the value you entered for Activation Timer when using CRTDEVPRT.
- Codes 20-39 indicate a general communications failure. Make sure all of the components in your network are operational, such as routers.
- Codes 40-59 indicate a logic error between PSF and the printer control unit.

## Spooled Print File Remains in PND Status

Check the output queue with the command:

WRKOUTQ OUTQ (queuename)

This typically indicates that PSF/400 is waiting for a response from the printer.

This can be verified by displaying the QSPL subsystem, WRKACTJOB SBS (QSPL). If the status of the PDJ job for the printer is SELW, then PSF/400 is waiting for a response from the printer. Make sure that the printer is online and in READY status and that all network connections (for example, routers) between the System i and the printer are active.

# **Spooled Files Disappear Without Printing**

To resolve this problem:

- Check that the correct printer queue name and correct IP address have been used.
- Ping the IP address. If the ping is successful, disconnect the network cable from the printer/print server, and ping the address again. If the ping is still successful, there is another printer with that IP address on the network.

## **Data is Being Clipped**

To resolve this problem, you may want to set the PSC (Page Size Control) parameter to \*YES in the CRTPSFCFG command.

#### Printer Powered Off While Writer is Active

The printer should not be powered off while the PSF writer is active. If this happens, you must stop and then restart the writer.

Optionally, you may specify \*YES for Automatic session recovery in the PSF configuration object. When \*YES is specified and the printer connection is lost (whether caused by accidentally powering off the printer or an unexpected network problem), PSF/400 will attempt to reconnect to the printer and resume printing at the last known point. You may have pages reprinted if the connection can be established. You can control the reprinting of pages by adjusting the value for the acknowledgment frequency parameter in the PSF configuration object.

# 4. Configuring z/OS to Print IPDS Files

# Requirements - z/OS

This machine supports the following version of PSF for z/OS.

• PSF for z/OS V4.1.0 or later.



• To obtain the PTFs associated with these APARs, contact your service or sales representative.

# Configuration Checklist - z/OS

Use this chapter to configure z/OS to print IPDS files on your network printer.

· Authority Level Required

All of the following configuration steps carried out on z/OS require appropriate RACF authority.

1. Using the printer's control panel, set up the printer for IPDS by setting the parameters and values shown in the following table.

Menu	ltem	Setting
IPDS	Emulation Mode	Native
IPDS	Font Substitution	Off

Set TCP/IP addresses for the printer, such as an IP address, gateway address, or subnet mask.

See the manual explaining the network functions provided by the supplier.

3. Configure the host environment.

For details about host environment, see page 33 "Configuring PSF to Print IPDS Files".

4. Verify the configuration.

For details about how to verify the configuration, see page 38 "Verifying a TCP/IP-Attached Printer on z/OS".



- For details about how to share the printer, see page 40 "Sharing the Network Printers on z/OS".
- If you have problems, refer to page 42 "Handling z/OS Connectivity Problems".

# **Configuring PSF to Print IPDS Files**

#### **Data Requirements**

You need the IP address of the printer.

#### **Configuration Procedure**

Configuring PSF to print IPDS files includes the following steps:

1. Define the z/OS communications control unit to z/OS.

For details about how to define, see page 33 "Define the Communications Control Unit to z/OS".

2. Modify the TCP/IP profile on your z/OS system, if necessary.

For details about how to modify, see page 34 "Modify the TCP/IP Profile in z/OS".

3. Ping the printer.

For details about how to ping the printer, see page 34 "Verify the Printer Connection".

4. Define the printer as a writer-controlled printer to JES.

For details about how to define, see page 35 "Define the Printer to JES".

5. Define the printer to PSF with a PRINTDEV statement, including the IP address.

For details about how to define, see page 36 "Define the Printer to PSF".



- This section does not provide all the information you need to install and configure TCP/IP on your z/OS system.
- The routing of information is determined on the basis of the IP address, and is performed by IP
  gateways. After the network is configured correctly, the z/OS host communicates directly with the
  TCP/IP-attached printer.

#### Define the Communications Control Unit to z/OS

If you have not already done so, use a hardware configuration definition (HCD) to define the communications control unit for the z/OS® host, such as the 3172 or the 3745 control unit, to z/OS.

## Modify the TCP/IP Profile in z/OS

The TCP/IP profile contains system configuration statements used to initialize the TCP/IP address space. The following statements in the TCP/IP profile; however, this example is not a complete profile.



• If you change any of the values in the TCP/IP profile, restart TCP/IP to pick up the changes.

Sample Parameters in the TCP/IP Profile.

```
TCPIPCONFIG INTERVAL 10 SENDGARBAGE FALSE GATEMAY; * Network First hop Linkname Packet size Subnet mask Subnet value g g = BPCLAN 4096 0.255.255.0 0.99.12.0 DEFAULTNET 9.99.12.254 BPCLAN 4096 0.255.255.0 0
```

This example is not a complete TCP/IP profile.

The statements require special considerations when you are printing from PSF on TCP/IP-attached printers:

TCPIPCONFIG

The TCPIPCONFIG statement defines the interval between keep-alive transmissions. PSF relies on TCP to detect when a connection with a TCP/IP-attached printer or an i-data 7913 IPDS™ Printer LAN Attachment is no longer usable. When no data has been exchanged between PSF and its connection partner, TCP sends keep-alive probes to the connection partner periodically.

These periodic probes, called keep-alive transmissions, enable TCP to discover when a connection is no longer usable even if the connection partner is abruptly powered off or is no longer accessible through the network.

The frequency of keep-alive transmissions is controlled by the INTERVAL parameter on the TCPIPCONFIG statement. The frequency applies to all TCP applications that direct TCP to send keep-alive transmissions. The default frequency is after about two hours of inactivity.

For printing on TCP/IP-attached printers, we recommend that you specify a shorter interval than the default, such as 1 minute, for the interval between keep-alive transmissions.

Also, if any target host requires that the keep-alive packet contain data, specify SENDGARBAGE TRUE. For example:

TCPIPCONFIG INTERVAL 1 SENDGARBAGE FALSE GATEWAY

GATEWAY

The GATEWAY statement defines a static route to the printer.

## **Verify the Printer Connection**

To verify that z/OS can establish a connection with the TCP/IP-attached printer, ping the printer from the z/OS system.

From a TSO session, enter the following command:

TSO PING ip\_address

In a TSO session, enter the following command from the Interactive System Productivity Facility (ISPF) command menu.

ping ip\_address

ip\_address

Specifies the IP address or host name of the printer.

Here are examples of a successful ping and an unsuccessful ping.

Successful ping:

```
EZAO458I Ping V3R1: Pinging host 9.99.12.33 (Use ATTN to interrupt.)
EZAO463I PING: Ping #1 response took 0.084 seconds.
Successes so far = 1.
```

Unsuccessful ping:

```
EZAO458I Ping V3R1: Pinging host 9.99.12.33 (Use ATTN to interrupt.) EZAO464I PING: Ping #1 timed out
```



• If you have problems pinging a printer, see page 42 "Handling z/OS Connectivity Problems".

#### **Define the Printer to JES**

When a TCP/IP-attached printer is to be used with JES, it must be defined for spool printing mode with JES2 parameter.

• JES2 Printer Definitions:

The following example shows the JES2 printer definition initialization member, located in the system PARMLIB.

```
FSS(FSS1), PROC=PSFPROC, HASPFSSM=HASPFSSM

PRT1 FSS=FSS1, MODE=FSS, PRMODE=(LINE, PAGE, SOSI1),

CLASS=C, UCS=0, SEP=YES, SEPDS=N0, CKPTPAGE=100,

START=N0, MARK=YES, TRKCELL=YES
```

• IES3 Printer Definitions:

The following shows an example of a JES3 printer definition. This example is not executable, but it is intended to help the JES3 systems programmer define the printer to the z/OS host.

```
FSSDEF,TYPE=WTR,FSSNAME=FSS1,PNAME=PSFPROC,
SYSTEM=SYS1,TERM=NO DEVICE,JNAME=PRTL1,
JUNIT=(,SYS1,,OFF),FSSNAME=FSS1,
MODE=FSS,PM=(LINE,PAGE,SOSI1),CHARS=(YES,GT12),DTYPE=PRT
AFP1 CARRIAGE=(YES,A868),CKPNTPG=100,HEADER=YES,WC=(C)
```

Each TCP/IP-attached printer must be defined to PSF with a PRINTDEV statement in the PSF startup procedure.

The following proc shows a sample procedure, PSFPROC that you can modify to suit your installation. The PRINTDEV statement shows the required IPADDR keyword.

No network printer-specific writer procedure is currently supplied. You can, however, copy the APSWPROT sample from the APAR medium and modify it for the network printers.

```
**** IBM NETWORK PRINTERS WRITER PROCEDURE *******
       //*
//*01* MODULE-NAME = PSFPROC
     //* //* DESCRIPTIVE-NAME = START PROCEDURE FOR PSF: //* TCP/IP ATTACHED IBM NETWORK PRINTERS //*
     //*01* NOTES = THE FULL NAME OF THE DEFAULT PAGEDEF IS
                                                                       P1A06462.
THE FULL NAME OF THE DEFAULT FORMDEF IS F1A10110.
THE FULL NAMES OF THE DEFAULT FONTS ARE
                                                                     THE FULL NAMES OF THE DEFAULT FOWTS ARE
XOGFIO, XOGSIO, XOTUIO, AND XOGUIO.
THE FULL NAME OF THE SEPARATOR PAGE PAGEDEF IS
PIVOGAB3.
THE FULL NAME OF THE SEPARATOR PAGE FONT IS
XOGTIS.
     //*
//*01* CHANGE-ACTIVITY :
//+01* CHANGE-ACTIVITY:
//*
//**** END OF SPECIFICATIONS ***/
//STEP1 EXEC PGM-APSPPIEP, REGION-4096K, TIME-1440, PARM-(,,,,TCPIP) */
//JOBHOR OUTPUT PAGEDEF-V06483, /* JOB SEPARATOR PAGEDEF */
// FORMOEF-A10110, CHARS-GT15 /* JOB SEPARATOR FORMOEF //
//JOBTLR OUTPUT PAGEDEF-V66483, /* JOB SEPARATOR PAGEDEF */
//JOBTRO OUTPUT PAGEDEF-106403, /* JOB SEPARATOR PAGEDEF */
//JOHNOR OUTPUT PAGEDEF-106403, /* JOB SEPARATOR PAGEDEF */
// FORMOEF-A10110, CHARS-GT15 /* SEPARATOR PAGEDEF */
// FORMOEF-A10110, CHARS-GT15 /* SEPARATOR FORMOEF //
// FORMOEF-A10110, CHARS-GT15 /* SEPARATOR FORMOEF //
// FORMOEF-A10110, CHARS-GT15 /* MESSAGE DATASET PAGEDEF */
// FORMOEF-A10110, MESSAGE DATASET PAGEDEF */
// FORMOEF-A10110, MESSAGE DATASET PAGEDEF */
// SEGOND DD DSN-SYS1.PSEGLIB, /* SYSTEM PAGE SEGMENTS */
DISP-SHR /* SYSTEM MEDIUM OVERLAYS */
                                                   DD DSN-SYS1.PSEGLIB, /* SYSTEM PAGE SEGMENTS
DISPSHR
DD DSN-SYS1.OVERLIB, /* SYSTEM MEDIUM OVERLAYS
DISPSHR /* SYSTEM PAGEDEFS
DISPSHR
DISPSHR
ACCOUNTY OF THE PAGEDEFS
ACC
     //
//OLAY01
       //
//PDEF01
     // DD DSN=
// DISP=SHR
                                                                            DSN=SYS1.FDEFLIB, /* SYSTEM FORMDEFS
     //* *******************************
     CNIL
PRINTDEV FONTDD=*.FONT300,/* 300 PEL FONT LIBRARY DD
OVLYDD=*.0LAY01, /* OVERLAY LIBRARY DD
PSEGDD=*.PSEG01, /* SEGMENT LIBRARY DD
PDEFD0=*.PDF01, /* PAGEDEF LIBRARY DD
FDEFD0=*.FDEF01, /* FORMDEF LIBRARY DD
                                                                                                                                                                             /* FORMDEF LIBRARY DD
/* JOB HEADER SEPARATOR
/* OUTPUT
/* JOB TRAILER SEPARATOR
                                                        JOBTRLR=*.JOBTLR,
                                                                                                                                                                          /* JOB TRAILER SEPARATOR
/* OUTPUT
/* DATA SET HEADER
/* SEPARATOR
/* MESSAGE DATA SET OUTPUT
/* DEVICE PACEDER DEFAULT
/* DEVICE FORMER DEFAULT
/* DEVICE
/* DEFAULT FONT SET
/* ACCUMULATE DATA SET
/* REPORT ALL DATA-CHECK
/* ERRORS
/* CREATE INTERNAL TRACE
/* PSF ACTION ON PRINTER
/* FAILURE
/* PSF ACTION ON TIMEOUT
                                                          DSHDR=*.DSHDR,
                                                           MESSAGE=*.MSGDS,
                                                             PAGEDEF=A06462.
                                                             FORMDEF=A10110,
                                                           CHARS=(GF10,
GS10,TU10,GU10),
PIMSG=YES,
                                                           DATACK=BLOCK.
                                                           TRACE=YES,
FAILURE=WCONNECT,
                                                                                                                                                                             /* FAILURE
/* PSF ACTION ON TIMEOUT
/* PRINTER MANAGEMENT MODE
/* DISCONNECT INTERVAL IN
/* SECONDS
                                                           TIMEOUT=REDRIVE.
                                                           /* SECONDS
IPADDR='xxx.xxx.xxx.xxx' /* IP ADDRESS FOR TCP/IP
       //PRT1
```



 To specify a TCP/IP address space name other than the default, TCPIP, code the following exec statement in the writer procedure:

//STEP01 EXEC PGM=APSPPIEP,
REGION=4096K,PARM=(,,,,tcpip\_name)

- Where tcpip\_name is the name of the TCP/IP address space. If this parameter is not coded, PSF uses the default name, "TCPIP".
- The IP address is the only required parameter. Other parameters may be set to facilitate printer sharing as described in page 40 "Sharing the Network Printers on z/OS".
  - IPADDR

Specifies the IP address for the printer NIC, in dotted-decimal notation.

The hostname can be specified in place of the dotted-decimal address.

# Verifying a TCP/IP-Attached Printer on z/OS

To operate a TCP/IP-attached printer, you use JES operator commands.

#### Starting a TCP/IP-attached Printer

To start a TCP/IP-attached printer, do the following:

- 1. Start TCP/IP.
- 2. Power on the printer.
- 3. Start the printer FSA.
  - On JES2, the command is:
    - \$Sprinter-name
  - On JES3, the command is:
    - \*CALL WTR,OUT=printer-name

## Stopping a TCP/IP-attached Printer

You can stop a TCP/IP-attached printer in several ways:

- The preferred method is to first stop the PSF FSA for the printer by entering the following command from the z/OS operator panel:
  - JES2:
    - \$Pprinter-name
  - JES3:
    - \*VARY, printer-name, OFF
    - \*CANCEL, printer-name

where printer-name specifies the name of the printer FSA.

- 2. Then you can turn off power to the printer.
  - To end the PSF FSA for the printer, use the JES commands. If you are unable to purge or cancel the printer by use of the JES commands, enter the following command:

MODIFY FSSname, FORCE, printer-name

## **Resolving IPDS Printing Problems**

If you have problems printing, do the following:

- Print a network configuration page, see the manual explaining the network functions provided by the supplier.
- Verify that the port number specified for the IPDS port matches either the port number specified in
  the Port number parameter in the printer inventory, or the port number specified in the PORT
  parameter in the PRINTDEV statement under the PSF start procedure. You can use Web Image
  Monitor to view or change the IPDS port number.

# Sharing the Network Printers on z/OS

For details about sharing an IPDS printer between multiple host systems, see page 53 "Sharing the Printer with IPDS host systems (PSF/400 or z/OS)".

The printer may be shared with PSF in one of two ways:

- Sharing the printer with other non-IPDS host systems using MID and the JES Spool.
- Sharing the printer with other IPDS host systems, without MID. This method also shares the printer with non-IPDS host systems.

# Sharing the printer with other IPDS host systems, without MID JES Spool Printer Sharing

JES spool printer sharing is valid for TCP/IP attached network printers. A session with the printer is maintained while there is output on the JES spool and the printer is available. When there is no more output on the spool and the disconnect interval expires, PSF ends the session with the printer. This allows any other IPDS host, such as System i to share this printer. PSF attempts to restart the session when there is more work on the spool for the printer. After the session is restarted, PSF must reload the resources required for the print jobs. When using this method of network printer sharing, PSF cannot determine if another printer driver is active.

You can request this method of network printer sharing by specifying the following parameters in the PSF Startup Proc.

MGMTMODE=OUTAVAIL

FAILURE=WCONNECT

TIMEOUT=REDRIVE

DISCINTV=nn

MGMTMODE

Set this parameter to "OUTAVAIL". "OUTAVAIL" requests that PSF start a communications session with the printer only when output is available on the JES spool.

FAILURE

Specifies the action PSF is to take after a printer failure or a TCP/IP network failure. If FAILURE=WCONNECT and the printer is connected to another host when PSF attempts to establish a connection on TCP/IP, PSF continuously retries (up to the limit specified by CONNINTV) until the printer becomes available. If FAILURE=STOP, PSF must be restarted by an operator command.

TIMEOUT

Specifies the action that PSF is to take after a timeout when no output is available on JES. The DISCINTV parameter specifies the timeout interval. TIMEOUT=REDRIVE requests that PSF redrive

the printer FSA using the value of the MGMTMODE parameter. TIMEOUT=STOP requests that PSF stop the printer FSA, which can then be restarted only by an operator command.

#### DISCINTY

Specifies the disconnect interval in seconds. The value can range from zero to 86400. We suggest you set the value to "15". When no output is available from JES for this time period, PSF ends the session with the network printer. If the value is set to zero, PSF does not end the session because of lack of output, and other IPDS hosts will not be able to share the printer.

# Handling z/OS Connectivity Problems

If you encounter problems when pinging a network printer from z/OS, here is how to resolve them.

## Ping is Not Successful

If the ping is not successful, verify the following:

- The printer is powered on.
- The IP address is unique in the TCP/IP network.

If the IP address of the printer is not unique, see your network administrator to resolve the IP address problem.

If problems remain, consult your TCP/IP network administrator about a possible network problem.

# Ping is Successful

A successful ping usually indicates that the z/OS system can communicate with the printer; however, you might receive a successful ping even though the IP address of the TCP/IP-attached printer is a duplicate of another IP address.

If PSF is unable to establish a network connection with the TCP/IP-attached printer or if PSF output for this printer prints elsewhere, follow these steps to determine whether the IP address of the printer is unique:

- 1. Turn the printer off.
- Wait at least 5 minutes for TCP/IP to clear the Address Resolution Protocol (ARP) tables. (If your installation specified a longer interval on the ARPAGE configuration statement in the TCP/IP profile, you may need to wait longer.)
- 3. Enter the ping command again from the z/OS system.



If you receive a successful response to the ping command, there is a duplicate IP address. Consult
your TCP/IP network administrator.

# 5. InfoPrint Manager for AIX

# Requirements - InfoPrint Manager for AIX

This machine supports the following version of InfoPrint Manager for AIX.

• InfoPrint Manager for AIX V4.2 or later.

# Configuration Checklist - InfoPrint Manager for AIX

- 1. Set TCP/IP addresses for the printer, such as an IP address, gateway address, or subnet mask. See the manual explaining the network functions provided by the supplier.
- 2. Define the printer to InfoPrint Manager as described in the next section, page 45 "Defining Printers to InfoPrint Manager".

# **Defining Printers to InfoPrint Manager**

The configuration procedure to use depends on what data stream you want to send:

 To send IPDS to the printer, configure InfoPrint Manager for a PSF TCP/IPattached printer. See page 45 "Configuring Network Printers as PSF TCP/IP-Attached Printer".

## Configuring Network Printers as PSF TCP/IP-Attached Printer

Create a PSF TCP/IP destination to define a printer that receives IPDS jobs using the TCP/IP protocol. Before configuring network printers, complete the following worksheet:

Wizard Prompt	Description	Value
Name	The name for the actual destination object (8 character limit).	
	This name is case-sensitive.	
Server	The InfoPrint Manager server that controls this actual destination.	
Model	The printer model.	
TCP/IP address	The dotted-decimal IP address used to access this printer.	
TCP/IP port	The port used by the printer for communication. (Typically, port 5001 is used.)	
Logical destination	The logical destination that directs jobs to this actual destination.  This name is case-sensitive.	Default Other:
Logical destination's server	The server that contains the logical destination.  This name is case-sensitive.	

Wizard Prompt	Description	Value
Queue	The queue for the target printer (actual destination).	Default Other:
	This name is case-sensitive.	

- 1. On the menu bar, select Printer / Create / PSF-TCP/IP to start the Create Printer Wizard.
- 2. Provide the worksheet information to the wizard. For assistance, refer to the InfoPrint Manager Administration GUI online help.
- If you did not enable the printer with the Create Printer Wizard, use the InfoPrint Manager Administration GUI to enable it.

## Adding an AIX Printer

Create an AIX printer to represent a printer that will accept the data stream that comes out of the printer driver without transforming it. For example, to send the output of a PostScript driver to a PostScript printer.

Before adding an AIX printer, complete the following worksheet:

Wizard Prompt	Description	Value
Name	The name for the actual destination object (8 character limit).  This name is case-sensitive.	
Server	The server that controls this actual destination. The server name is the same as the name of the host system where the server is installed.  This name is case-sensitive.	
Model	Select the printer model from the pull-down list in the InfoPrint Manager Administration GUI. If the printer you are working with is not in the pull-down list, enter the name as it appears on the printer.	

Wizard Prompt	Description	Value
SNMPTCP/IP address	The dotted-decimal IP address used to access this printer. This value is used only for SNMP printers.	
Device	The name of the printer	Specify the printer queue name that was created beforehand with AIX.
Printer Command	The command that InfoPrint Manager issues to send a job to this printer.	uusr/lib/lpd/pio/etc/ pioibmnpm <the listed<br="" value="" you="">for server above&gt; or SNMPTC/IP address</the>
Data stream	The data stream expected by the printer (for example, PCL5 or PPDS).	
Logical destination	The logical destination that directs jobs to this actual destination.  The name is case-sensitive.	Default Other:
Logical destination's server	The server that contains the logical destination.  Note  . The name is case-sensitive.	
Queue	The queue for the target printer (actual destination).  The name is case-sensitive.	Default Other:

To create this type of printer, use the Create Printer Wizard in the InfoPrint Administration GUI.

- 1. On the menu bar, click [Printers] / [Create] / [AIX].
- 2. Referring to the work sheet above, provide the information as prompted by the wizard. For assistance, refer to the online help.
- 3. If you did not enable the printer with the Create Printer Wizard, use the InfoPrint Manager Administration GUI to enable it.

# 6. Handling Network Problems

# Introduction

Use this chapter as a guide for finding and resolving printer and NIC printing problems on TCP/IP networks.

The following types of problems are described here:

- Hardware
- Connectivity
- Formatting
- Printing

#### **Network Setup**

Before doing anything else to try to resolve problems, you should verify that you have entered the correct configuration data.



 For details about network configuration, see the manual explaining the network functions provided by the supplier.

#### Hardware Problems

When printing problems occur, the first task is to check the physical condition of the printer and related hardware.

#### Hardware Problems Introduction

The hardware is where diagnosis of printer problems begins. The hardware includes the following elements:

- The printer itself
- The physical connection of the hardware to the network
- The cabling system
- The network interface

## **Resolving Hardware Problems**

To determine whether a problem is a hardware problem or not, check the following:

- Verify that power is going to the printer by checking the printer's control panel.
- Verify that the printer is connected to the network.
- Verify that the printer is Ready.

#### **Connectivity Problems**

The network/transport level of a network provides the capability of routing packets from one device to another device on the network or to a different network on an internetwork system.

If you have trouble connecting with the network, refer to the following:

- Verify that there is no duplicate IP address on the network by:
  - Disconnecting the printer from the network.
  - Using the Ping command to try to communicate with the IP address of the printer.
- Connect the printer to the network and ping the printer to verify that there is a connection to the network.
- Printing problems may occur if the subnet mask has not been set correctly. Verify that the subnet
  mask is correct either by printing a network configuration page or checking with the network
  administrator.
- A related problem is that the gateway address may be incorrect. Verify the gateway address from the network configuration page.
- Verify that the printer is configured to accept print jobs from your client system by checking the
  "Accept IP Jobs From" heading in the IP section on the network configuration page. The IP
  addresses from which jobs are accepted can be set on [Access Control] in Web Image Monitor.

## **Ethernet Connectivity Problems**

The Ethernet adapter supports Auto-negotiation and fixed settings for speed and duplex. The IEEE standard does not provide the ability to auto-detect the speed or duplex settings of the connected partner (a hub or switch) in a number of configurations. In these cases, the following conditions may occur:

- The Link light falsely appears on the printer adapter. No communication is established.
- The Link light appears and communication is established, but communication may be very slow due to collisions or lost packets.

The table below identifies various printer and switch or hub configuration settings. OK indicates that a good Link is established and normal communications should occur. These are the only supported configurations. NG indicates that a Link is established, but a speed or duplex mismatch occurs. The

mismatched configuration cannot be detected by the printer. Communications may or may not work. If communications appear to work, data transfers may be slow due to collisions and lost packets. These configurations are particularly bad because they cannot be detected by either partner. Administrators must be aware of these situations and avoid these configurations. The cells marked as "No Connection" are detectable invalid configurations and no link is established.

D C	Ethernet Switch or Hub Setting				
Printer Setting	Auto	10 HD	10 FD	100 HD	100 FD
Auto Select	OK (100 Full) (1000 Full)	OK (10 Half)	NG (10 Half / Full) duplex mismatch	OK (100 Half)	NG (100 Half / Full) duplex mismatch
10Mbps Half Duplex	OK (10 Half)	OK (10 Half)	NG (10 Half / Full) duplex mismatch	NG, Link light is false. Speed mismatch, no communicatio n	NG, Link light is false. Speed mismatch, no communicatio n
10Mbps Full Duplex	OK (10 Full)	NG (10 Full / Half) duplex mismatch	OK (10 Full)	NG, Link light is false. Speed mismatch, no communicatio n	NG, Link light is false. Speed mismatch, no communicatio n
100Mbps Half Duplex	OK (100 Half)	No connection	No connection	OK (100 Half)	NG (100 Half / Full) duplex mismatch
100Mbps Full Duplex	OK (100 Full)	No connection	No connection	NG (100 Full / Half) duplex mismatch	OK (100 Full)



 To run the 10/100/1000 Ethernet Adapter at 1000 MB/sec, you must select the Auto/Auto setting.

## **Formatting Problems**

One possible problem is the value of the Personality item for the TCP/IP port.

The Personality value is set for each TCP/IP port using the Data stream item on Web Image Monitor. The possible values are [Auto] (default value), [PCL], and [PS]. If the Personality value is set to [PCL] or [PS], all data coming in through this port will be interpreted as that data stream (for example, PostScript data received when the Personality value is set to [PCL] will not print correctly). Ensure that the Personality value is set to [Auto] if more than one data stream will be received through this port.

## 7. Appendix

## Sharing the Printer with IPDS host systems (PSF/400 or z/OS)

- The printer accepts jobs from multiple logical ports (such as TCP/IP LPR, Port 2501, or IPDS). The printer automatically chooses the next job to print from the highest priority port that has a job ready to print. The printer chooses the next job when the client closes the port that was used for the previous job. If the client does not close the port, the printer automatically closes it after a period of time called the timeout interval. For details, see the Web Image Monitor Help.
- Unlike PostScript and PCL, the IPDS data stream is tightly controlled by the host system. For proper
  operation when printing IPDS, the host system must terminate the TCP/IP connection. Host system
  output writers post an error if the printer closes the port. Therefore, for printing IPDS, the printer must
  be configured for an infinite timeout, and the host system is configured to close the connection after
  the output queue is empty for some period of time.
- The drawback of this method is that the IPDS host system must retransmit downloaded PSF resources each time a new connection with the printer is established. This issue can be corrected by using a feature called MID (Managed IPDS Dialog). MID allows the TCP/IP connection to remain active and it allows the printer to retain the IPDS resources while freeing the printer to process PostScript and PCL jobs from other ports. Only z/OS and the System I host systems support MID. (It is not supported by AIX or InfoPrint Manager).
- For more information, see page 25 "Sharing the printer with other non-IPDS host systems using MID" for z/OS.
- MID is a negotiated sequence between the printer and the host system. The printer requests the
  suspension of IPDS activity. At an appropriate time the host system grants the request. When
  suspended, the IPDS TCP/IP connection between the host and the printer remains open, and the
  downloaded IPDS resources are retained by the printer. When the printer receives the grant it is
  free to process PostScript and PCL jobs from other ports. IPDS activity resumes when the host system
  has another IPDS job to print.
- The MID feature should not be used if multiple IPDS host systems send jobs to the same printer because the first IPDS host system that gains access to the printer will block the other IPDS host systems from obtaining an IPDS TCP/IP connection to the printer.

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MEMO



# Operating Instructions IPDS Supplement

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### Manuals for the IPDS card

Refer to the manuals that are relevant to what you want to do with the IPDS card.



Adobe<sup>®</sup> Acrobat<sup>®</sup> Reader<sup>®</sup>/Adobe Reader must be installed in order to view the manuals as PDF files.

#### IPDS Supplement (IPDS.pdf)

Explains how to configure the IPDS card for the machine. It also explains about items selectable from the Web browser.

#### IPDS Printing Configuration Guide (IPDS\_CONF.pdf) \*English Only

Explains about the environment necessary for connecting the mainframe to the machine and performing IPDS printing.

#### IPDS Technical Reference 1 (IPDS\_TEC1.pdf) \*English Only

Explains about commands and functions for IPDS printing.

#### IPDS Technical Reference 2 (IPDS\_TEC2.pdf)\*English Only

Explains about IPDS commands.



For details about the necessary environment and how to install the IPDS card and machine, consult
your sales or service representative. For details about the necessary environments and operation of
the mainframe, contact IBM.

## Notice

#### **Important**

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

In no event will the company be liable for direct, indirect, special, incidental, or consequential damages as a result of handling or operating the machine.

## How to Read This Manual

#### Symbols

This manual uses the following symbols:



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.



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

[]

Indicates the names of keys on the machine's display or control panels.

#### F

## 1. Getting Started

## **About IPDS**

IPDS (Intelligent Printer Data Stream) is a page printing format for IBM mainframe and client computers. This machine can perform IPDS printing if the IPDS card is installed.

## 2. Using Web Image Monitor

## List of the Setting Items

If you install the IPDS card to the machine, following Web Image Monitor items can be viewed or modified depending on the selected mode on the Web browser.

Select one of the following modes to log on Web Image Monitor:

- User mode: logged on as a user
- Administrator mode: logged on as an administrator



- IPDS cannot use the delete reservation function of Web Image Monitor. After you login to
  administrator mode in Web Image Monitor, even if you select a currently printing IPDS job at the
  Current/Waiting Jobs and then click [Delete Reservation], nothing happens.
- For details about Web Image Monitor, see the manual explaining the network functions provided by the supplier or Web Image Monitor Help.

#### Configuration

#### **Printer**

Menu	User mode	Administrator mode
Basic Settings	Read	Read/Modify
IPDS Form List	Read	Read/Modify
Reset IPDS Resources	None	Read/Modify



• "IPDS Menu" will appear in Basic Settings.

#### Network

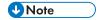
Menu	User mode	Administrator mode
IPv4	Read	Read/Modify



• "IPDS" and "IPDS Port Number" will be displayed.

#### Security

Menu	User mode	Administrator mode
Network Security	None	Read/Modify



• "IPDS" will be displayed.

2

#### 3

## 3. Accessing User Tools

## **User Tools Settings**

When the IPDS card is installed, IPDS print settings become available and will appear on the control panel.

#### List / Test Print

#### **IPDS Font List**

Prints a list of IPDS-supported fonts.



- The layout of the IPDS Font List produced by the test print is fixed to A4 or 8<sup>1</sup>/<sub>2</sub> × 11 (letter) size.
   We recommend you load A4 or 8<sup>1</sup>/<sub>2</sub> × 11 (letter) size paper (plain or recycled) in one of the paper trays.
- For details about printing lists, see the manual explaining how to print lists provided by the supplier.

#### **Data Management**

#### **Reset IPDS Resources**

Delete all IPDS resources that saved on its hard disk.



• Only the Machine Administrator can reset IPDS resources.

#### **IPDS Menu**

#### **Tray Form**

Specifies an IPDS form for each paper tray.

- Tray 1
- Tray 2
- Tray 3
- Tray 4
- LCT
- Bypass Tray

For each paper tray, select the form you want to allocate to it.

#### **Emulation Mode**

Specifies the emulation mode.

Default: [Native]

- Native
- 4028

#### **Print Mode**

Specifies the print mode.

Default: [Enhanced]

- Standard
- Enhanced

#### **Default Code Page**

Specifies the default code page.

Default: [037]

- 037 : US, Canada, Netherlands, Portugal
- 038 : US English ASCII
- 260 : Canadian French
- 273 : Austrian/German
- 274 : Belgium
- 276 : Canadian French
- 277 : Danish/Norwegian
- 278 : Finnish/Swedish
- 280 : Italian
- 281: Japanese
- 284 : Spanish
- 285 : UK English
- 286: Austrian/German (alternate)
- 287 : Danish/Norwegian (alternate)
- 288 : Finnish/Swedish (alternate)
- 290 : Japanese/Katakana
- 297 : French
- 420 : Arabic
- 423 : Greek

- 424 : Hebrew
- 500: Belgium, Switzerland/International
- 870 : Latin 2 Multilingual
- 871 : Icelandic
- 875 : Greek
- 880 : Cyrillic
- 892 : OCR A
- 893 : OCR B
- 905 : Turkish
- 1025 : Cyrillic
- 1026 : Turkish

The following code pages include the Euro character:

- 1140 : US, Canada, Netherlands, Brazil, Portugal
- 1141: Austrian/German
- 1142 : Danish/Norwegian
- 1143 : Finnish/Swedish
- 1144: Italian
- 1145 : Spanish
- 1146 : UK English
- 1147 : French
- 1148: Belgium, Switzerland/International
- 1149 : Icelandic

#### **Default FGID**

Specifies the default FGID (Font Typeface Global Identifier), which identifies the printer's default resident font.

Default: [416] (Courier Roman Medium 10).

To display a list of the fonts and FGIDs that the printer supports, print out the list of IPDS resident fonts. For details about printing lists, see the manual explaining how to print lists provided by the supplier.

- 3: OCR B
- 11: Courier 10
- 12 : Prestige Pica
- 18: Courier Italic 10
- 19: OCR A

- 46: Courier Bold 10
- 85 : Courier 12
- 86 : Prestige Elite
- 92 : Courier Italic 12
- 111: Prestige Elite Bold
- 112 : Prestige Elite Italic
- 159 : Boldface
- 164 : Prestige PSM Roman Medium
- 203 : Gothic Text
- 221: Prestige 15
- 223 : Courier 15
- 254 : Courier. 17 ss
- 256: Prestige 17
- 281 : Letter Gothic
- 283 : Gothic Text
- 290 : Gothic Text
- 304 : Katakana Gothic
- 305 : OCR A
- 306: OCR B
- 318: Prestige Bold
- 319 : Prestige Italic
- 400 : Letter Gothic
- 404 : Letter Gothic Bold
- 416: Courier Roman Medium 10
- 420 : Courier Roman Bold
- 424 : Courier Italic Medium
- 428 : Courier Italic Bold
- 432 : Prestige
- 2304 : Helvetica Roman Medium
- 2305 : Helvetica Roman Bold
- 2306 : Helvetica Italic Medium
- 2307 : Helvetica Italic Bold
- 2308: Times New Roman Medium

- 2309: Times New Roman Bold
- 2310: Times New Roman Italic Medium
- 2311: Times New Roman Italic Bold
- 5687 : Times Roman
- 5707 : Times Roman Bold
- 5815 : Times Roman Italic
- 5835 : Times Roman Bold Italic
- 20224 : Boldface

#### Characters Per Inch

Specifies the number of characters per inch (pitch) for the default font. Valid values are 5.0 to 30.0 in units of one tenth of an inch.

Default: [10.0]

#### Valid Printable Area Check

Specifies whether or not to report the Position check error (NACK 08C1..00) to the host, when valid printable area is checked

Default: [On]

On

The printer checks for pixels that fall outside the intersection of the logical and physical pages. If there are pixels outside the area and error reporting has been set using the "IPDS Exception Handling Control" command, the printer reports an error to the host.

Off

The printer does not report pixels outside the valid printable area.

#### Edge to Edge

Turns "Edge to Edge" printing on or off.

Default: [Off]

On

The printer allows printing up to the physical page size.

Off

The printer maintains a border of 4 mm (0.156 inches) on all four edges of the paper.



- To prevent toner from accumulating inside the printer, we recommend leaving [Edge to Edge] set to [Off] for IPDS, and setting it to [On] only when necessary.
- The "Edge to Edge" IPDS Menu item affects IPDS data only.
- When using IPDS, the "Edge to Edge" setting on System menu will be invalid.

#### **Font Substitution**

Turns font substitution on or off.

Default: [Off]

On

If a job requests a font that is not loaded on the printer, the printer uses a substitute font.

Off

If a job requests a font that is not loaded on the printer, the printer generates an IPDS NACK (Negative Acknowledgement) message and the host holds the job.

#### Caching

Specifies whether or not to use caching for repeated overlays.

Default: [Off]

• On

The printer uses caching, which provides better performance for jobs with repeated overlays, but uses more memory.

Off

The printer does not use caching, which requires less memory but provides less performance for jobs with repeated overlays.



 Overlay caching is recommended for repeated overlays. Overlay caching does not improve performance with non-overlay IPDS data or overlays that are used only once or infrequently.

#### **Font Capture**

Sets Font Capture processing.

Default: [On]

On

The printer saves downloaded font resources on its hard disk drive for use beyond the duration of the current power cycle. The IPDS host must provide the "Activate Resource" command with the correct resource identifiers before downloading the font resource to be captured.

Off

The printer stores downloaded font resources for the duration of one power cycle only.

#### **Resolution**

Specifies the resolution reported to the host in the "IPDS XOA-OPC" command for raster coded fonts and IM1 image support. The [Resolution] menu item also helps determine whether or not a printer-resident raster font is used. For example, 240 dpi raster fonts are activated at the [240 dpi] setting, not at [300 dpi] or [600 dpi]. The [Resolution] setting does not affect outline fonts, nor does it determine which raster fonts can be downloaded to the printer as temporary activation fonts.

#### Default: [Auto]

Auto

Reports to the host that the printer supports raster fonts of any dpi value and IM1 images.

"Resident" or "Captured" raster fonts of other resolutions are not activated unless a matching "Font Resolution" and "Metric Technology Triplet" is provided with the activation request.

• 240 dpi

Reports to the host that the printer supports 240 dpi raster fonts and IM1 images.

"Resident" or "Captured" raster fonts of other resolutions are not activated unless a matching "Font Resolution" and "Metric Technology Triplet" is provided with the activation request.

• 300 dpi

Reports to the host that the printer supports 300 dpi raster fonts and IM1 images.

"Resident" or "Captured" raster fonts of other resolutions are not activated unless a matching "Font Resolution" and "Metric Technology Triplet" is provided with the activation request.

• 600 dpi

Reports to the host that the printer supports 600 dpi raster fonts and IM1 images.

"Resident" or "Captured" raster fonts of other resolutions are not activated unless a matching "Font Resolution" and "Metric Technology Triplet" is provided with the activation request.



- If you select [Standard] for the [Print Mode] setting, the resolution changes to [300 dpi].
- To set the IPDS resolution to [240 dpi], [600 dpi], or [Auto], you must first set [Print Mode] to [Enhanced]. Enhanced print mode produces optimal print quality, but can slow down the printing of complex jobs.

#### **Graphic Character String**

Specifies the Graphic Character String (Graphic Character Sizing) processing method.

Default: [Auto]

Auto

Applies the value specified by the [Emulation Mode] item ([Native] or [4028]).

· Character Scale

Applies 4028 IPDS Emulation. Prints graphics and text characters by scaling the characters in a currently activated font. Character cell size is defined in the GOCA data stream. Not available for DBCS.

Font Activation

Applies Native IPDS Emulation. Prints graphics and text characters using a currently activated font at the font's activation size, without scaling. GOCA data stream Character cell size information is ignored.

#### **Bar Code**

Specifies the barcode level protocol.

Default: [Auto]

Auto

Applies the value specified by the [Emulation Mode] item ([Native] or [4028]).

• 4028

Applies 4028 IPDS Emulation.

Native

Applies Native IPDS Emulation.

#### **Box Draw**

Specifies the Box Draw processing.

Default: [Off]

• On

Uses special outline fonts to draw Symbol Set box characters. Select [On] to fill gaps caused by special raster fonts that contain extended length box characters (as found in older applications, for example).

Off

Uses Symbol Set outline font characters to draw boxes as the font-defined characters.

#### **Color Simulation**

Allows you to select how color specification controls are processed on a monochromatic printer.

Default: [Fidelity]

Fidelity

The printer accepts all color specification controls and simulates unique colors with shades of gray.

Legacy

The printer accepts all color specification controls, but performs only limited color simulation using black.

#### **Text Color Simulation**

Specifies how text color specification controls are processed on a monochrome laser printer.

Default: [On]

On

The printer accepts all text color specification controls and simulates the unique colors with shades of gray.

Off

The printer accepts all text color specification controls, but performs only limited color simulation using black.



• This menu item is available only if [Color Simulation] mode is set to [Fidelity].

#### **Suppress Staple Count Nacks**

Selects whether or not to notify the user when stapling errors occur.

Default: [Off]

- On
- Off



• This menu appears only if the staple unit is installed.

#### **Suppress Punch Nacks**

Selects whether or not to notify the user when punching errors occur.

Default: [Off]

- On
- Off



• This menu appears only if the punch unit is installed.

#### **Tray Mapping**

Maps the media source (input tray) to an ID the host uses for the media source.

• Tray 1

Default: [Auto]

- Auto
- IPDS Tray
- Tray 2

Default: [Auto]

- Auto
- IPDS Tray
- Tray 3

Default: [Auto]

- Auto
- IPDS Tray
- Tray 4

#### Default: [Auto]

- Auto
- IPDS Tray
- LCT

Default: [Auto]

- Auto
- IPDS Tray
- Bypass Tray

Default: [Auto]

- Auto
- IPDS Tray



If IPDS Tray is selected, enter the tray parameter replacement value for each paper tray, using
up to 254 digits.

#### Corner Staple Angle

Selects [Vertical] or [Slant] for the angle of stapling.

Default: [Vertical]

Vertical

Staples vertically.

Slant

Staples diagonally.



• This menu appears only if the staple unit is installed.

#### Offset

Specifies whether or not the output is offset (jogged).

Default: [On]

On

Output is offset (jogged) when requested by the job.

Off

Output is never offset (jogged).

#### **Default Punch Pattern**

Specifies the default number of holes to punch if the punch unit provides a selection (for example, two or four holes).



• This menu appears only if the punch unit is installed.



- [Tray Form] and [Tray Mapping] appear differently depending on the machine type.
- [Tray Form] allocates the form specified using Web Image Monitor's IPDS Form List to the installed tray. For details about IPDS Form List, see the Web Image Monitor Help.
- Tray commands of [Tray Form] differ depending on the machine you want to use. For details about selectable tray commands, see "Load Copy Control", IPDS Technical Reference 2.
- For details about the control panel settings, see the manual explaining how to specify the control panel settings, provided by the supplier.

## 4. Appendix

## **Precautions**

#### Limitations

PCL fonts are not accessible via AFP/IPDS, nor can PCL access AFP/IPDS fonts.

PostScript® fonts are not accessible via AFP/IPDS, nor can PostScript access AFP/IPDS fonts.

The mainframe or host computer will not be notified of errors that happen before this machine establishes connection with them.

#### **About AFP/IPDS Fonts**

The AFP/IPDS Single Byte Character Set (SBCS) font is stored on the hard disk drive.

## **Trademarks**

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## **IPDS Technical Reference 1**

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## Manuals for the IPDS card

Refer to the manuals that are relevant to what you want to do with the IPDS card.



Adobe<sup>®</sup> Acrobat<sup>®</sup> Reader<sup>®</sup>/Adobe Reader must be installed in order to view the manuals as PDF files.

#### IPDS Supplement (IPDS.pdf)

Explains how to configure the IPDS card for the machine. It also explains about items selectable from the Web browser.

#### IPDS Printing Configuration Guide (IPDS\_CONF.pdf) \*English Only

Explains about the environment necessary for connecting the mainframe to the machine and performing IPDS printing.

#### IPDS Technical Reference 1 (IPDS\_TEC1.pdf) \*English Only

Explains about commands and functions for IPDS printing.

#### IPDS Technical Reference 2 (IPDS\_TEC2.pdf)\*English Only

Explains about IPDS commands.



For details about the necessary environment and how to install the IPDS card and machine, consult
your sales or service representative. For details about the necessary environments and operation of
the mainframe, contact IBM.

# Notice

## **Important**

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

In no event will the company be liable for direct, indirect, special, incidental, or consequential damages as a result of handling or operating the machine.

## How to Read This Manual

## Symbols

This manual uses the following symbols:



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.



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

[]

Indicates the names of keys on the machine's display or control panels.

## **About This Book**

This book provides technical reference information about how printers support the IPDS data stream.

#### Audience

This publication is intended for the system programmers, application programmers, and systems engineers who are familiar with data streams and are writing or modifying programs to operate your printer with the IPDS data stream.

## **Terminology**

#### Paper Input and Output Receptacles

Input receptacles are called trays. Output receptacles are called stackers or bins.

#### **Related Publications**

This book refers to the following:

- PostScript Language Reference Manual, second edition, by Adobe Systems, Inc.
- PCL 5 Printer Language Technical Reference Manual by Hewlett-Packard Company
- PCL 5 Comparison Guide by Hewlett-Packard Company
- Printer Job Language Technical Reference Manual by Hewlett-Packard Company



• For details on the IPDS Architecture, see the Intelligent Printer Data Stream Reference, S544-3417.

## **About IPDS**

This chapter introduces the Intelligent Printer Data Stream (IPDS) and describes some of the capabilities of IPDS.

IPDS lets you print pages containing an unlimited mix of different types of data: high-quality text, images, vector graphics, and bar codes.

You can send IPDS data to printers attached to the IBM Application System/400 (AS/400) intelligent work stations, local area networks, IBM 3270-family controllers, Ethernet, and spooled systems. In some of these environments, you can create applications to directly control IPDS printers such as this printer. For more information about IPDS as a component of printing subsystems, refer to Intelligent Printer Data Stream Reference.

IBM provides a variety of host software products with components that generate IPDS commands for this printer or other IPDS printers. These software products vary in their use of IPDS functions. Some of the software products available are:

- OS/400 Version 5.4 or later
- Graphical Data Display Manager (GDDM) Version 2.3 or later
- Print Service Facility (PSF for z/OS) Version 4.1.0 or later
- Print Service Facility (PSF for i5/OS and OS/400) Version 5.4 or later
- InfoPrint Manager for AIX Version 4.2 or later
- InfoPrint Manager for Windows Version 2.2 or later
- InfoPrint Process Director for Linux Version 1.3.1 or later
- InfoPrint Process Director for AIX Version 1.3.1 or later



 The capabilities of the printer depend on the host software and the IPDS functions that the software enables.

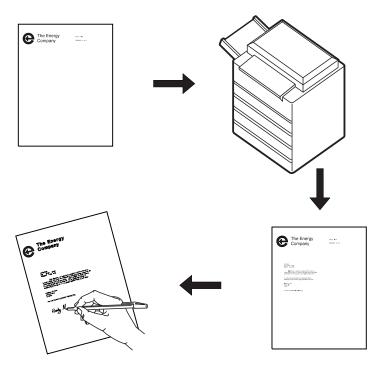
# Capabilities of IPDS

A printer controlled by IPDS has a number of advantages over conventional printers. With IPDS you can:

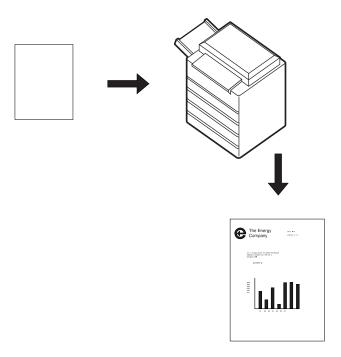
- Use the printer's all-points-addressable printing to print text, graphics, images, or bar codes at any point on a page or that is within the printers printable area.
- Print text in a variety of type styles and switch fonts within a printed page.
- Use both images and vector graphics (explained later in this chapter) to print line drawings, pie charts, bar charts, graphics, logos, tables, and signatures.
- Combine text with images and graphics on the same page (creating what is known as a composite document).
- Electronically store and later print forms and letterheads that are always printed in the same predetermined type style.
- Electronically store and later print text where the type style printed is the same as that used in the
  rest of the text.
- Print any of 16 different kinds of bar codes in many sizes and with a number of variations.
- Print either portrait (upright, letter orientation) or landscape (printing "on the side", with the page wider than it is tall).
- Print on either one side or both sides of the paper (with duplex option).

# **Printing a Letter**

IPDS lets you print a letter in just one step. In conventional printing, you must load letterhead paper into your printer, print the text of your letter, and then manually sign the letter.



Using IPDS, you can temporarily store your letterhead and signature in the printer's memory and then merge the letterhead, text, and signature with additional data to form a complete letter. You can also include graphics, such as a line chart or bar chart, in your letter, creating a composite document.



An IPDS-driven printer offers flexibility. For example, you can highlight a list of items by printing the list in a different type style from the rest of the text; or you can print your letterhead in one font and your text in another font.

You can electronically store your letterhead so it is always printed in the same type style. This printing concept is discussed in page 12 "Using Overlays".

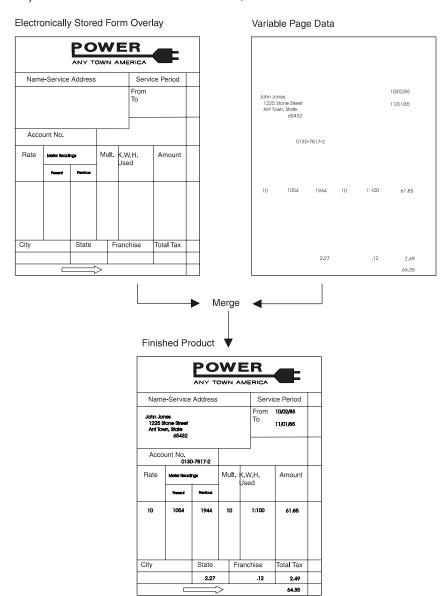
You can store your printed signature block so it is printed in the type style used in the rest of the letter or memo. That way the signature block's type style matches the letter in which it appears, no matter how many different fonts you use for different kinds of letters. This printing concept is discussed in page 13 "Using Page Segments".

You can include bar charts or line graphs in your letter. Such graphic material can be generated through either the Image function or the Graphics function. See page 14 "Using Images and Graphics".

# **Using Overlays**

Overlays are stored constructs (text, graphics, images, and bar codes), often in complex configurations, with all the instructions needed to print. An overlay always prints in the type style used when it was stored and can be positioned anywhere on the page.

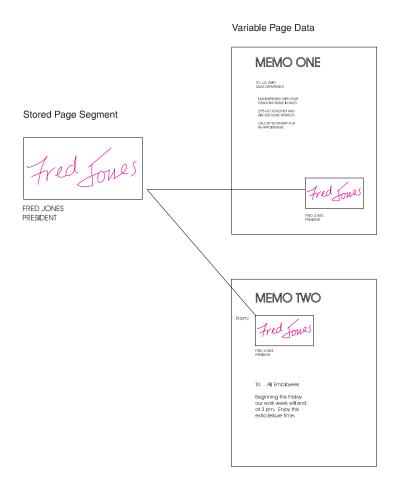
Overlays are useful for letterheads and for forms, as shown below.



# **Using Page Segments**

Page segments are similar to overlays, except that the construct is stored without specific instructions for type styles and position on the page. Page segments are printed in the type style in use at print time. You can place a page segment anywhere on the page.

One way to use a page segment is as text under a signature, as shown below.



# **Using Images and Graphics**

Graphic material - charts, engineering drawings, and line drawings - can be sent to the printer as IM Images, IO Images, or Graphics. In all-points-addressable printing by the printer, a page can consist of 300 points per inch, 7.8 million printable points, each one of which is individually addressable. These addressable points are called picture elements or pixels.

### IM and IO Images

Images are figures on the page created by explicitly specifying each pixel in the figure. There is one bit of image data per pixel, so a large quantity of data is needed to create an image.

IM images are uncompressed raster data images. A raster pattern is composed of a series of pixels arranged in scan lines.

IO images are compressed or uncompressed raster data images. Compression generally reduces the amount of data sent to the printer and should significantly save transmission time. IO images may be arbitrarily scaled and corrected for resolution differences between the scanner and the printer.

#### **Graphics**

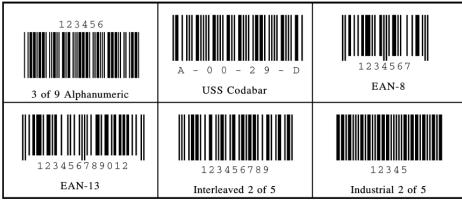
Graphics are line drawings created from separate lines, arcs, and markers. With vector graphics, only control information such as the end points of a line are sent to the printer. This process lets you create complex figures with a minimum of data.

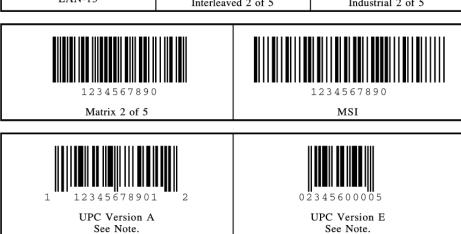
For details on graphics commands, see IBM Data Stream and Object Architectures Graphics Object Content Architecture (GOCA) Reference, SC31-6804. For details on IO image commands, see IBM Data Stream and Object Architectures Image Object Content Architecture (IOCA) Reference, SC31-6805.

# **Using Bar Codes**

Bar code data is encoded information that is recognized by optical scanning devices.

The printer can print the bar code types as shown below in many sizes and variations, such as with or without the human-readable characters.





Note: Also can have 2-digit and 5-digit supplemental the same as EAN 13 below.



IIIIIIIIIIIIIIIII		
POSTNET	CODE 128	

# **Printing in Duplex Mode**

The printer can print on one or both sides of the paper. All of the printer's IPDS capabilities are provided in either mode.

Duplex printing is controlled through the IPDS Load Copy Control (LCC) command.

## 1. IPDS Overview

## **About the IPDS Feature**

The Intelligent Printer Data Stream (IPDS) is a structured field data stream designed to manage and control All Points Addressable (APA) printers. APA is a printing concept that allows users to position text, images, graphics, and overlays at any defined point on a printed page.

IPDS allows both data and commands to be streamed to the printer via channels, controllers or any type of networking link which supports the transparent transmission of data to print processes that are resident in the device.

Commands within the data stream also allow the "Host" process to control the media handling capabilities of the device, select source drawers, jog output and other operations dealing with paper. In addition, the commands provide the means for managing the downloading of fonts and other stored resources such as overlays and page segments that are required at presentation time to construct the printed page. Finally, the commands provide the means for returning error information and performing recovery actions. The source IPDS architecture document is the Intelligent Printer Data Stream Reference.

The machine supports the following IPDS Architecture command sets.

- Device Control (DC1)
- Text (TX1 with PTOCA PT1, PT2 and PT3)
- IM Image (IM1 with IMD1)
- IO Image (IO1 with IOCA FS10 + 8-bit Grayscale via halftoning), FS11, FS40, FS42 and FS45)
- Graphics (GR1 with GOCA DR/2V0)
- Page Segments (PS1)
- Object Container (OC1)
- Overlay (OL1)
- Loaded Font (LF1 and LF3)
- Bar Code (BC1 with BCD1)

# **IPDS Operating States**

If the host sends a command inappropriate for the printer state, the printer returns an error code identifying the error and follows Exception Handling Control processing.

#### Home State

The following actions can force the printer to home state, regardless of the current state of the printer:

- 1. The Set Home State (SHS) command
- 2. The Execute Order Anystate--Discard Buffered Data (XOA/DBD) command
- 3. The printer's transmission of a NACK to the host
- 4. The Arctic link-level Clear command
- 5. Any non-IPDS print order in NDS (New Display System)
- 6. An NDS Reset order
- 7. An NDS System Status Available No Mode order

All these actions will also force the printer to an IPDS command boundary if it is not already on one. To interpret SHS or XOA/DBD, the printer and the host must already be in agreement as to where the IPDS command boundaries are.

Deactivation of fonts with the DF command occurs in Home State.

#### **Overlay State**

Overlays can be nested to a depth of 6 as indicated in the STM Overlay Command-Set Vector, see "Overlay Command Set", IPDS Technical Reference 2.

#### Font State

An operating state for downloading single-byte Coded Font patterns, Font Character Sets, and Code Pages.

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# **IPDS Command Format**

All IPDS commands are encoded in the following patterns:

Offset	Range	Meaning	Error Code
0-1	X'0005' X'7FFF'	LENGTH	X'020202'
2-3		COMMAND	X'800100'
	X'D601'	Manage IPDS Dialog	
	X'D603'	No Operation	
	X'D60F'	Load Font Index	
	X'D619'	Load Font Character Set Control	
	X'D61A'	Load Code Page Control	
	X'D61B'	Load Code Page	
	X'D61D'	Load Equivalence	
	X'D61F'	Load Font Control	
	X'D62D'	Write Text	
	X'D62E'	Activate Resource	
	X'D62F'	Load Font	
	X'D633'	Execute Order Anystate	
	X'D634'	Presentation Fidelity Control	
	X'D63C'	Write Object Container Control	

Offset	Range	Meaning	Error Code
2-3	X'D63D'	Write Image Control	
	X'D63E'	Write Image Control 2	
	X'D63F'	Load Font Equivalence	
	X'D64C'	Write Object Container	
	X'D64D'	Write Image	
	X'D64E'	Write Image 2	
	X'D64F'	Deactivate Font	
	X'D65B'	Deactivate Data-Object-Font Component	
	X'D65C'	Deactivate Data Object Resource	
	X'D65D'	End	
	X'D65F'	Begin Page Segment	
	X'D66C'	Data Object Resource Equivalence	
	X'D66D'	Logical Page Position	
	X'D66F'	Deactivate Page Segment	
	X'D67C'	Include Data Object	
	X'D67D'	Include Overlay	
	X'D67F'	Include Page Segment	
	X'D680'	Write Bar Code Control	

Offset	Range	Meaning	Error Code
2-3	X'D681'	Write Bar Code	
	X'D684'	Write Graphics Control	
	X'D685'	Write Graphics	
	X'D68F'	Execute Order Homestate	
	X'D697'	Set Home State	
	X'D69F'	Load Copy Control	
	X'D6AF'	Begin Page	
	X'D6BF'	End Page	
	X'D6CF'	Logical Page Descriptor	
	X'D6DF'	Begin Overlay	
	X'D6E4'	Sense Type and Model	
	X'D6EF'	Deactivate Overlay	
4		FLAGS (Active when Bit value = 1)	X'020402'
	Bit 0 0/1	Acknowledgement Required (ARQ)	
	Bit 1 0/1	Correlation Number Present	
	Bit 2 0/1	Acknowledgement Continuation	
	Bit 3-6 000	Reserved	
	Bit 7 0/1	Persistent NACK (DSC non- SNA	
		ONLY, otherwise Reserved)	
5-6	X'0000'-X'FFFF'	correlation id	

Offset	Range	Meaning	Error Code
7		DATA - The specific operands, parameters and/or data fields as appropriate for the given command.	

## **Reserved Bytes**

Throughout the command descriptions in the following chapters, some data fields, bytes, and bits are specified as reserved.

When the description for a reserved field, byte, or bit specifies "should be zero," the printer does not check the contents of the bytes or bits. The reserved data should be set to zero, because they could be defined in future changes to the printer. However, non zero values do not cause an error and are ignored by the printer.

When the description for a reserved field, byte, or bit specifies it "must be zero," the printer checks the contents of the bytes or bits and will return error status to the host if the field contains a non zero value.

## Flag Byte

Bit 7 is the Persistent NACK bit for 3270 Non-SNA DSC (Data Stream Compatibility) Mode NACKs. This bit has no meaning in other attachment environments.

Valid values for the Acknowledge Reply Flag byte are described in the Intelligent Printer Data Stream Reference.

#### Correlation ID (CID)

The correlation ID (CID) is an identifier of a specific instance of an IPDS command.

It is used to correlate errors with the command that generated them.

It is not possible to correlate all errors with particular IPDS commands. Mechanism errors (for example, out of paper position checks and unpopulated character positions in resident fonts) are never correlated.

Therefore, it is possible for some NACKs to be returned without correlation numbers even if all downstream commands had correlation numbers.

#### **Error Processing**

The machine supports Page Continuation Action error processing. See Intelligent Printer Data Stream Reference for details.

The printer stops if there is a probability that it is not parsing commands correctly.

This means that, regardless of the setting of the Exception Handling Control (EHC) the printer will stop processing, send a NACK, and enter home state immediately if one of the following conditions occurs:

- 1. The command length is less than 5 (No correlation number present).
- 2. The command length is less than 7 (Correlation number present).
- 3. The command length is greater than 32767.
- 4. The command does not have X'D6' as the first byte of the command code.
- 5. The command does have X'D6' as the first byte but is otherwise unrecognized.
- 6. A resource download is interrupted, resulting in a purge of the partial resource object.

The maximum numbers of queued asynchronous and synchronous errors are as followed.

- One for ARCTIC and NDS DSC mode
- Seven for NDS IU1 mode
- Seven for TCP/IP mode

Intervention required and equipment check exception types will be reported for NDS and TCP/IP interface type.

## **Exception Highlight Support**

If a position exception occurs and the "position-check highlight" flag (XOAEHC byte 2, bit 6) is on (B'1'), or if a Page Continuation Action (PCA) is taken for a position check, the approximate location of each unique occurrence of the position check will be highlighted with a Print-Error-Marker (PEM). Other exceptions detected in page state, or a derivative of page state, or when printing a medium overlay, which have a PCA defined, are also indicated by a PEM when the PCA is taken.

A PEM is a distinguishing mark which is placed in close proximity to the area on the page where the exception has occurred.

- The PEM for Position Check processing is a solid rectangular mark, placed in close proximity to the
  area on the page where the exception occurred. For the exception detected, the associated code
  (08C100) will be located at the top of the logical page, starting in the left hand corner.
- The PEM for PCA processing is a hollow rectangular mark enclosing a +, placed in close proximity
  to the area on the page where the exception has occurred, if the location can be accurately
  specified. For the exception detected, the associated code (040B00) will be located at the top of
  the logical page, starting in the left hand corner.

- Multiple exception code highlighting is limited to only the codes that will fit across the top of the logical page (10).
- PEM Size: 600 Pixel (80 by 80)

If error exception handling is set to allow printing of an undefined character, the undefined character will appear as:

- A Space if it is unprintable.
- The Character itself if printable.

## **Page and Copy Counters**

Page and Copy Counter information is reported using the 18-byte counter format described in Intelligent Printer Data Stream Reference, section "Acknowledge Reply". The following counters are supported:

- · Received Page
- · Committed Page
- Committed Copy
- Operator Viewing Page
- Operator Viewing Copy
- Jam Recovery Page
- Jam Recovery Copy
- Stacked Page
- Stacked Copy

For Action Code 22, counters are adjusted as follows:

- Received Page Actual Received Count
- Committed Page Mapped to Stacked Page
- Committed Copy Mapped to Stacked Copy
- Operator Viewing Page Counter Mapped to Stacked Page Counter
- Operator Viewing Copy Counter Mapped to Stacked Copy Counter
- Jam Recovery Page Counter Mapped to Stacked Page Counter
- Jam Recovery Copy Counter Mapped to Stacked Copy Counter
- Stacked Page Counter Last value
- Stacked Copy Counter Last Value

## **Data Types**

The machine supports four different types of data that may be used to create an output page. These are: text, graphics, images, and bar codes. The printed page can include any combination of these data types.

Blocks of graphics, bar code or image data are presented as a single unit to the printer. The printer enters the appropriate "Block" State (graphics block, image block, bar code block) to create the entire data group for that block of data.

Page segments and Overlays are any combinations of text, graphics, bar codes and images. The printer can store these segments and overlays for later use as the page is created.

#### **Text**

Presentation Text is the data type used to present lines of character information on a logical page.

The information to be presented is represented as a string of graphic character IDs and X'2B' control sequences that are sent to the printer in the Write Text command (See "Write Text", IPDS Technical Reference 2). The initial conditions governing the presentation of the data are established via control parameters that are sent to the printer in the Logical Page Description command (See "Logical Page Descriptor", IPDS Technical Reference 2).

The source architecture document for Text is Presentation Text Object Content Architecture Reference.

#### **Image**

Image is the data type used to present rectangular arrays of raster data in an Image block area on a page.

This data may have been created originally by a scanning process or generated by a computer program. The machine supports the IM Image Function Set (See "IM Image Command Set", IPDS Technical Reference 2). and the IO Image Function Set (See "IO Image Command Set", IPDS Technical Reference 2).

The IM Image Function Set has a syntax and functional content that is based on AFPDS image arrays and cells. The IO Image Function Set has a syntax and functional content based on the IOCA architecture for image data (See Image Object Content Architecture Reference).

The raster data to be presented is represented as a sequence of scan lines 'm' lines deep by 'n' picture elements (pixels) wide. In IO image data, there may be more than one bit per pixel if the image data is grayscale encoded. The format of the data and the recording algorithms used to encode the image array are sent to the printer as control parameters of the Write Image Control 2 command that prepares the printer for processing image data. The data itself is sent in the Write Image 2 command.

**Graphics** 

Graphics is the data type used to present line art picture drawings in a graphics block area on a page.

The information to be presented is represented by a sequence of primitive drawing orders that are used by the device to construct arcs, lines, fillets, character strings, markers and other elements that define the drawing. These primitive orders, in turn, are grouped into one or more drawing segments that are executed to present the picture.

The Write Graphics Control command (See "Graphics Command Set", IPDS Technical Reference 2) is sent to the printer to establish the clipping window control parameters and initial drawing conditions to be used in presenting the picture data. The picture segments are sent to the printer as data in zero or more Write Graphics commands of the architecture.

The graphics drawing orders are summarized in "Drawing Orders", IPDS Technical Reference 2. The source architecture document for graphics data is the Graphics Object Content Architecture Reference.

## Bar Code

Bar Code is the data type used to present machine-scannable bar code symbols in a bar code block area on a page.

The Write Bar Code Control command (See "Bar Code Command Set", IPDS Technical Reference 2) is sent to the printer to establish the bar code pattern parameters to be used in presentation. Data for the bar code symbols is sent to the printer in zero or more Write Bar Code commands.

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# **Coordinate System**

#### Xm, Ym Coordinate System (Medium Presentation Space)

The Xm, Ym coordinate system is the medium presentation space coordinate system. The origin of this system (Xm=0, Ym=0) can be set by the IPDS XOH Set Media Origin command to any of the four corners of the media. If this command is not sent to the printer the origin is the top-left corner (viewed from the center). In this case, positive Xm values begin at the origin and increase along the top edge from left to right. Positive Ym values begin at the origin and increase along the left side from top to bottom. Top is defined as the short edge which leads into the printer. See Intelligent Printer Data Stream Reference for a description of the Xm, Ym Coordinate System and default media origin for envelopes.

## Xp, Yp Coordinate System (Logical Page Presentation Space)

#### Identifying the Size of the Logical Page or Overlay

The size of the logical page or overlay presentation space is set during a printer initialization using the "IPDS Initialization Defaults" or by the host program when it sends a Logical Page Descriptor command.

Overlays are logical pages and are handled as such by the printer with the following special considerations:

- 1. Overlays are positioned in relationship to the logical page presentation space origin (Xp=0, Yp=0) when they are merged with the Include Overlay command.
- Overlays are positioned in relationship to the origin of the medium presentation space (Xm=0, Ym=0) when they are merged with the Merge Overlay keyword in a copy control record.

#### Reference

For details about the "IPDS Initialization Defaults", see page 39 "IPDS Initialization Defaults".

## I, B Coordinates System (Text)

The +1 and +B directions for the logical page or overlay are specified in degrees of rotation in relationship to the +Xp direction on the logical page.

The printer sets the +I and +B directions during the initialization through the "IPDS Initialization Defaults". The host program can change the +I and +B directions through the Logical Page Descriptor command (See Intelligent Printer Data Stream Reference).

The host program can also change the +I and +B directions as it builds a page or overlay through text controls in the print data sent by a Write Text command (See "Write Text", IPDS Technical Reference 2).

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• Setting the orientations of the +1 and +B axes also implicitly sets their origins as one of the four corners of the logical page or overlay.

## Reference

• For details about the "IPDS Initialization Defaults", see page 39 "IPDS Initialization Defaults".

## **Other Text Positioning Terms**

Some other terms that relate to text positioning and fonts include:

#### **Text Orientation**

The combination of the inline sequence direction (the direction which characters are added to a line) and the baseline sequence direction (the direction which lines are added to a page or overlay) identify the text orientation for a page. The inline sequence direction can be 0, 90, 180 or 270 degrees. The machine supports baseline sequence directions that are always rotated plus or minus 90 degrees from the inline sequence direction. Therefore, there are eight text orientations for printing pages or overlays.

### **Printing Baseline**

An imaginary line that extends across the page or overlay in the positive inline sequence direction (+1), between pixels, and beginning from the baseline sequence printing coordinate (Bc). (Sometimes shown as baseline as in the font terms baseline offset and baseline extent.)

In languages with a right to left or left to right reading order (for example, English), the printing baseline is the imaginary line on which the main body of the character appears to rest. Descenders (the "tails" of lower case g, j, p, q, and y characters) usually extend below the printing baseline.

In languages with a top to bottom reading order (for example, Kanji), the printing baseline is an imaginary vertical line that passes through the center of the character.

Each font index record contains a Font Inline Sequence field. The field value specifies a relationship between the inline sequence direction and the font rotation (the character pattern rotation for the font). The printer uses the font index record to identify how to place characters on the printing baseline for a page or overlay. The characters are placed in the combination of the inline sequence direction (the printing direction) and the font rotation.

The Baseline Offset value is another field in the font index record. This value locates the printing baseline relationship to a specified character box reference edge.

#### **Notation Conventions**

Some field values (or ranges of values) are specified assuming a unit of measure of 14400 L-units per 10 inches (5670 L-units per 10 centimeters). To determine supported values for a unit of measure of 2400 L-units per 10 inches (945 L-units per 10 centimeters) use the following steps.

- 1. Convert the specified value from hex (2's complement) to decimal.
- 2. Divide the + or decimal number by 6.
- 3. Round to the nearest integer.
- 4. Convert the + or decimal value back to hex (2's complement).

For example, if the specified value is X'8000' the following steps would be performed.

- 1. 8000(H) = -32768(D)
- 2. -32768/6 = -5461.333
- 3. -5461(D) = EAAB(H)

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## **Color Simulation**

This printer provides "limited color simulation" by either simulating with generated grayscales or substituting "black" in special cases.

- Data objects whose colors are simulated with "grayscale":
  - PTOCA (characters, underscores, overscores, text rules)
  - GOCA (characters, lines, arcs, image, solid-area fill, pattern fill)
  - IM1/IOCA (bi-level image)
  - Object Areas (Pages, Overlays, BCOCA and IOCA)
- Data objects whose colors are simulated with "black":
  - GOCA Markers
  - BCOCA Bar Code Symbols and HRI
- Full Color Image is not supported on this printer since the transformation to grayscale would be
  very costly from a performance perspective. Host utilities are available to convert full color images
  to bi-level images for printing on monochrome printers.
- Grayscale Image (8 bits/pixel) is supported on this printer, however for very large images
  unacceptable performance degradation may result, due to the dithering process to produce bilevel image.

## Simulation Modes Supported

There are two color simulation modes that may be supported:

- Legacy Mode (Substituting "black" or Pattern Creation)
- Fidelity Mode (Simulation with Grayscale)

The machine supports both the Legacy Mode and the Fidelity Mode of color simulation.

The Legacy Mode is provided to support customer legacy applications where simulation with grayscale would produce unacceptable results. There are console configuration menus to allow customers to select what level of color simulation best meets their needs. There are also console configuration menus to allow customers to select whether or not Color PTOCA (text) Objects should be simulated with grayscale or rendered with black. Rendering all PTOCA objects with black may be desirable, especially when small fonts are utilized.

## Color Simulation Processes and Algorithms

To allow printing of documents containing color specifications, the specified colors in the document should be simulated in a consistent and predictable manner.

Color simulation occurs independently at the object level.

Named Colors

Convert Named Color to RGB Process Color using the following table.

This table defines the valid color values used to specify named colors in PTOCA, GOCA, BCOCA, IOCA and IM objects. The table also specifies the RGB values for each named color, assuming that each component is specified with 8 bits and that the component intensity range 0 to 1 is mapped to the binary value range 0 to 255. For a definition of the supported colors for individual objects refer to the appropriate OCA specifications, since some objects only support a subset of the colors.

Range	Named Color	Red (R)	Green (G)	Blue (B)
X'0000' or X'FF00'	Printer Default (Black)	0	0	0
X'0001' or X'FF01'	Blue	0	0	255
X'0002' or X'FF02'	Red	255	0	0
X'0003' or X'FF03'	Pink (magenta)	255	0	255
X'0004' or X'FF04'	Green	0	255	
X'0005' or X'FF05'	Turquoise (cyan)	0	255	255
X'0006' or X'FF06'	Yellow	255	255	0
X'0007'	White	255	255	255
X'0008'	Black	0	0	0
X'0009'	Dark Blue	0	0	170
X'000A	Orange	255	128	0
X'000B'	Purple	170	0	170
X'000C'	Dark Green	0	146	0
X'000D'	Dark Turquoise	0	147	170
X'000E'	Mustard	196	160	32

Range	Named Color	Red (R)	Green (G)	Blue (B)
X'000F'	Gray	131	131	131
X'0010'	Brown	144	48	0
X'FFO7'	Printer Default (Black)	0	0	0
X'FF08'	Color of Medium (Reset)			

- Simulate RGB Process Color with Grayscale
  - Full-process Colors. To maintain output consistency across different printer families, process colors
    to be simulated are converted to grayscale intensities based on color "luminance" (Y). A luminance
    of 0 is defined to be black and a luminance of 1 is defined to be white. CIE luminance (Y) is
    derived using the following "architected" equations:

#### **RGB Color Space:**

```
Where Y=0 is black, Y=1 is white Y = 0.212(R) + 0.701(G) + 0.087(B) assuming 0 R,G,B 1
```

Where R, G and B represent the non-gamma-corrected (linear) red, green and blue components.

#### **CIELab Color Space:**

CIELab space is the exception where the current implementation directly utilizes Lightness (L). L = L

assuming 0 L 100

#### **CMYK Color Space:**

```
Where Y=0 is black, Y=1 is white Y = 1 - \min(1,(0.212C+0.701M+0.087Y+K)) assuming 0 C,M,Y,K 1
```

Where the function min (a,b) selects the smaller of (a,b).

Highlight Colors

Color Mapping Tables (CMT) are not supported, therefore mapping to process color is not provided.

Highlight colors are mapped to black with the % coverage applied to produce a gray level.

## Logical Page and Object Area Coloring

## **Color Specification**

The Color Specification triplet is used to specify the foreground color of the logical page or object area before any object data is placed on the logical page or object area.

Offset	Range	Meaning	Error Code
0	X'0E'-X'10'	TRIPLET LENGTH	X'020E01'
1	X'4E'	COLOR SPECIFICATION TRIPLET	
2	X'00'	RESERVED	
3		COLOR SPACE (Note 1)	X'020E02'
	X'01'	RGB - Limited Simulated Color Support	
	X'04'	CMYK - Limited Simulated Color Support	
	X'06'	Highlight - Limited Simulated Color Support	
	X'08'	CIELAB - Limited Simulated Color Support	
	X'40'	Standard OCA - Limited Simulated Color Support	
4-7	X'00000000'	RESERVED	

Offset	Range	Meaning	Error Code
8		1ST COLOR COMPONENT BITS	X'020E05'
	X'01' - X'08'	(RGB, CMYK, CIELAB)	
	X'10'	(Standard OCA, Highlight)	
9		2ND COLOR COMPONENT BITS	X'020E05'
	X'00' - X'08'	(RGB, CMYK, Highlight, CIELAB)	
10		3RD COLOR COMPONENT BITS	X'020E05'
	X'00' - X'08'	(RGB, CMYK, CIELAB)	
11		4TH COLOR COMPONENT BITS	X'020E05'
	X'00' - X'08'	(CMYK)	

Offset	Range	Meaning	Error Code
12-15		COLOR VALUE	X'020E03' X'020E04'
		RGB Color Space	
	X'nn'	Red Intensity	
	X'nn'	Green Intensity	
	X'nn'	Blue Intensity	
		CMYK Color Space	
	X'nn'	Cyan Intensity	
	X'nn'	Magenta Intensity	
	X'nn'	Yellow Intensity	
	X'nn'	Black Intensity	
		Highlight Color Space	
	X'nnnn'	Highlight Color Number	
	X'nn'	Percent Coverage	
	X'nn'	Percent Shading	
		CIELAB Color Space	
	X'nn'	Luminance (L)	
	X'nn'	Chrominance Difference (a)	

Offset	Range	Meaning	Error Code
12-15	X'nn'	Chrominance Difference (b)	
		Standard OCA Color Space	
	X'0000' or X'FF00'	Printer Default (Black)	
	X'0001' or X'FF01'	Blue	
	X'0002' or X'FF02'	Red	
	X'0003' or X'FF03'	Pink	
	X'0004' or X'FF04'	Green	
	X'0005' or X'FF05'	Turquoise	
	X'0006' or X'FF06'	Yellow	
	X'0007'	White - Color of Medium (Reset)	
	X'0008'	Black	
	X'0009'	Dark Blue	
	X'000A'	Orange	
	X'000B'	Purple	
	X'000C'	Dark Green	
	X'000D'	Dark Turquoise	
	X'000E'	Mustard	
	X'000F'	Gray	
	X'0010'	Brown	
	X'FFO7'	Printer Default (Black)	
	X'FF08'	Color of Medium (Reset)	

# **Presentation Space Reset Mixing**

The Presentation Space Reset Mixing triplet is used to specify whether or not a logical page or object area is reset to the color of medium before any object data is placed on the logical page or object area.

Offset	Range	Meaning	Error Code
0	X'03'	TRIPLET LENGTH	X'020E01'
1	X'70'	PRESENTATION SPACE RESET MIXING TRIPLET	
2	Bit O O	MIXING FLAGS  Do not reset to color of the logical page to color of medium.	
	Bit O 1	Reset to color of the logical page to color of medium.	
	Bits 1-7 0000000	Reserved	

# 2. Summary of IPDS Commands

# **IPDS Initialization Defaults**

This chapter lists the IPDS commands that can be used with the printer. For more information about how to use these commands, see the Intelligent Printer Data Stream Reference.

Printer commands listed on the following pages are the valid values as identified in Intelligent Printer Data Stream Reference unless otherwise noted. Where the IPDS architecture allows choices, those choices are indicated.

When you set the printer power switch to the On ( | ) position, various IPDS data stream parameters are set to their initialization default values. These values are used for control parameters when:

- The command stream specifies that the printer default should be used,
- · No explicit values are specified in the command stream sent to the printer, or
- Previously transmitted values are lost and initial machine settings are reestablished at POR time.

These values remain in effect until overridden by specific data stream commands from the host application program. The following list of values remain in effect until explicitly overridden by the following IPDS commands:

- Load Copy Control
- Load Font Equivalence
- Logical Page Descriptor
- Logical Page Position
- XOA Exception Handling Control
- XOH Select Input Media Source
- XOH Set Media Origin
- XOH Set Media Size
- Text Control Sequences (STO, SIM, SIA, SBI, SCFL, STC, DIR, and DBR)

Meaning	Default Value
L-Units Base Value	X'00' (10 inches)
L-Units per Base	X'3840' (14400 per 10 inches)
Input Media Source	Determined by the printer's control panel, Forms Device Setting
Media Origin	X'00' (top-left)

Meaning	Default Value
Width of the Physical Page	Derived from X-Extent of Medium Presentation Space
Length of the Physical Page	Derived from Y-Extent of Medium Presentation Space
Width of the Logical Page in L-Units (X p-Extent)	Derived from X-Extent of Medium Presentation Space
Length of the Logical Page in L-Units (Y p-Extent)	Derived from Y-Extent of Medium Presentation Space
Ordered Data Flags	X'00' (Unordered page, block, and text flags)
Inline Sequence	X'0000' (0 degrees)
Baseline Sequence	X'2D00' (90 degrees)
Initial I Print Coordinate	X'0000'
Initial B Print Coordinate	X'00C0' (192 L-Units below the logical page origin)  Text printing on the first line requires the Current B  Text Position to be large enough to accommodate
	the height of the current font.
Xm-Coordinate page origin	X'000000' Logical page X-displacement from the physical page origin (0 in)
Ym-Coordinate page origin	X'000000' Logical page Y-displacement from the physical page origin (0 in)
Initial Inline Margin in L-Units	X'0000'
Inter-character Adjustment	X'0000'
Baseline Increment	X'00F0' (240 L-Units)
Text Color	Black
Code Page ID	From configuration settings

Meaning	Default Value
	Font selection from configuration settings.
Font Type	The default font may be changed to another font which supports the selected Code Page. For printer generated bar codes with human readable information (HRI), the default font is OCR-B (UPC and EAN bar code types) or OCR-A (other bar code types with HRI).
Exception Handling Control	X'C10101' Report undefined characters, position checks, and all other exceptions. Do not take Alternate Exception Action. Terminate, print page, and go to home state. No highlighting of position checks.
Number of Copy Groups	X'01'
X-Extent of Medium Presentation Space	Determined by Configuration
Y-Extent of Medium Presentation Space	Determined by Configuration
X Coordinate (logical page origin)	X'0000'
Y Coordinate (logical page origin)	X'0000'
Xp-Extent of Logical Page	Derived from X-Extent of Medium Presentation Space
Yp-Extent of Logical Page	Derived from Y-Extent of Medium Presentation Space
Code Page Global ID (CPGID)	Determined by Configuration
Font Global ID (FGID)	Determined by Configuration
Font Width (FW)	Determined by Configuration
Copy Group Definition Length	X'04' (The default copy group definition is four bytes long.)
Number of Identical Copies	X'01' (The printer prints one copy of each page.)
Keyword Entry	X'C100' (The printer prints simplex, no text suppression, no overlays.)

# Page Printer Initialization Sequence

Before printing begins, the host may determine characteristics of the printer and its resources and may specify certain parameters related to subsequent printing.

Following is a typical sequence of initialization commands.

- Sense Type and Model (STM) with ARQ
- XOH Obtain Printer Characteristics (OPC) with ARQ
- Set Home State (SHS)
- Logical Page Descriptor (LPD)
- Logical Page Position (LPP)
- Load Copy Control (LCC)
- Load Font Equivalence (LFE) with ARQ

#### 3

# 3. IPDS Command Set

# **About IPDS Command Set**

For details about following IPDS command sets, see IPDS Technical Reference 2.

- Device Control Command Set
- Presentation Text Command Set
- IM Image Command Set
- 10 Image Command Set
- Graphics Command Set
- Bar Code Command Set
- Overlay Command Set
- Page Segment Command Set
- Object Container Command Set
- Loaded Font Command Set

# 4. Exception Reporting, Sense Data, and Recovery

# About Exception Reporting, Sense Data, and Recovery

This chapter supplies information about Acknowledge Reply, which the IPDS uses for exception reporting.

The chapter begins with general information followed by tables of the exception reporting codes for the printer. The tables contain details about the specific exceptions. The chapter concludes with a section on printer counter adjustments.



When you have questions about codes from the printer, use this chapter instead of the exception-reporting chapter in the Intelligent Printer Data Stream Reference. Although the two chapters are similar, this chapter contains only those exception codes that the printer returns.

## **General Reply Rules**

IPDS uses the Acknowledge Reply command to return both positive and negative replies to the host.

Positive messages are Acknowledge Replies. The negative messages (exception messages) are NACKs and are sent as sense-byte information in the special data area. For more information about Acknowledge Replies, see "Device Control Command Set", IPDS Technical Reference 2.

The following general rules apply to printer replies:

- The printer reports a data-stream exception with a NACK. Only one exception can be returned in each NACK.
- The printer sends an ACK or a NACK in response to an Acknowledgement Required (ARQ) flag. If there is an exception, the printer sends a NACK without receiving an ARQ.
- If the printer receives a command requesting an acknowledgement, it expects the host to wait for the acknowledgement before sending more commands.
- Any data received after an exception is reported is discarded until all queued NACKs have been either sent to the host or cleared by an appropriate linklevel command. An exception on a command can be reported before receiving the entire command data. When an Alternate Exception Action (AEA) or Page Continuation Action (PCA) is not to be taken, the next data received should be part of a new command. Otherwise, an 8001..00 exception may result. The printer might not discard the remaining bytes in a command with an error when reported. Therefore, the next data received should be the start of a new command. As a result, begin the host

data re-transmission only after a synchronizing command (such as XOH Print Buffered Data or XOA Discard Buffered Data) is successfully acknowledged. A terminating condition causes the first NACK to be reported. The next NACK is reported when the next five bytes of data are received. This is usually an IPDS command header. Reporting a NACK discards all data currently received. The process of receiving five bytes and sending a NACK repeats until the NACK queue is exhausted or cleared by the appropriate link-level command.

- An ACK indicates that the data stream was checked and that commands were transformed into the
  printer's internal command language, with the following exceptions: Asynchronous-position
  exceptions and undefined character exceptions are not detected until print time. The data stream
  is not checked when IPDS is being saved for future use, as in overlays and page segments, and
  when more than one copy group is specified in a Load Copy Control (LCC) command. An
  exception in an overlay or page segment is reported synchronously with the End Page (EP)
  command on the page it is used. An exception in a saved copy group is reported synchronously
  after the EP command; that is, in the next command after the EP.
- The XOA Exception-Handling Control (EHC) order tells the printer how to handle exceptions. More
  information about the EHC order follows.

# **Exception-Handling Control (EHC)**

The EHC order lets you control the three exception-handling functions listed below. Brief descriptions of the functions follow this listing.

- Exception Reporting. You can record three types of exception conditions and related exception information and have them reported at specified times using NACKs.
- Alternate Exception Actions (AEA). You can specify whether the printer is to take Alternate
  Exception Actions (AEAs), which prescribe actions to take when the printer is given an IPDS
  command or parameters it does not support.
- Exception-Presentation Processing. The exception-presentation processing function has two parts:
  - Page Continuation Actions (PCA). You can specify whether to end or continue processing a
    page that has an exception.
  - Exception Page Print. You can specify whether the printer is to print or discard a page that
    was terminated.

#### **Exception Reporting**

Use the exception-reporting bits in the Exception-Handling Control (EHC) record to control the recording and reporting of three classes of exceptions:

- Undefined characters
- · Position exceptions
- All other exceptions that have AEAs.

When you instruct the printer to record a given class of exception, it always records exceptions that fit in that class. If you instruct the printer not to record a given class of exception, the printer still records such exceptions if the printer was told not to take the AEA.

#### **Classes of Data Stream Exceptions**

All printer data stream exceptions are returned in 24 bytes of detailed sense information in the special data area of the NACK. The exception-code identifier consists of three bytes: 0, 1, and 19. Byte 0 specifies the exception class; bytes 1 and 19 identify the particular exception.

The six classes of data-stream exceptions are:

- Command Reject
- Intervention Required
- Equipment Check
- Data Check
- Specification Check
- 10 Images
- Bar Codes
- Graphics
- General
- Conditions Requiring Host Notification.

For details, see page 51 "Exception-Reporting Codes".

# Sense Byte Information

The following list gives details of the information in each sense byte.

Byte(s)	Meaning
0	Defines the exception class for the specific exception. It is the first byte of each 3-byte exception ID.
1	Together with sense byte 19, byte 1 defines the specific exception within an exception class. It is the second byte of each 3-byte exception ID.
2	Contains exception-recovery action codes that specify the required actions for the exception conditions. For details, see page 48 "Action Codes in Sense Byte 2".

Byte(s)	Meaning
3	Reserved
4 through 18	Describe the specific cause in three separate formats:  • Format 0
	Provides details about all data stream exceptions other than data check positioning exceptions.
	Format 2
	Provides details about device exceptions, including intervention-required exceptions, equipment-check exceptions, and conditions requiring host notification.
	• Format 7
	Provides details about data check positioning exceptions.
	For details about formats, see page 50 "Formats 0, 1, and 2 for Sense Bytes 4-18 and 20-23".
19	Together with sense byte 1, byte 19 defines the specific exception within an exception class. It is the third byte of each 3-byte exception ID.
20 through 23	Contain additional information about the state of the printer when it senses an exception.

# Action Codes in Sense Byte 2

The action codes in sense byte 2 classify the exception to assist host-exception recovery and allow printing to continue. The action codes listed are the only ones returned by the printer.

Action Code (in hex)	Exception-Recovery Action
01 Data Stream Exception	A syntax error exists in the IPDS data stream. The specific recovery actions depend on the specific exception (sense bytes 0, 1, and 19 in the tables of printer exception codes) and host support requirements. Data stream exceptions occur on the page or resource just before the received page counter.
08 Paper Jam	The printer detects a paper jam. Retransmit all pages and associated resources (overlays, page segments, and fonts) that have not passed the printer-defined jam recovery point.

Action Code (in hex)	Exception-Recovery Action
09 Data-Related Print Exception	A sheet cannot be printed because of something within the data stream. The data might be too complex, too dense, or the media source selected might be incompatible with the media destination selected. The printer has discarded all buffered pages and modified the page and copy counters.
OC Resource Storage Exception	The printer cannot accept a page or resource (overlay, page segment, or font) because the storage area is full. Delete all resources not necessary to continue printing and retransmit the page in progress. If this action fails, the recovery action depends on host support requirements.
	Printing might start by performing the following actions.
	In [Printer Features], under [System], specify [Memory Usage] to [Font Priority].
	2. End the IPDS session with the printer, and then restart the session.
15 Cancel	The printer operator requests that the current job be canceled. Cancel the job containing the page at the host-defined canceling point.
1 A Re-drive Buffered Pages	The printer may not be in Ready State, may need paper or toner, or may have a full exit tray. Take the appropriate recovery action for the exception code and retransmit all pages and associated resources that have not been committed for printing.
1D Printer Characteristics Changed	At least one of the printer characteristics that is reported in the reply to an XOH OPC command has changed. The host should issue an XOH OPC command to obtain the new printer characteristics.
1E Asynchronous Out-of- Storage Exception	A resource or a page that is not currently being received at the Received Page ID caused an out-of-storage exception. The printer has discarded all buffered pages and reset the page and copy counters.
	The page on which this exception was discovered will not print.
	The host must issue an XOH PBD to ensure that the page and copy counters are accurately adjusted. After the XOH PBD has returned an ACK, the page in error is the page just before the Committed Page Counter. Cancel the printed data containing the page just before the Committed Page ID.
22 Printer Communications Inoperative	A printer condition exists from which the printer cannot recover without operator intervention. End the communication and the session.

Sense bytes 4 through 18 and 20 through 23 describe the cause of each exception condition. (Sense byte 19 is byte 3 of the exception code.) These descriptions are presented in three separate formats, which are explained below.

#### Format 0

Format 0 provides detailed information for all data stream exceptions except data check positioning exceptions. This format applies to all data check, specification-check, and command-reject exceptions, except for exceptions X'08C1..00', X'020A..05', and X'0411..00'.

Byte(s)	Meaning
4	Data exception, X'DE'
5	Format Identifier, X'00'
6,7	Count of occurrences of the exception (the printer provides an approximate count of occurrences of some exceptions)
8,9	ID of overlay that has an exception
10,11	ID of page segment that has an exception
12,13	Command in process when exception found
14,15	Object Identifier (other than overlay or page segment that has an exception, such as a font exception)
16,17	Identifies a part within an object that has the exception, such as " font"
18	Reserved
20-23	Page Identifier for the page that has the exception

#### Format 1

Format 1 provides detailed information for both data check positioning exceptions. This format applies only to data check exceptions X'08C1..00', X'020A..05', and X'0411..00'.

Byte(s)	Meaning
4	Data exception, X'DE'
5	Format Identifier, X'01'

Byte(s)	Meaning
6, 7	Count of occurrences of the exception (the printer provides an approximate count of occurrences of some exceptions)
8, 18	Reserved
20-23	Page Identifier for the page that has the exception

#### Format 2

Format 2 provides detailed information for all device exceptions. This format applies to all intervention-required and equipment-check exceptions and for conditions requiring host notification.

Byte(s)	Meaning
4	System Reference Code, X'BF'
5	Format Identifier, X'02'
6-23	Format Identifier, X'02'

## **Exception-Reporting Codes**

The following tables describe all printer exception codes that are returned to the host in the special data area of a NACK.

Each exception code is identified by three bytes: byte 0, byte 1, and byte 19. The first table lists the names of the exception classes which are returned in byte 0. The subsequent tables give detailed information about each of the groups listed in the first table.



• The printer provides an approximate count of occurrences of some exceptions.

#### **Exception Classes**

Sense Byte O	Exception Class and Description
X'80'	Command Reject—the printer cannot recognize a received command.
X'50'	Equipment Check with Intervention Required—the printer detects a condition caused by hardware failure or hardware limitations, and manual intervention at the printer is required.

Sense Byte 0	Exception Class and Description
X'40'	Intervention Required—the printer detects a condition that requires manual intervention, such as "out of paper".
X'20'	Reserved
X'10'	Equipment Check—the printer detects an equipment malfunction or hardware error.
X'08'	Data Check—the printer detects a position exception or an undefined character exception.
X'05'	Specification Check - IO Images—the printer detects an invalid or unsupported data value in an IO image command.
X'04'	Specification Check - Bar Codes—the printer detects an invalid or unsupported data value in a bar code command.
X'03'	Specification Check - Graphics—the printer detects an invalid or unsupported data value in a graphics command.
X'02'	Specification Check - General—the printer detects an invalid or unsupported data value in a received command.
X'01'	Conditions Requiring Host Notification—the printer detects a condition that requires action by the host.

#### **Tables of Printer Exception Codes**

The following tables list specific exception classes and are arranged in three columns. The first column lists the 3-byte ID given in sense bytes 0, 1, and 19. The second column gives a description of each exception. The third column lists the action code given in sense byte 2.

Typically, when an exception has a defined AEA, the PCA is the AEA. Also, no PCA is taken when the command is received in Home state or Font state.

In each table, the exceptions are listed in ascending numeric order.



- The term architecturally valid refers to the range of values permitted by the IPDS architecture. An "invalid" value denotes one outside the range defined by the architecture. "Supported" values are those that the printer accepts. Therefore, "unsupported" values may be valid by architecture but not in the printer implementation.
  - The machine supports 24 Byte Sense data (See "Sense Type and Model", IPDS Technical Reference 2).

- The machine supports AEA and PCA error processing. See Intelligent Printer Data Stream Reference for details on Sense byte information and error processing.
- The maximum number of queued asynchronous and synchronous errors is 1 for Twinax and Coax DSC mode and 7 for Coax LU1 mode and TCP/IP mode.
- The cause of the exception and the Alternate Exception Action (AEA) are the same as specified in Intelligent Printer Data Stream Reference unless otherwise noted.

# TCP/IP Sense Data

#### Intervention Required Sense Data

Exception ID	Meaning	Action Code
X'400000'	Printer not ready	3
X'400100'	Out of paper	3
X'400200'	Output bin full	3
X'400400'	Out of toner	3
X'403100'	Paper Length Check	3
X'403300'	Paper Width Check	3
X'407C00'	Out of Staples	3
X'407C01'	Staple jam	3
X'407C03'	Punch waste bin full	3
X'40E600'	Cover open	3

### **IPDS Exceptions Reported**

#### **Command Reject Exceptions**

Exception ID	Meaning	Action Code
X'800100'	Invalid IPDS command code	01

Exception ID	Meaning	Action Code
X'800200'	Invalid IPDS command sequence	01
X'800400'	Data received after ARQ	01
X'80E000'	Invalid IPDS command length	01

## **Equipment Check with Intervention Required**

Exception ID	Meaning	Action Code
50F800	Media Source X'nn' is not available (has been disabled).	01

# **Intervention Required Exceptions**

Exception ID	Meaning	Action Code
X'400000'	Printer is not ready:  The printer is in a notready state.  Alternate Exception Action: none.  Page Continuation Action: none.	1A
X'400100'	Printer is out of paper:  The printer is out of paper, and paper was not added within specified amount of time.  Alternate Exception Action: none.  Page Continuation Action: none.	1A

Exception ID	Meaning	Action Code
X'400200'	The printer's exit tray is full:  The printer's exit tray is full and it was not emptied within a specified amount of time.  Alternate Exception Action: none.  Page Continuation Action: none.	1A
X'400400'	Printer is out of toner:  The printer is out of toner, and toner was not added within a specified amount of time.  Alternate Exception Action: none.  Page Continuation Action: none.	1A
X'403100'	Paper Length Check  The printer has detected a paper-length check, and it has not been corrected by the operator after a specified amount of time.  Alternate Exception Action: none.  Page Continuation Action: none.	1A

Exception ID	Meaning	Action Code
X'403300'	Paper Width Check  The printer has detected a paper-width check, and it has not been corrected by the operator after a specified amount of time.  Alternate Exception Action: none.  Page Continuation Action: none.	1A
X'407C00'	Out of Staples	1A
X'407C01'	Staple jam	08
X'407C03'	Punch waste bin full	1A
X'40E500'	Paper jam recovery needed:  • A paper jam has occurred and has not been cleared within a specified amount of time. Any lost pages must be resent.  • Alternate Exception Action: none.  • Page Continuation Action: none.	08
X'40E600'	Cover open	03
X'40E8nn'	Supported but not installed media source ID	1A

# **Equipment Check Exceptions**

Exception ID	Meaning	Action Code
X'10F100'	Permanent hardware exception:  • A permanent hardware failure exists.	22
	The microcode detected either a logic exception from which the printer could not recover or a condition that should not have occurred.	
	Alternate Exception Action: none.	
	Page Continuation Action:     none.	

# **Data Check Exceptions**

Exception ID	Meaning	Action Code
X'082100'	Undefined character	01
X'086000'	Numeric representation precision check	01
X'08C100'	Numeric representation precision check	01

# **IO-Image Specification Exceptions**

Exception ID	Meaning	Action Code
X'050001'	Invalid or unsupported IO Image SDF code	01
X'050003'	Invalid or unsupported IO Image SDF	01
X'050004'	Invalid IO Image SDF value	01

Exception ID	Meaning	Action Code
X'05700F'	IO Image Begin Segment out of sequence	01
X'05710F'	IO Image End Segment out of sequence	01
X'05910F'	IO Image Begin Image Content out of sequence	01
X'05920F'	IO Image Data SDF out of sequence	01
X'05930F'	IO Image End Image Content out of sequence	01
X'059401'	Inconsistent Image Size Parameter value and Image data	01
X'05940F'	IO Image Size Parameter missing or out of sequence	01
X'059411'	IO Image Size cannot be determined	01
X'05950F'	IO Image Encoding Parameter out of sequence	01
X'059510'	IO Image Encoding Parameter unsupported Value	01
X'059511'	IO Image Decompression error	01
X'05960F'	IO Image Data Element Size Parameter out of Sequence	01
X'059610'	IO Image Data Element Size Parameter unsupported value	01
X'059611'	IO Image Data Element Size Parameter and Image Encoding Parameter inconsistent	01
X'05970F'	IO Image Look Up Table ID Parameter out of sequence	01

Exception ID	Meaning	Action Code
X'059710'	IO Image Look Up Table ID Parameter unsupported Value	01
X'05A902'	IO Image data outside the Image Presentation Space	01

# **Bar Code Specification Exceptions**

Exception ID	Meaning	Action Code
X'040300'	Invalid or unsupported bar code type	01
X'040400'	Unsupported local-font ID or font not available	01
X'040500'	Invalid or unsupported bar code color	01
X'040600'	Invalid or unsupported module width	01
X'040700'	Invalid or unsupported element height	01
X'040800'	Invalid or unsupported height multiplier	01
X'040900'	Invalid or unsupported wide-to- narrow ratio	01
X'040A00'	Invalid or unsupported symbol origin	01
X'040B00'	Invalid or unsupported bar code modifier	01
X'040C00'	Invalid or unsupported bar code data length	01
X'040E00'	Check-digit calculation exception	01
X'040F00'	Unsupported 2D bar code size	01

Exception ID	Meaning	Action Code
X'040F01'	Invalid structured append sequence indicator	01
X'040F02'	Structured append sequence indicator too large	01
X'040F03'	Mismatched structured append information	01
X'040F04'	Invalid number of structured append symbols	01
X'040F05'	Invalid symbol mode value	01
X'040F06'	Invalid data symbol characters per row value	01
X'040F07'	Invalid desired number of row values	01
X'040F08'	Too much data for a PDF417 bar code	01
X'040F09'	Invalid security level value	01
X'040F0A'	Incompatible combination of Data Matrix parameters	01
X'040F0B'	Invalid structured append file identification value	01
X'040F0C'	Invalid Macro PDF417 Control Block length value	01
X'040F0D'	Invalid Macro PDF417 Control Block data	01
X'040F0E'	Invalid QR Code EBCDIC Code Page value	01
X'040F0F'	Invalid QR Code Version value	01
X'040F10'	Invalid QR Code Error Correction-level value	01

Exception ID	Meaning	Action Code
X'040F11'	Incompatible combination of QR Code Special-function flags	01
X'041000'	Invalid or unsupported human- readable interpretation location	01
X'041100'	Attempt to print portion of symbol outside block or VPA	01

# **Graphics Specification Exceptions**

Exception ID	Meaning	Action Code
X'030001'	Unallocated or unsupported graphics order or command code	01
X'030002'	Reserved byte exception or invalid attribute set	01
X'030003'	Incorrect drawing order length	01
X'030004'	Invalid attribute value	01
X'030008'	Truncated order exception	01
X'03000C'	Segment prolog exception	01
X'03000E'	Unsupported attribute value	01
X'030021'	Invalid or unsupported default	01
X'033400'	Character angle value not supported	01
X'033E00'	Invalid End Prolog	01
X'036000'	Area bracket exception	01
X'036800'	Begin Area received incorrectly	01
X'036801'	Area truncated exception	01
X'036802'	Supported order invalid in area	01

Exception ID	Meaning	Action Code
X'036803'	Pattern Symbol Set not supported	01
X'036804'	Undefined pattern symbol	01
X'037001'	Unsupported Begin Segment Introducer segment flag	01
X'037082'	Invalid Begin Segment Introducer segment flag	01
X'0370C1'	Invalid Begin Segment Introducer length	01
X'0370C5'	Insufficient Segment Data	01
X'039200'	Graphics image order sequence exception	01
X'039201'	Image data discrepancy	01
X'039300'	Graphics image bracket exception	01
X'039301'	Incorrect number of Image Data drawing orders	01
X'03C200'	Marker Symbol Set not supported	01
X'03C201'	Undefined marker code	01
X'03C300'	Font not available	01
X'03C301'	Undefined graphics character code	01
X'03C601'	Arc drawing check	01
X'03D100'	Truncated graphics image exception	01
X'03D101'	Invalid order in graphics image	01
X'03D102'	Graphics image format not supported	01

Exception ID	Meaning	Action Code
X'03D103'	Image width greater than maximum supported	01
X'03D104'	Image height greater than maximum supported	01
X'03E100'	Relative line outside coordinate space	01

# **General Specification Exceptions**

Exception ID	Meaning	Action Code
X'020001'	Embedded Control Sequence Code Exception	01
X'020201'	End Suppression (ESU) text- control exception	01
X'020202'	Invalid or unsupported IPDS command length	01
X'020205'	Invalid data self-defining-field length	01
X'020302'	IPDS Command Header Length too small	01
X'020305'	Invalid or unsupported block orientation	01
X'020401'	EP command encountered	01
X'020402'	Invalid use of Acknowledgement Continuation Bit	01
X'020405'	Invalid or unsupported area- position reference system	01
X'020501'	Invalid spanning sequence	01
X'020505'	Invalid or unsupported self- defining-field unit base	01

Exception ID	Meaning	Action Code
X'020601'	Invalid Begin Suppression (BSU)	01
X'020605'	Invalid or unsupported self- defining field L-units	01
X'020705'	Invalid or unsupported self- defining-field extents or Graphic Window values inconsistent	01
X'020805'	Invalid or unsupported mapping option	01
X'020905'	Invalid or unsupported axis offsets	01
X'020B05'	Invalid self-defining-field identifier	01
X'020E02'	Invalid or unsupported Color Space	01
X'020E03'	Invalid or unsupported Color value	01
X'020E05'	Invalid or unsupported number of bits for a color component	01
X'020F01'	Invalid or unsupported Set Text Orientation (STO)	01
X'021001'	Invalid or unsupported Set Inline Margin (SIM)	01
X'021101'	Invalid or unsupported Set Baseline increment (SBI)	01
X'021201'	Invalid or unsupported inter- character adjustment	01
X'021301'	Invalid or unsupported Absolute Move Baseline (AMB)	01
X'021401'	Invalid or unsupported Absolute Move Inline (AMI)	01

Exception ID	Meaning	Action Code
X'021402'	The font resource to be deactivated is not found	01
X'021501'	Invalid or unsupported Relative Move Inline (RMI)	01
X'021502'	Invalid or unsupported DF command font or font-section ID	01
X'021601'	Invalid or unsupported Relative Move Baseline (RMB)	01
X'021701'	Invalid or unsupported Set Variable-Space Increment (SVI)	01
X'021702'	Invalid or unsupported DF command deletion type	01
X'021802'	Invalid, unsupported, or unavailable font ID	01
X'021901'	Invalid or Unsupported value for Repeat String (RPS) repeat length	01
X'021902'	Multiple occurrences of the same LFE font-equivalence number	01
X'021A01'	Repeat String (RPS) or Transparent Data (TRN) exception	01
X'021B01'	Repeat String (RPS) target-string length exception	01
X'021B02'	Invalid or unsupported Load Font Control unit base for L-units	01
X'021C01'	Invalid escape sequence	01
X'021C02'	Invalid LFC command byte- count value	01

Exception ID	Meaning	Action Code
X'021D02'	Invalid or unsupported the Load Font Equivalence global font ID	01
X'021E01'	Invalid WT text-control length	01
X'021F01'	Repeat String (RPS) length exception	01
X'021F02'	Mismatch of LFE command font Host-Assigned IDs	01
X'022002'	Invalid Load Font Control (Byte 36 value)	01
X'022102'	Invalid or unsupported Load Font Control font-index format	01
X'022202'	Invalid or unsupported Load Font Control data pattern format	01
X'022302'	Invalid or unsupported Load Font Control font-type bits	01
X'022602'	Invalid or unsupported LSS or LFC X-box size	01
X'022702'	Invalid or unsupported LSS or LFC Y-box size	01
X'022A02'	Invalid or unsupported Load Font Control L-Units per unit base in the X-direction	01
X'022B02'	Invalid or unsupported Load Font Control L-Units per unit base in the Y-direction	01
X'022D02'	Invalid or unsupported Load Font Control character-data alignment	01
X'022E02'	Insufficient font data received	01
X'023101'	Invalid or unsupported Load Copy Control number of copies	01

Exception ID	Meaning	Action Code
X'023201'	Invalid or unsupported Load Copy Control Keyword in copy- group entry	01
X'023202'	Excess font data received	01
X'023401'	Invalid or unsupported Load Copy Control entry-byte count	01
X'023601'	Invalid or unsupported Load Copy Control simplex/duplex parameter	01
X'023701'	Invalid or Unsupported LCC N- up Parameter	01
X'023703'	Invalid or Unsupported LCC Media Destination Parameter	01
X'023704'	Incompatible Media Source and Media Destination	01
X'023705'	Mixture of Media Source or Destination IDs in a duplex copy-subgroup pair	01
X'023801'	Maximum supported number of Overlays per LCC copy-group exceeded	01
X'023901'	Maximum supported number of Suppressions per LCC copy- group exceeded	01
X'023902'	Load Font Control font Host- Assigned ID already assigned	01
X'023A02'	Maximum number of Fonts allowed by printer exceeded	01
X'023C02'	Invalid or unsupported value within Load Font Index command	01

Exception ID	Meaning	Action Code
X'023E02'	Invalid Load Font Control character-pattern address	01
X'023F02'	STO-SCFL-LFE mismatch	01
X'024002'	Invalid or unsupported value for Font Inline Sequence	01
X'024201'	WIC pixel count is less than the minimum required	01
X'024301'	WIC command pixel count is greater than the maximum supported value	01
X'024302'	Invalid double-byte font-section identifier	01
X'024401'	WIC command scan count is less than the minimum required	01
X'024501'	WIC command scan count is greater than the maximum supported value	01
X'024601'	Invalid WIC source image format	01
X'024602'	Invalid parameter for the Load Font Index command	01
X'024701'	Invalid or unsupported Write Image Control magnification factor	01
X'024702'	Invalid or unsupported Load Font Equivalence font-inline sequence	01
X'024801'	Invalid or unsupported Write Image Control scan-line direction	01
X'024901'	Invalid scan-line-sequence direction in the WIC command	01

Exception ID	Meaning	Action Code
X'024A01'	Invalid or unsupported Write Image Control image block location	01
X'025301'	Invalid or unsupported Write Image Control image color	01
X'025441'	Invalid Finishing Fidelity Triplet Length	01
X'025442'	Invalid Finishing Fidelity Triplet Continue value	01
X'025443'	Invalid Finishing Fidelity Triplet Report value	01
X'025451'	Invalid Text Fidelity Triplet Length	01
X'025452'	Invalid Text Fidelity Triplet Continue value	01
X'025453'	Invalid Text Fidelity Triplet Report value	01
X'025803'	Invalid or unsupported text color	01
X'026002'	Invalid or unsupported Load Page Descriptor Xp and I L-units per unit base	01
X'026102'	Invalid L-Units (Yp) Value in the LPD command	01
X'026202'	Invalid or unsupported Load Page Descriptor Xp-extent	01
X'026302'	Invalid or unsupported Load Page Descriptor Yp-extent	01
X'026402'	Invalid or unsupported Load Page Descriptor unit base	01

Exception ID	Meaning	Action Code
X'026802'	Invalid or unsupported Load page Descriptor	01
X'026902'	Invalid baseline-sequence direction in the LPD command	01
X'026A01'	Insufficient source image data	01
X'026A02'	Invalid or unsupported LPD initial I print coordinate	01
X'026B01'	Excess source image data received	01
X'026B02'	Invalid or unsupported LPD initial B print coordinate	01
X'026F02'	Invalid XOH-SMO Media Origin	01
X'027002'	Invalid or unsupported XOH Set Media Size L-units per unit base	01
X'027202'	Invalid or unsupported XOH Set Media Size Xm-extent	01
X'027302'	Invalid or unsupported XOH Set Media Size Ym-extent	01
X'027402'	Invalid or unsupported XOH Set Media Size unit base	01
X'027701'	Group Termination Exception	01
X'027A01'	Invalid triplet length value in a group triplet	01
X'027B01'	Incorrect number of triplet data bytes in a group triplet	01
X'027C01'	Incompatible finishing operations	01
X'027C02'	Too many or too few sheets for a finishing operation	01

Exception ID	Meaning	Action Code
X'027C03'	Invalid or unsupported finishing operation type	01
X'027C04'	Invalid or unsupported finishing operation reference corner and edge	01
X'027C05'	Unsupported finishing operation count	01
X'027C06'	Invalid or unsupported finishing operation axis offset	01
X'027C07'	Invalid or unsupported number of finishing positions	01
X'027C09'	Finishing operation incompatible with physical media or media destination	06
X'027C0A'	Incompatible media destination change in a group to be finished	06
X'028002'	Invalid or unsupported rule width	06
X'028202'	Invalid or unsupported rule length	01
X'028501'	Invalid or unsupported Delete Overlay command overlay ID	01
X'028702'	Invalid or unsupported Load Font Control unit base for Pixel- units	01
X'028802'	Invalid or unsupported Load Font Control Pixel-units per unit base in the X-direction	01
X'028902'	Invalid or unsupported Load Font Control Pixel-units per unit base in the Y-direction	01

Exception ID	Meaning	Action Code
X'028A01'	Invalid or unsupported Delete Page Segment command page segment Host-Assigned ID	01
X'028A02'	Invalid or unsupported Load Font Control Relative-Metric Multiplying Factor	01
X'028F01'	Invalid or unsupported AR command parameter values	01
X'028F02'	AR activation command failed	01
X'028F03'	Invalid Resource ID triplet length	01
X'028F04'	Invalid or unsupported resolution or metric-technology value	01
X'028F10'	Invalid or unsupported value in a Metric Adjustment triplet	01
X'028F11'	Baseline adjustment value too large or too small	01
X'029001'	Invalid or unsupported Overlay	01
X'029101'	BO overlay ID already loaded	01
X'029102'	Invalid or unsupported XOA Request Resource list entry	01
X'029201'	Overlay ID not loaded	01
X'029301'	Recursive overlay invocation	01
X'029401'	Invalid or unsupported page segment Host-Assigned ID	01
X'029501'	Page segment Host-Assigned ID already loaded	01
X'029502'	Invalid or unsupported XOH Page Counters Control page- counter update	01

Exception ID	Meaning	Action Code
X'029601'	Page segment Host-Assigned ID not loaded	01
X'029701'	Overlay nesting limit exceeded	01
X'029801'	Invalid or unsupported suppression number	01
X'029803'	Invalid or unsupported Temporary Baseline Move text control	01
X'029A01'	Invalid overstrike character increment	01
X'02A401'	Page boundary in the X- direction cannot be presented by the printer	01
X'02A501'	Page boundary in the Y- direction cannot be presented by the printer	01
X'02AC01'	Insufficient Main Storage to print the Sheet	09
X'02AD01'	Invalid or unsupported Load Page Position command	01
X'02AE01'	Invalid or unsupported parameter in an IO command	01
X'02AF01'	Insufficient storage to print the sheet	OC
X'02AF01'	Asynchronous Insufficient storage to print the sheet	1E
X'02B000'	LCPC Code Page HAID already in use	01
X'02B001'	Invalid LCPC Code Page HAID	01
X'02B002'	Invalid or Unsupported LCPC Encoding Scheme	01

Exception ID	Meaning	Action Code
X'02B004'	Too much or too little code page data	01
X'02B005'	Invalid or Unsupported LCPC Byte count	01
X'02B007'	Code points out of order in LCP command	01
X'02B00A'	LFCSC HAID already assigned	01
X'02B00B'	Invalid LFCSC HAID	01
X'02B00C'	Invalid or Unsupported LFCSC pattern technology ID	01
X'02B00E'	Invalid or Unsupported LFCSC Byte count	01
X'02B00F'	Invalid or Unsupported LFCSC Map size	01
X'02B101'	Invalid or Unsupported LF Character ID format	01
X'02B102'	Invalid LF technology specific ID offset	01
X'02B103'	Invalid LF technology specific ID length	01
X'02B104'	GCGIDs out of order in a Font Character Set	01
X'02B108'	Invalid LF technology specific object length	01
X'02B109'	LF checksum mismatch	01
X'02B10A'	Invalid Name Length in LF3 technology specific object	01
X'02B10B'	Invalid data within a LF3 technology specific object	01

Exception ID	Meaning	Action Code
X'02B201'	Parent character set not activated	01
X'02B202'	Font character set extension not valid with pattern technology	01
X'02B203'	Mismatched character ID format in a LF command	01
X'02B204'	Mismatched MICR printing flag in a LFCSC command	01
X'02C001'	Mixture of Xm-axis duplex and Ym-axis duplex copy groups	01
X'02C002'	Mixture of N-up copy subgroups in a LCC command	01
X'02C003'	More than one N-up keyword specified in a copy subgroup	01
X'02C004'	Duplexing and N-up not supported together	01
X'02C005'	N-up partitioning not supported with envelope media	01
X'02C101'	Maximum number of simplex or duplex keywords in an LCC command	01
X'02C102'	Internal value not unique in an LE command	01
X'02C201'	Odd number of duplex copy groups in an LCC command	01
X'02C202'	More than one Media Source or Destination Keyword specified in a copy subgroup	01
X'02C301'	Mixture of simplex and duplex parameters in an LCC command	01

Exception ID	Meaning	Action Code
X'02C401'	Unequal copy counts in an LCC command	01
X'02C501	Unable to delete resource (needed on duplex side)	01
X'02C502'	Physical media not compatible with duplex printing	01
X'02C601'	Unable to deactivate a component of an activated coded font	01
X'02C602'	Invalid mapping type in an LE command	01
X'02C801'	An unsupported Input Media Source ID was specified	01
X'02C802'	Invalid or unsupported internal value or external value in an Load Equivalence command	01
X'02FF02'	Exceptions detected but not queued	01

# **Host Notification Exceptions**

Exception ID	Meaning	Action Code
X'010000'	Normal Printer Restart (Printer IMLed or IPDS Dialog Resources Deleted)	OD
X'010100'	Media Size or Input Media Source ID Changed	1D
X'018000'	Request to end IPDS Dialog	05
X'018F00'	Error Printer Restart (Printer IMLed)	OD
X'01E400'	Cancel Key Pressed	15

### Page Counter Adjustments

To identify which page or pages to send to the printer after an exception occurs, the host program must determine the position of the sheets in the paper path.

Count fields in the ACK command identify the state of a virtual paper path that includes a count of the number of pages received, the number of pages past the jam-recovery point, and the number of pages stacked.

The printer tracks the following:

- Received Page Counter
- Committed Page Counter
- Committed Copy Counter
- Stacked Page Counter
- Stacked Copy Counter

All other counters are mapped to the Stacked Page Counter (for pages) and the Stacked Copy Counter (for copies).

The following rules define how the counters are updated:

- After power is switched on, all counter values equal X'0000'.
- When a counter containing X'FFFF' increments, the counter wraps to X'0000'.
- The counters are updated as shown in the following table as each condition is detected.
- The Copy Counters are incremented when more than one copy of a page is printed. When all
  copies have passed a station, the Copy Counter is then reset to zero and the Page Counter is
  incremented.

The Copy Counters are not reset to zero during exception recovery.

Condition (in hex)	Counters	Counter Adjustments
Action Codes	Received Page Counter	Set to Jam Recovery Page Counter
08	Committed Page Counter	Set to Jam Recovery Page Counter
22	Committed Copy Counter	Set to Jam Recovery Page Counter
	Operator Viewing Page Counter	Set to Jam Recovery Page Counter
	Operator Viewing Copy Counter	Set to Jam Recovery Page Counter
	Jam Recovery Page Counter	No change
	Jam Recovery Copy Counter	No change
	Stacked Page Counter	Set to Jam Recovery Page Counter
	Stacked Copy Counter	Set to Jam Recovery Copy Counter
Action Codes	Received Page Counter	Set to Committed Page Counter
15	Committed Page Counter	No change
1A 1D	Committed Copy Counter	No change
	Operator Viewing Page Counter	No change
	Operator Viewing Copy Counter	No change
	Jam Recovery Page Counter	No change
	Jam Recovery Copy Counter	No change
	Stacked Page Counter	No change
	Stacked Copy Counter	No change

Condition (in hex)	Counters	Counter Adjustments
Action Code	Received Page Counter	No change
OC	Committed Page Counter	No change
	Committed Copy Counter	No change
	Operator Viewing Page Counter	No change
	Operator Viewing Copy Counter	No change
	Jam Recovery Page Counter	No change
	Jam Recovery Copy Counter	No change
	Stacked Page Counter	No change
	Stacked Copy Counter	No change
Action Code	Received Page Counter	No change
01	Committed Page Counter	No change
	Committed Copy Counter	No change
	Operator Viewing Page Counter	No change
	Operator Viewing Copy Counter	No change
	Jam Recovery Page Counter	No change
	Jam Recovery Copy Counter	No change
	Stacked Page Counter	No change
	Stacked Copy Counter	No change

Condition (in hex)	Counters	Counter Adjustments
Action Code	Received Page Counter	Set to Committed Page Counter
1E	Committed Page Counter	No change
	Committed Copy Counter	No change
	Operator Viewing Page Counter	No change
	Operator Viewing Copy Counter	No change
	Jam Recovery Page Counter	No change
	Jam Recovery Copy Counter	No change
	Stacked Page Counter	No change
	Stacked Copy Counter	No change
All other action codes	Received Page Counter	No change
	Committed Page Counter	No change
	Committed Copy Counter	No change
	Operator Viewing Page Counter	No change
	Operator Viewing Copy Counter	No change
	Jam Recovery Page Counter	No change
	Jam Recovery Copy Counter	No change
	Stacked Page Counter	No change
	Stacked Copy Counter	No change

Condition (in hex)	Counters	Counter Adjustments
Command XOA -	Received Page Counter	Set to Committed Page Counter
Discard Buffered Data	Committed Page Counter	No change
	Committed Copy Counter	No change
	Operator Viewing Page Counter	No change
	Operator Viewing Copy Counter	No change
	Jam Recovery Page Counter	No change
	Jam Recovery Copy Counter	No change
	Stacked Page Counter	No change
	Stacked Copy Counter	No change
Normal Counter Wrap	Received Page Counter	Reset to 0
(on a Per-Counter Basis)	Committed Page Counter	Reset to 0
	Committed Copy Counter	Reset to 0
	Operator Viewing Page Counter	Reset to 0
	Operator Viewing Copy Counter	Reset to 0
	Jam Recovery Page Counter	Reset to 0
	Jam Recovery Copy Counter	Reset to 0
	Stacked Page Counter	Reset to 0
	Stacked Copy Counter	Reset to 0

Condition (in hex)	Counters	Counter Adjustments
Command XOH -	Received Page Counter	For details about XOH PCC
Page Counters Control	Committed Page Counter	command, see "Device Control Command Set", IPDS Technical
	Committed Copy Counter	Reference 2.
	Operator Viewing Page Counter	
	Operator Viewing Copy Counter	
	Jam Recovery Page Counter	
	Jam Recovery Copy Counter	
	Stacked Page Counter	
	Stacked Copy Counter	



- Should not be incremented for page in error (that is, any partial page is discarded).
- The Received Page Counter should be incremented if a partial or complete page is printed.
- For Action Code X'1E', the host should issue an XOH Print Buffered Data command with the ARQ bit on and a unique correlation ID (to ensure that the Acknowledge Reply matches the Print Buffer Data [PBD] command) to cause the Committed Page/Copy Counter to reflect the page in error.

# Page and Copy Counter Adjustments for Data-Stream Exceptions

The following are counter adjustments for simplex copy groups.

Condition (in hex)	Counters	Counter Adjustments
Action Code	Received Page Counter	Does not reflect the page in which the error occurs.
and the page is	Committed Page Counter	No change
printed	Committed Copy Counter	Reflects any committed copies resulting from prior error-free copy groups.
	Operator Viewing Page Counter	No change
	Operator Viewing Copy Counter	No change
	Jam Recovery Page Counter	No change
	Jam Recovery Copy Counter	No change
	Stacked Page Counter	No change
	Stacked Copy Counter	No change
Action Code	Received Page Counter	Reflects the page in which the error occurs, only if the error occurred on the last copy group.
and the page is not printed	Committed Page Counter	No change
	Committed Copy Counter	Reflects any committed copies resulting from prior error-free copy groups or from the copy group in error.
	Operator Viewing Page Counter	No change
	Operator Viewing Copy Counter	No change
	Jam Recovery Page Counter	No change
	Jam Recovery Copy Counter	No change
	Stacked Page Counter	No change
	Stacked Copy Counter	No change

The following are counter adjustments for duplex copy groups.

Condition (in hex)	Counters	Counter Adjustments
Action Code 01 on the front side and the page is printed	Received Page Counter	Reflects the page in which the error occurs (the front side) only if the error occurred on the other in a copy group other than the first copy group.
	Committed Page Counter	No change
	Committed Copy Counter	Reflects any committed copies resulting from prior error-free copy group pairs.
	Operator Viewing Page Counter	No change
	Operator Viewing Copy Counter	No change
	Jam Recovery Page Counter	No change
	Jam Recovery Copy Counter	No change
	Stacked Page Counter	No change
	Stacked Copy Counter	No change
Action Code 01 on back side and the page is not printed	Received Page Counter	Does not reflect the page in the error occurs (the back side) it does reflect the front side.
	Committed Page Counter	No change
	Committed Copy Counter	Reflects any committed copies resulting from prior error-free copy group pairs.
	Operator Viewing Page Counter	No change
	Operator Viewing Copy Counter	No change
	Jam Recovery Page Counter	No change
	Jam Recovery Copy Counter	No change
	Stacked Page Counter	No change
	Stacked Copy Counter	No change

Condition (in hex)	Counters	Counter Adjustments		
Action Code 01 on the front side and the	Received Page Counter	Reflects the page in which the error occurs (front side).		
page is not printed	Committed Page Counter	No change		
	Committed Copy Counter	Reflects any committed copies resulting from prior error-free copy group pairs.		
	Operator Viewing Page Counter	No change		
	Operator Viewing Copy Counter	No change		
	Jam Recovery Page Counter	No change		
	Jam Recovery Copy Counter	No change		
	Stacked Page Counter	No change		
	Stacked Copy Counter	No change		
Action Code 01 on the back side and the page is printed	Received Page Counter	Reflects the page in which the error occurs (back side) only if the error occurred on the last copy group. Reflects front side.		
	Committed Page Counter	No change		
	Committed Copy Counter	Reflects any committed copies resulting from prior error-free copy group pairs or from the copy group in error.		
	Operator Viewing Page Counter	No change		
	Operator Viewing Copy Counter	No change		
	Jam Recovery Page Counter	No change		
	Jam Recovery Copy Counter	No change		
	Stacked Page Counter	No change		
	Stacked Copy Counter	No change		

# 5. Code Page and Font Identification

# **About Code Page and Font Identification**

The machine supports both raster and outline technology fonts: Single and Double byte. The resident single-byte LF1 "raster" fonts are generated using outline font technology (IBM AFP Font Collection): the IBM Core Interchange Font Set, the IBM Coordinated Font Set and the 4028 Compatibility Font Set.

The valid combinations of GCSGID/CPGID, GCSGID/FGID/FW, or GCSGID/CPGID/FGID/FW are too numerous to list here. They can be obtained by the host using the Any state command "XOA Request Resource List", IPDS Technical Reference 2 with the appropriate Resource Type and RIDF.

They can also be determined by using the information under page 97 "Resident IPDS Fonts" with the criteria described in the following sections:



- The machine supports Download and Capture of Font Resources. There is Date/Time stamp
  information to help identify versions of font resources. page 91 "Coded Font" includes the Date/
  Time stamps for the resident fonts.
- The machine will report DBCS raster font (and any captured raster fonts) using the RRL command
  when the IPDS Resolution (op panel) setting is Independence Mode. If the IPDS Resolution (op
  panel) setting is an Acceptance Mode, only those raster fonts with resolutions that match the current
  Acceptance mode resolution setting (240 or 300 or 600 DPI), will be reported via RRL.

## RRL RT'06' Code Page (CPGID)

Values are listed in page 95 "Font Terms", page 97 "Resident IPDS Fonts", and page 99 "XOA-RRL Replies for Font Character Sets", and will be reported via XOA-RRL RT 06 RIDF 03.

# RRL RT'12' Specific Code Pages (GCSGID/CPGID)

Valid combinations are listed in page 95 "Font Terms", page 99 "XOA-RRL Replies for Font Character Sets", and page 99 "XOA-RRL Replies for Font Character Sets", and will be reported via XOA-RRL RT 12 RIDF 03.

# RRL RT'11' Graphic Character Sets (GCSGID SUB/SUPERSETS)

Valid combinations are listed in page 99 "XOA-RRL Replies for Font Character Sets" (GCSGID Subsets for the Strategic Font Set 2) and will be reported via XOA-RRL RT 11 RIDF 03.

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### RRL RT'07' Font Character Sets (GCSGID/FGID/FW)

- Valid combinations for the IBM Core Interchange Set are listed inpage 92 "Code Page" (IBM Core Interchange Resident Scalable Font Set), and will be reported via XOARRL RT 07 RIDF 03.
  - Scalable Font Width (FW) will be reported as 0 to the host PSF. This indicates that any width/ scale-factor is valid.
  - page 94 "Operating System/400 Terms" (GCSGID Subsets for IBM Core Interchange
    Fonts) shows the subset GCSGIDs for each of the listed superset GCSGIDs in page 92
    "Code Page" (IBM Core Interchange Resident Scalable Font Set). These subset GCSGIDs are
    valid combinations for the associated superset GCSGIDs in the GCSGID/FGID/FW, but will
    not be added to the RRL 0703 response unless required by the host PSF's.
- Valid combinations for the IBM Coordinated Set are listed in page 99 "XOA-RRL Replies for Font Character Sets" (Resident PSC Strategic Scalable Font Set 2) and will be reported via XOA-RRL RT 07 RIDF 03.
  - Scalable Font Width (FW) will be reported as 0 to the host PSF. This indicates that any width/ scale-factor is valid.
  - page 99 "XOA-RRL Replies for Font Character Sets" (GCSGID Subsets for the Strategic Font Set 2) shows the subset GCSGIDs for each of the listed superset GCSGIDs in page 98 "IBM Core Interchange Resident Scalable Font Set (IPDS only)" (Resident PSC Strategic Scalable Font Set 2). These subset GCSGIDs are valid combination entries for the associated superset GCSGIDs in the GCSGID/FGID/FW, but will not be added to the RRL 0703 response unless required by the host PSF's.
- Valid combinations for the 4028 Compatibility Set require page 96 "Font and Code Page Selection" (FGID/FW) and page 97 "Resident IPDS Fonts" (GCSGID), and will be reported via XOA-RRL RT 07 RIDF 03.
  - The FW's for these fonts are non-zero, because they represent fixed-width fonts.
  - The Alternate FGIDs are valid values for GCSGID/FGID/FW combinations.
  - Native Mode These fonts (which are representing 4028 raster fonts) don't have a GCSGID of their own, so the GCSGID used is from the associated Code Pages (CPGIDs). The GCSGIDs are obtained by finding the Code Page(s) in page 97 "Resident IPDS Fonts" that matches the Code Page(s) listed for a given FGID/FW entry in page 96 "Font and Code Page Selection". The GCSGID for each of the Code Pages listed with an FGID is a valid combination entry. Since these fonts don't have a superset GCSGID, there is no subset condition. So each of these unique GCSGID/FGID/FW combinations will be added to the XOA-RRL 0703 report to the host PSF.
  - 4028 Emulation Mode These fonts (which are representing 4028 raster fonts) don't have a GCSGID of their own, so the GCSGID used is 0.

### RRL RT'01'/'03'/'10' RIDF'03' (GCSGID/CPGID/FGID/FW = GRID)

- Valid combinations for the IBM Core Interchange Set require page 92 "Code Page" (IBM Core Interchange Resident Scalable Font Set) (superset GCSGID/FGID/FW), page 94 "Operating System/400 Terms" (GCSGID Subsets for IBM Core Interchange Fonts) (GCSGID subsets) and page 95 "Font Terms" (GCSGID/ CPGID), and will be reported via XOA-RRL RT 01 RIDF 03 (also RT 10 RIDF 03). In all GRIDs, the GCSGID chosen will belong to the Code Page, as this is almost always the subset of the outline font GCSGID.
  - Scalable Font Width (FW) will be reported as 0 to the host PSF. This indicates that any width/ scale-factor is valid.
  - CPGIDs and GCSGIDs are listed in page 95 "Font Terms". For each pair, determine which
    FGIDs in page 92 "Code Page" (IBM Core Interchange Resident Scalable Font Set) which
    contains the page 95 "Font Terms" GCSGID as a subset. An example is that there would be
    51 GRID combinations for the Times New Roman Medium font...FGID is always 2308, FW is
    always 0, and there are 51 unique CPGID/GCSGID pairs in Table page 95 "Font Terms"
    which are subsets of the superset GCSGID 1269.
- Valid combinations for the IBM Coordinated Set require page 121 "IBM Coordinated Font Set (IPDS)" (Resident PSC Strategic Scalable Font Set 2) (superset GCSGID/FGID/FW), page 123 "IBM Coordinated Font Set Code Page Set" (GCSGID Subsets for the Strategic Font Set 2) (GCSGID subsets) and page 108 "IBM Core Interchange Resident Code Page Set" and page 123 "IBM Coordinated Font Set Code Page Set" (GCSGID/CPGID), and will be reported via XOA-RRL RT 01 RIDF 03 (also RT 10 RIDF 03). In all GRIDs, the GCSGID chosen will belong to the Code Page, as this is almost always the subset of the outline font GCSGID.
  - Scalable Font Width (FW) will be reported as 0 to the host PSF. This indicates that any width/scale-factor is valid.
  - CPGIDs and GCSGIDs are listed in page 95 "Font Terms" and page 99 "XOA-RRL Replies for Font Character Sets". For each pair, determine which FGIDs in page 98 "IBM Core Interchange Resident Scalable Font Set (IPDS only)" (Resident PSC Strategic Scalable Font Set 2) can combine with them. This is done by finding the superset GCSGID in page 99 "XOA-RRL Replies for Font Character Sets" (GCSGID Subsets for the Strategic Font Set 2) which contains the page 95 "Font Terms" GCSGID as a subset. An example is that there would be 41 GRID combinations for the Letter Gothic font...FGID is always 400, FW is always 0, and there are 41 unique CPGID/GCSGID pairs in page 95 "Font Terms" and page 99 "XOA-RRL Replies for Font Character Sets". which are subsets of the superset GCSGID 2039.
- Valid combinations for the 4028 Compatibility Set require page 96 "Font and Code Page Selection" (FGID/FW) and page 97 "Resident IPDS Fonts" (GCSGID/CPGID), and will be reported via XOA-RRL RT 01 RIDF 03. In all GRIDs, the GCSGID chosen will belong to the Code Page, as this is almost always the subset of the outline font GCSGID.
  - The FW's for these fonts are non-zero, because they represent fixed-width fonts.

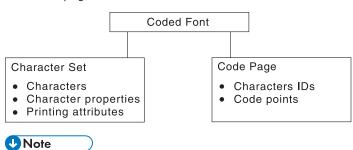
- The Alternate FGIDs are valid values for FGID/FW combinations.
- The GCSGID/CPGID pairs for each font are obtained by finding the Code Page(s) in page 97 "Resident IPDS Fonts" that match the Code Page(s) listed for a given FGID/FW pair in page 96 "Font and Code Page Selection".

# 6. Fonts

# **IBM Font Structure**

In IBM AFP terminology, a font has three components. They are:

- Coded font
- Character set
- Code page



These terms have different meanings in Operating System/400 (OS/400). See page 94
 "Operating System/400 Terms" for what these terms mean in OS/400.

#### Coded Font

In IBM font structure, a coded font translates your request for type (for example, text you previously entered at a computer terminal) into characters for printing.

A coded font consists of two parts:

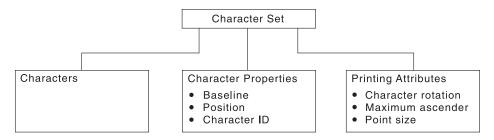
- References to specific character sets
- References to specific code pages

A character must be included in the specified character set and listed on the specified code page before it can be printed.

A coded font associates a specific code page with a specific character set. A coded font contains one code-page and one character-set pair.

#### **Character Set**

In IBM font structure, a character set corresponds to the definition of a font; it contains the characters of a single type family, typeface, and type size. In addition, a character set specifies character properties and printing attributes.



#### Characters

Characters are the letters, numerals, punctuation marks, or other symbols of a font.

#### Character properties

Character properties detail how a character is positioned relative to the characters around it. Some character properties include the following:

- · The baseline of a character, showing its general alignment
- The dimensions of space in which the character is printed
- The position of the character within that space
- The identifier of the character (the character ID)

One of the character properties is the character ID (or graphic character ID). Each character is assigned a character ID; for example, the character A (uppercase A) is assigned the character ID IAO20000

The purpose of a character ID is to distinguish the character from similar characters. For example, the following characters look similar; however, they are different and are assigned different character IDs:

Minus sign (-): Character ID SA00000

Hyphen (-): Character ID SP100000

Em dash (—): Character ID SM900000

For a list of character IDs and the graphic character each represents, refer to "ABOUT TYPE: IBM's Technical Reference for Core Interchange Digitized Type".

#### **Printing attributes**

The printing attributes define how the character set will be printed. Some printing attributes include rotation of characters, maximum ascender, and point size.

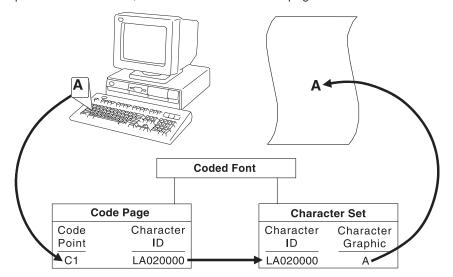
### Code Page

A code page is a set of symbols that can be printed by your printer. These symbols can be letters, numbers, or graphic elements such as lines or patterns. The symbols may be grouped to be specific to a country, language, or special symbol set. By supporting different code pages, the printer can support different language requirements.

No particular typeface is assumed for any particular code page. The typeface is defined as a font by the assignment of size, weight, and posture.

#### Character IDs and Code Points

In IBM font structure, a code page maps each character of text to the characters in a character set. The following figure shows how a code page maps text to the characters in a character set. As you enter your text at a computer terminal, each keyboard character is translated into a code point. When the text is printed, each code point is matched to a character ID on the code page you specified. The character ID then is matched to the image (raster pattern) of the character in the character set you specified. The image in the character set is the image that is printed in your text. To be a valid code page for a particular character set, all character IDs in the code page must be included in that character set.



Every code page has 256 positions, or code points, that represent potential characters. Each of the code points is normally identified by its bit configuration in hexadecimal, with two hex characters per byte. The range of values is hex 00 through hex FF, or 256 values. The code page determines which character prints for each of the printable code points.

A character ID is an 8-byte standard identifier for a character regardless of its type family. For example, all uppercase "A" have the same character ID (LA020000). Character IDs also are called graphic character identifiers (GCIDs).

Binary: 11000001

Decimal: 193 Hexadecimal: C1

The following figure shows an example of a part of a code page. When the printer receives hexadecimal code point C1 for the code page shown (code page 00037 Version 1), it prints an uppercase A (character ID LA020000). Baselines for each character on the example code page show the general alignment of characters.

CPGID: 37 GCSGID: 697

Hex Codes 1st → 2nd ↓	4-	5-	6-	7-	8-	9-	A-	В-	C-	D-	E-	F-
-0	SP010000	_&_ SM830000	 SP100000	 LO610000	_Ø_ 1.0620000	O SM190000	_ <u>µ</u> SM170000	SD110000	{	} SM140000	534970000	_0_ ND100000
-1	SP303000	_é_	/_ SP120000	É LE1E000	a 1.A010000	<u>j</u>	~ SD190000	_£_ scazassa	_A.	J	÷ SAN60000	 NDS16666
-2	_â_ LAL59999	_ê_	_Â_	_Ê_	_b_	_k_	S LS010000	_¥_ scssssss	_B_ LE020000	_K_ LK020000	_S_ 1.5121800	_2 ND820000
-3	_ä_ LA170000	<u>ë</u> _	_Ä_ LAIEGGG	_E_	_C_	1.1.010000	_t_ LT010000	SD636000	_C_ LC020000	_L_ LL020000	_T	_3_ NDE30000
-4	_à_ LA136000	_è_ 1.E130000	_À_	È_	_d_	_m_ LM010000	_ <u>u_</u>		<u>D</u>	_M_ LM020000	U	_4_ ND040000
-5	_á_ LA110000	_i	Á_ LA120000	f_ t1120000	_e_	_n_	V L V010000	§ 534240000	_E_ LE020000	_N_ 1.N120000	<u>V</u>	_5_ ND650000
-6	ã LA190000	_î LIISO000	_ <u>Ã</u> _	<u>Î</u> LI169999	f_ LF010000	T:0010000	_W_ LW010908	_¶_ 5M250000	<u>F</u>	_Q_ L0020000	_W_ 1.W029000	_6_ ND060000
-7	LA276666	_ <u>Y</u>	_A_ LA280000	_ <u>I</u>	_g_	_p_ r,pessono	_X_ LX010000	_3 <u></u> NF343333	_G LG020000	_P_ LP020000	_X_ LX020000	_7_ NEW70000
-8	_ Ç	_ <u>ì</u>	Ç LC42000	<u>Ì</u>	_h_	_q_ LQ110900	y 1.YE:0000	_3_ NF110000	_H_ LH629000	_Q_ LQ620000	Y LY020000	_8_ ND080000

#### **Different Code Pages**

Code pages accommodate various national languages by using characters and special symbols appropriate to the language. Code pages can have identical character IDs assigned to different code points.

For example, the character é (lowercase e accent acute, character ID LE110000) has the following code point assignment in two different code pages:

- Hexadecimal code point 51 in code page 00037 Version 1
- Hexadecimal code point 5A in code page 00280 Version 1

# Operating System/400 Terms

Table 158 lists the IBM AFP font terminology and describes how it is used with the OS/400 printing interfaces.

AFP Term	OS/400 AFP Implementation	OS/400 Print File Term
Coded font	*FNTRSC object with CDEFNT attribute	Coded font
Character set	*FNTRSC object with FNTCHRSET attribute	Font
Code page	*FNTRSC object with CDEPAG attribute	Character ID (CHRID)



This is not the character ID that identifies individual characters within an AFP character set. This is a
control object that identifies a code page by two numbers representing a character set ID and a
code page ID.

#### **Font Terms**

A font is a complete set of characters in a particular typeface, type size, and code page.

The following terms help define a font:

#### **Character Set**

A set of numeric, alphabetic, or graphic characters with their assigned code points.

#### Code Page

A table of alphanumeric characters and graphic characters each of which is assigned a 1-byte value (a code point). These values define which characters will print.

#### Code Page Global ID (CPGID)

Identifies a specific set of code points assigned to a specific list of graphic character IDs.

#### Font Global ID (FGID)

Specifies a value for selecting a font. IBM fonts have a preassigned FGID value.

#### **Graphic Character Set Global ID (GCSGID)**

Identifies the list of graphic character IDs included in the code page.

#### **Spacing**

Also called font width or escapement. Spacing is the distance from the start of a character to the start of the next character. Font spacing can be defined by spacing type:

- Fixed-pitch fonts All characters in a fixed-pitch font have the same spacing, which is specified as the number of characters per inch.
- Typographic fonts Typographic fonts are identified as Typo.

Most documents are easier to read if the widths of the characters vary, that is, if a W is printed wider than an I. Typographic fonts have this variability. These fonts are sized by height, not width.

Seventy-two points equals approximately one inch. Therefore, a 10-point font is 10/72 inch high.

Type height includes some white space above and below the printed character for adequate minimum spacing between the lines of type.

Text is most readable when character spacing ranges from 8 to 12 points. For example, the text in this document is 10 point.



- For typographic fonts, it is recommended that the first and last print positions on each line be left blank.
  - Proportionally spaced machine (PSM) fonts Proportionally spaced machine fonts are
    identified by PSM or PS. PSM fonts are a compromise between the variability of typographic
    sizes and the simple uniformity of fixed pitch. With PSM fonts, the widths of the characters
    vary. For example, a lowercase "i" has a different width than an uppercase W. However, a
    specific character in one font will be the same width in another font. For example, a W in one

PSM font is the same width as the W in every other PSM font. Therefore, it is possible to have only one character-width table that applies to every PSM font.

#### **Posture**

Refers to a character's incline, or tilt. Roman posture is upright. Italic posture is inclined to the right.

#### Type Size

Also called point size. Specifies the overall height of the font, measured in printer's points. A point is 1/72 inch. For example, a 12-point font is 1/6 inch high.

### Typeface

Also called type style. Specifies the shape and design of each letter of the alphabet. A complete alphabet of letter designs makes up one typeface.

#### Weight

Refers to the thickness of the strokes that make up the characters of a font, as in a bold font weight.

### Font and Code Page Selection

Printers with an IPDS feature receive IPDS commands to specify fonts. The IPDS command set can select any font or code page supported by the printer. See the printer User's Guide for a list of the IPDS fonts supported. However, host software may restrict the actual fonts or code pages that can be selected. This includes typographic and nontypographic fonts in all pitches, point sizes, and widths. The information provided to the printer to select a font is called a GRID (Global Resource Identifier). The GRID consists of the following (See page 95 "Font Terms" for a description of these terms):

- FGID (Font Global Identifier)
- GCSGID (Graphic Character Set Global Identifier)
- CPGID (Code Page Global Identifier)
- Font Width

For typographic fonts with the same FGID, specify the FONT WIDTH parameter to the printer. The printer needs the font width parameter to identify the font in order to specify the point size. The FONT WIDTH parameter is described in detail in the IPDS section.

You can select the code page and code page version from a configuration setting. Refer to your printer's User's Guide for instructions on changing code page and code page version configuration settings. Some system software does not allow you to change code pages by software and uses the printer default code page for printing. The printer factory default character set is 0697 and the code page is 00037 version 1.

This may require you to change the printer code page to match the system software.



 When using an application that does not allow selection of font width, use the alternate FGID when available to access typographic fonts.

# **Resident IPDS Fonts**

Printer will support outline fonts from both the IBM Core Interchange Font Set and the IBM Coordinated Font Set as resident fonts. In addition, selections of these fonts are grouped into the 4028 Compatibility Font set. This set is used to represent the 4028 base internal raster fonts for limited compatibility. The font technologies used in the printer are:

IBM Core Interchange - Type 1 Outlines
IBM Coordinated - Type 1 Outlines
4028 Compatibility - Type 1 Outlines
3820 ROM Font Compatibility - Raster

#### Resident Font Activation Methods

Fonts resident within the Printer may be activated using the following IPDS commands. Note that some fonts have restrictions on allowable font activation methods.

#### **Load Font Equivalence**

The Load Font Equivalence (LFE) command maps font local identifiers, specified within text, graphics or bar code data, to font Host Assigned IDs (HAIDs) and Global Resource IDs (GRIDs).

If the GRID specified in the LFE command matches a GRID contained in the printer, the font is activated.

#### Activate Resource (Load Resource Equivalence)

The Activate Resource (AR) command (previously known as Load Resource Equivalence) maps Host Assigned IDs to global names of another format. The format for the global name is identified by a resource type and resource ID combination.

If the Printer has a resource that matches the global name in the AR command, that resource is activated. The following combinations of Resource Type and Resource ID Format are supported by the Printer.

Resource Type	RT Hex	Resource ID Format	RIDF Hex
Single Byte Coded Raster Font	X'01'	IBM GRID	X'03'
Single Byte Coded Raster Font	X'01'	MVS Host Unalterable	X'06'
Double Byte Coded Font Section	X'03'	IBM GRID	X'03'
Double Byte Coded Font Section	X'03'	MVS Host Unalterable	X'06'

### IBM Core Interchange Resident Scalable Font Set (IPDS only)

The IBM Core Interchange fonts as shown in Table 159 will be supported as resident fonts in the following language groups:

- Latin 1/2/3/4/5
- Symbols
- Arabic
- Cyrillic Greek
- Hebrew
- Thai
- Lao
- Katakana

page 99 "XOA-RRL Replies for Font Character Sets" (IBM Core Interchange Resident Scalable Font Set) lists the typefaces resident in the Printer and includes the valid FGID and code pages for each font. The Date Stamp on the character sets with GCSGIDs of 1269, 1275, 1300, 1264, and 1265 is 94350, and the Time Stamp used is 00:00:00.00. The Date Stamp on the character sets with a GCSGID of 1355 is 98152 and the Time Stamp used is 00:00:00.00. The Date Stamp used on the remaining character sets is 02185, and the Time Stamp used is 00:00:01.00.

page 107 "GCSGID Subsets" provides a mapping of the valid subsets of the GCSGIDs listed for the IBM Core Interchange fonts.

#### **XOA-RRL Replies for Font Character Sets**

The resident set as shown in Table 159 will support a font character set of any valid font width when queried as an individual font character set.

When queried for a list of font character sets, the resident character sets will be reported with a font width of zero. A font width of zero indicates that the font is scalable.

Valid combinations of the CPGIDs, GCSGIDs, FGIDs and Font Widths for the resident fonts are defined in page 87 "About Code Page and Font Identification".

#### IBM Core Interchange Resident Scalable Font Set

Typeface	FGID	GCSGID	Font Width	Code Pages			
Latin 1/2/3/4/5 with Euro and Vietnamese							
Times New Roman Medium	2308	1503	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".			
Times New Roman Bold	2309	1503	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".			
Times New Roman Italic Medium	2310	1503	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".			
Times New Roman Italic Bold	2311	1503	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".			
Helvetica Roman Medium	2304	1503	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".			
Helvetica Roman Bold	2305	1503	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".			
Helvetica Italic Medium	2306	1503	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".			
Helvetica Italic Bold	2307	1503	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".			

			_ ,	
Typeface	FGID	GCSGID	Font Width	Code Pages
Courier Roman Medium	416	1503	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Courier Roman Bold	420	1503	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Courier Italic Medium	424	1503	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Courier Italic Bold	428	1503	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
	S	Symbols with	Euro	
Times New Roman Medium	2308	1191	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Times New Roman Bold	2309	1191	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Helvetica Roman Medium	2304	1191	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Helvetica Roman Bold	2305	1191	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Courier Roman Medium	416	1191	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Courier Roman Bold	420	1191	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
		APL2		
APL2	307	1364	Scalable	293, 310, 910

Typeface	FGID	GCSGID	Font Width	Code Pages
APL2 Bold	322	1364	Scalable	293, 310, 910
	Cyr	illic Greek w	ith Euro	
Times New Roman Medium	2308	1504	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Times New Roman Bold	2309	1504	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Times New Roman Italic Medium	2310	1504	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Times New Roman Italic Bold	2311	1504	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Helvetica Roman Medium	2304	1504	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Helvetica Roman Bold	2305	1504	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Helvetica Italic Medium	2306	1504	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Helvetica Italic Bold	2307	1504	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Courier Roman Medium	416	1504	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Courier Roman Bold	420	1504	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".

Typeface	FGID	GCSGID	Font Width	Code Pages
Courier Italic Medium	424	1504	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Courier Italic Bold	428	1504	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
		Arabic with I	uro	
ITC Boutros Setting Medium	2308	1506	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
ITC Boutros Setting Bold	2309	1506	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
ITC Boutros Setting Italic Medium	2310	1506	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
ITC Boutros Setting Italic Bold	2311	1506	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
ITC Boutros Modern Rokaa Medium	2304	1506	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
ITC Boutros Modern Rokaa Bold	2305	1506	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
ITC Boutros Modern Rokaa Italic Medium	2306	1506	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
ITC Boutros Modern Rokaa Italic Bold	2307	1506	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".

Typeface	FGID	GCSGID	Font Width	Code Pages
Boutros Typing Medium	416	1506	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Boutros Typing Bold	420	1506	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Boutros Typing Italic Medium	424	1506	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Boutros Typing Italic Bold	428	1506	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
	ŀ	Hebrew with	Euro	
Narkissim Medium	2308	1362	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Narkissim Bold	2309	1362	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Narkissim Italic Medium	2310	1362	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Narkissim Italic Bold	2311	1362	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Narkiss Tam Medium	2304	1362	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Narkiss Tam Bold	2305	1362	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".

Typeface	FGID	GCSGID	Font Width	Code Pages
Narkiss Tam Italic Medium	2306	1362	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Narkiss Tam Italic Bold	2307	1362	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Shalom Medium	416	1362	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Shalom Bold	420	1362	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Shalom Italic Medium	424	1362	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Shalom Italic Bold	428	1362	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
		Thai		
Burirum Medium	2308	1505	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Burirum Bold	2309	1505	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Burirum Italic Medium	2310	1505	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Burirum Italic Bold	2311	1505	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".

Typeface	FGID	GCSGID	Font Width	Code Pages		
Thonburi Medium	2304	1505	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".		
Thonburi Bold	2305	1505	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".		
Thonburi Italic Medium	2306	1505	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".		
Thonburi Italic Bold	2307	1505	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".		
Courier Thai Medium	416	1505	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".		
Courier Thai Bold	420	1505	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".		
Courier Thai Italic Medium	424	1505	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".		
Courier Thai Italic Bold	428	1505	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".		
lao						
Kaewfah Medium	2308	1341	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".		
Kaewfah Bold	2309	1341	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".		

Typeface	FGID	GCSGID	Font Width	Code Pages	
Kaewfah Italic Medium	2310	1341	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".	
Kaewfah Italic Bold	2311	1341	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".	
Pusuwan Medium	2304	1341	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".	
Pusuwan Bold	2305	1341	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".	
Pusuwan Italic Medium	2306	1341	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".	
Pusuwan Italic Bold	2307	1341	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".	
Courier Lao Medium	416	1341	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".	
Courier Lao Bold	420	1341	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".	
Courier Lao Italic Medium	424	1341	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".	
Courier Lao Italic Bold	428	1341	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".	
Katakana					
Katakana Gothic	304	1306	Scalable	290, 897, 1027, 1041, 1139	

### **GCSGID Subsets**

The following table provides a mapping of the valid subsets of the GCSGIDs listed for the IBM Core Interchange fonts.

### **GCSGID Subsets for IBM Core Interchange Fonts**

GCSGID	Valid GCSGID Subsets
1269	0101, 0103, 0119, 0251, 0265, 0269, 0273, 0277, 0281, 0285, 0288, 0289, 0293, 0297, 0301, 0305, 0309, 0313, 0317, 0321, 0325, 0329, 0337, 0341, 0611, 0697, 0919, 0959, 0965, 0980, 0982, 0983, 0987, 0990, 0991, 0993, 0995, 1111, 1132, 1133, 1145, 1146, 1149, 1152, 1166, 1167, 1174, 1188, 1189, 1198, 1220, 1232, 1233, 1237, 1256, 1258, 1259, 1260, 1261, 1268, 1286, 1301, 1302, 2039
1355	1269, 2041
2041	0695, 0988, 1243, 1353, 1412, 2039
1275	0340, 0630, 0909, 1191, 1257
1264	0235, 0994, 1154, 1162, 1177, 1244
1265	0941, 0687, 0986, 0992, 1147, 1199, 1217, 1218
1300	0218, 0925, 0960, 0981, 0985, 0996, 0998, 1150, 1190, 1231, 1235, 1249, 1251, 1276, 1401
1279	1102, 1395, 1396
1304	380, 963, 1113
1306	332, 1122, 1164, 1172, 1187
1364	1304, 1330, 1340
1362	1265, 1356, 1357, 1358, 1360
1502	969
1503	1305, 1336, 1346, 1347, 1355, 1375, 1377, 1378, 1380, 1391, 1392, 1393, 1394, 1397, 1410, 1414, 1418, 1421
1504	1300, 1331, 1338, 1371, 1373, 1381, 1383, 1385, 1387, 1388, 1390, 1411, 1413, 1441

GCSGID	Valid GCSGID Subsets	
1505	1279	
1506	1264, 1461, 1463, 1464, 1465	

# IBM Core Interchange Resident Code Page Set

The following lists the code pages used with the IBM Core Interchange Resident Fonts. Not all code Pages apply to each font; this is determined by the character set. Please correlate the GCSGIDs found in the following lists with the correct IBM Core Interchange Font GCSGID superset in page 107 "GCSGID Subsets" to determine which code pages apply to a particular font family.

### IBM Core Interchange Resident Code Page Set

Code Page Global ID (CPGID)	Graphic Character Set ID (GCSGID)	Language Supported	
Latin 1 Country Extended Code Pages			
37	697	US English, Canadian English, Canadian French, Dutch, Brazilian Portuguese, Portuguese	
273	697	Austrian, German	
274	697	Belgian	
275	697	Brazilian	
277	697	Danish, Norwegian	
278	697	Finnish, Swedish	
280	697	Italian	
281	697	Japanese	
282	697	Portuguese	
284	697	Castilian Spanish, Latin American, Spanish	
285	697	UK English	
297	697	French, Catalan	

Code Page Global ID (CPGID)	Graphic Character Set ID (GCSGID)	Language Supported
500	697 Multinational, Belgium French, Belgium, Dutch, Swiss French, S German, Swiss Italian	
871	697	Icelandic
1140	695	US English, Canadian English, Canadian French, Dutch, Brazilian Portuguese, Portuguese ECECP
1141	695	Austrian, German ECECP
1142	695	Danish, Norwegian ECECP
1143	695	Finnish, Swedish ECECP
1144	695	Italian ECECP
1145	695	Castilian Spanish, Latin American, Spanish ECECP
1146	695	UK English ECECP
1147	695	French, Catalan ECECP
1148	695	Multinational ECECP, Belgium, French, Belgium Dutch, Swiss, French, Swiss German, Swiss Italian
1149	695	Icelandic ECECP
	Latin 1 EBCDIC Publishing Co	de Pages
361	1145	Multinational, Belgium French, Belgium, Dutch, Swiss French, Swiss, German, Swiss Italian
382	1145	German
383	1145	Belgian
384	1145	Brazilian Portuguese
385	1145	Canadian French
386	1145	Danish, Norwegian

Code Page Global ID (CPGID)	Graphic Character Set ID (GCSGID)	Language Supported		
387	1145	Finnish, Swedish		
388	1145	French, Catalan		
389	1145	Italian		
390	1145	Japanese		
391	1145	Portuguese		
392	1145	Castilian Spanish		
393	1145	Latin American Spanish		
394	1145	UK English		
395	1145	US English, Canadian English		
	Latin 1 ASCII Code Paç	ges		
437	919	Multinational, US English, UK English, Dutch, German, Finnish, French, Italian, Spanish, Swedish		
850	980	Multinational PC		
858	988	Multinational PC with Euro		
860	990	Portuguese (Primary = 850)		
861	991	Icelandic (Primary = 850)		
863	993	Canadian French (Primary = 850)		
865	995	Nordic (Primary = 850)		
1004	1146	IBM PC Desktop Publishing		
819	697	ISO Latin 1		
1252	1412	Windows Latin 1		
1112	1305	Baltic, Multi EBCDIC		
1257	1421	Windows, Baltic Rim		
Latin 2/3/4/5 EBCDIC and ASCII Code Pages				

Code Page Global ID (CPGID)	Graphic Character Set ID (GCSGID)	Language Supported
852	982	Croatian, Czech, East German, Hungarian, Polish, Romanian, Slovak, Slovenian
852	1377	Croatian, Czech, East German, Hungarian, Polish, Romanian, Slovak, Slovenian with Euro
870	959	Latin 2 Multilingual
912	959	Latin 2 ISO/ ANSI 8 Bit
1153	1375	Latin 2 Multilingual with Euro
1250	1410	Windows Latin 2
853	983	Latin 3 Multilingual PC
905	1286	Latin 3 Multilingual
913	1286	Latin 3 Multilingual
1069	1256	Latin 4 EBCDIC
914	1256	Latin 4 ISO/ASCII
857	987	Latin 5 Turkey PC
857	1380	Latin 5 Turkey PC with Euro
1155	1378	EBCDIC Turkey with Euro
857	987	Latin 5 PC
920	1152	Latin 5 ISO/ANSI 8 Bit
1026	1152	Latin 5
1254	1414	Windows, Turkish
1157	1391	EBCDIC Estonia with Euro
922	1347	Estonia, PC
902	1392	8-bit Estonia with Euro
1156	1393	EBCDIC Baltic Multilingual with Euro

Code Page Global ID (CPGID)	Graphic Character Set ID (GCSGID)	Language Supported			
921	1346	PC Baltic Multilingual			
901	1394	PC Baltic Multilingual with Euro			
	Latin 9 EBCDIC and ASCII Co	de Pages			
923	1353	Latin 9			
924	1353	Latin 9 EBCDIC			
	Vietnamese				
1130	1336	Vietnamese EBCDIC			
1164	1397	Vietnamese EBCDIC with Euro			
1129	1336	Vietnamese ISO-8			
1163	1397	Vietnamese ISO-8 with Euro			
1258	1418	Windows Vietnamese			
	Thailand				
838	1279	Thailand			
889	1102	Thailand			
874	1279	Thailand, PC			
1160	1395	Thailand, EBCDIC with Euro			
1161	1395	Thailand, PC with Euro			
1162	1396	Windows Thailand			
Lao					
1132	1341	Lao EBCDIC			
1133	1341	Lao ISO-8			
	Latin EBCDIC DCF Code F	Pages			
1002	1132	DCF Release 2 Compatibility			
1003	1133 US Text Subset				

Code Page Global ID (CPGID)	Graphic Character Set ID (GCSGID)	Language Supported
1068	1259	Text with Numeric Spacing
1039	1258	GML List Symbols
Cyrilli	c and Greek EBCDIC and ASC	CII Code Pages
880	960	Cyrillic Multilingual (Primary = 1025)
915	1150	Cyrillic ISO/ASCII 8 Bit
855	985	Cyrillic PC
866	996	Cyrillic #2 PC
1025	1150	Cyrillic Multilingual
1251	1411	Windows, Cyrillic
423	218	Greek 183 (Primary = 875)
813	925	Greek ISO/ASCII 8 Bit
813	1371	Greek ISO/ASCII 8 Bit with Euro
851	981	Greek PC (Primary = 869)
869	998	Greek PC
869	1373	Greek PC with Euro
875	925	Greek
875	1371	Greek with Euro
1039	1258	GML List Symbols
1253	1413	Windows, Greek
1253	1381	EBCDIC Cyrillic Multi. with Euro
808	1385	PC, Cyrillic, Russian with Euro
1131	1338	PC, Cyrillic, Belo Russian
849	PC, Cyrillic, Belo Russian wit	

Code Page Global ID (CPGID)	Graphic Character Set ID (GCSGID)	Language Supported	
808	1385	PC, Cyrillic, Russian with Euro	
1158	1388	EBCDIC Cyrillic, Ukraine with Euro	
1125	1331	PC, Cyrillic, Ukrainian	
848	1390	PC, Cyrillic, Ukrainian with Euro	
872	1383	Cyrillic PC with Euro	
1166	1441	EBCDIC Cyrillic Multi. with Euro	
	Arabic EBCDIC and ASCII Co	ode Pages	
420	235	Arabic Bilingual	
420	1461	Arabic Bilingual with Euro	
864	994	Arabic PC	
864	1463	Arabic PC with Euro	
1008	1162	Arabic ISO/ASCII 8 Bit	
1008	1464	Arabic ISO/ASCII 8 Bit with Euro	
1029	1154	Arabic Extended ISO/ASCII 8 Bit	
1046	1177	Arabic Extended ISO/ASCII 8 Bit	
1046	1465	Arabic Extended ISO/ASCII 8 Bit with Euro	
1039	1258	GML List Symbols	
ŀ	Hebrew EBCDIC and ASCII Co	ode Pages	
916	941	Hebrew ISO/ASCII 8 Bit	
1028	941	Hebrew Publishing	
424	941	Hebrew	
424	1356	Hebrew with Euro	
803	1147	Hebrew Character Set A (Primary = 424)	

Code Page Global ID (CPGID)	Graphic Character Set ID (GCSGID)	Language Supported		
803	1357	Hebrew Character Set A (Primary = 424) with Euro		
856	986	Hebrew PC (Primary = 862)		
856	1358	Hebrew PC (Primary = 862) with Euro		
862	992	Hebrew PC		
867	1360	Israel with Euro		
1039	1258	GML List Symbols		
	Symbols			
259	340	Symbols, Set 7		
899	340	Symbols, Set 7 ASCII		
1087	1257	Symbols, Adobe		
1038	1257	Symbols, Adobe ASCII		
1091	1191	Symbols, Modified Set 7		
1092	1191	Symbols, Modified Set 7 ASCII		
363	630	Symbols, Set 8		
829	909	Math Symbols		
1039	1258	GML List Symbols		
	Katakana			
1027	1172	Japanese Latin Extended		
290	332	Japan Katakana		
290	1172	Host/PC Japanese Katakana Extended		
897	1164	Japan PC #1		
1041	1187	Japanese Extended PC		

Code Page Global ID (CPGID)	Graphic Character Set ID (GCSGID)	Language Supported		
1139	1122	Japan Alphanumeric Katakana		
APL2				
293	1340	APL USA		
310	963	Graphic Escape APL/TN		
910	1330	APL ASCII		

# 4028 Compatibility Resident Font Set

The following lists the typefaces resident in the Printer and includes the valid FGID and code pages for each font. The Date Stamp on most of these character sets is 94350, and the Time Stamp used is 00000000.

The Date Stamp on FGIDs 76 and 159(20224) is 96036. The Date Stamp on FGID 164 is 96039 with a Time Stamp 08225100 for all GCSGIDs except 695, where the Data Stamp is 98124 and the Time Stamp is 13491500. The Date Stamp on FGID 701 is 96309 with a Time Stamp of 08230800 for all GCSGIDs except 695, where the Date Stamp is 98124 and the Time Stamp is 13492000. Fonts listed with an "Alt FGID", are used as a substitute for the requested "Alt FGID".

The Printer will substitute Times New Roman (from the IBM Core Interchange Set) for the Times Roman fonts listed in Table 162. The Courier fonts will also come from the IBM Core Interchange Set. All the remaining listed fonts will be from the IBM Coordinated Font Set (See page 121 "IBM Coordinated Font Set (IPDS)" (Resident PSC Strategic Scalable Font Set 2)).

See page 119 "4028 Compatibility Resident Code Page Set" for an explanation of the groups used in the "Code Pages" column.



- Prestige fonts used with code pages with a CPGID of 259 are mapped to the Courier Roman Medium Symbols font (FGID 416 GCSGID 1275) as shown in Table 159. When the printer is in Box-Draw mode, any font which does not indicate CPGID 259 support will print with the Roman Medium Symbols font in a point size of 10 (12 pitch) when used with Code Page 259. This emulates 4028 behavior.
- Courier FGIDs 11 and 85 and Prestige FGIDs 12 and 86 now support Code Page 259 (when Box-Draw mode is on) to the extent these were supported in the 4028. In this mode, CPGID 1091 is substituted for CPGID 259 in order to print box-draw characters that line up with each other. The registered CPGID 259 does not have such characters, and is used when not in Box-Draw mode.
- To match the 4028 and 3116 printed font sizes, the FGIDs 254, 256, 281, and 290 are scaled anamorphically (internal to the Printer) as follows:

FGID	Vertical × Horizontal Scale Factors (points)
254	7.8 vpt × 7.0 hpt
256	7.8 vpt × 7.0 hpt
281	7.0 vpt × 6.0 hpt
290	5.0 vpt × 4.5 hpt

FGID

Alt FGID

Pitch

Point Size

Typeface

турегисе	TGID	All I GID	riicii	TOITII SIZE	width	Pages
Boldface	159		Proportio nal	12	120	А, В
Prestige PSM Roman Medium	164		Proportio nal	12	120	А, В
Courier	11		10	12	144	259, A, B
Courier	85		12	10	120	259, A, B
Courier	223		15	8	96	А, В
Courier. 17ss	254		17.1	7.8	84	А, В
Courier Bold	46		10	12	144	А, В
Courier Bold	108		12	10	120	А, В
Courier Italic	92		12	10	120	А, В
Letter Gothic	281		20	7	72	А, В
OCR A	19		10	12	144	892
OCR B	3		10	12	144	893
Prestige Pica	12		10	12	144	259, A, B
Prestige Elite	86		12	10	120	259, A, B
Prestige	221		15	7.8	96	А, В
Prestige	256		17.1	8.5	84	А, В
Prestige PSM	164		Proportio nal	12	120	А, В
Prestige Elite Bold	111		12	10	120	А, В
Prestige Elite Italic	112		12	10	120	А, В
Times Roman	5687	760	Туро	6	40	А
Times Roman	5687	751	Туро	8	53	А

Code

Font

ס

Typeface	FGID	Alt FGID	Pitch	Point Size	Font width	Code Pages
Times Roman	5687	1051	Туро	10	67	А
Times Roman	5687	1351	Туро	12	80	А
Times Roman Bold	5707	1053	Туро	10	67	A
Times Roman Bold	5707	761	Туро	12	80	A
Times Roman Bold	5707	762	Туро	14	93	A
Times Roman Bold	5707	1803	Туро	18	120	A
Times Roman Bold	5707	2103	Туро	24	160	A
Times Roman Italic	5815	1056	Туро	10	67	А
Times Roman Italic	5815	763	Туро	12	80	A
Times Roman Bold Italic	5835	764	Туро	10	67	A
Times Roman Bold Italic	5835	765	Туро	12	80	A
Gothic Text (311x)	203		13.3	9	108	А, В
Gothic Text (311x)	283		20	6	72	А, В
Gothic Text (311x)	290		26.7	5	54	A, B

## 4028 Compatibility Resident Code Page Set

The following lists provides an explanation of the groups as used in the Code Pages column of page 117 "4028 Compatibility Resident Font Set".

### 4028 Compatibility Resident Code Page Set

Code Page Global ID (CPGID)	Graphic Character Set ID (GCSGID)		
Group A			
037, 273, 274, 277, 278, 280, 281, 284, 285, 297, 500, 871	697		

Code Page Global ID (CPGID)	Graphic Character Set ID (GCSGID)		
1140, 1141, 1142, 1143, 1144, 1145, 1146, 1147, 1148, 1149	695		
038, 367	103		
260	341		
276	277		
286	317		
287	321		
288	325		
1002	1132		
437	919		
850	980		
858	988		
1003 (Addition to 4028 font support. Not supported by 4028.)	1133		
Gro	up B		
256 (Replaced by 500)	337		
289 (Replaced by 500, but missing obsolete "Peseta" character)	329		
Miscellaneous			
310	963		
259	340		
892	968		
893	969		
1303 (Used internally for resident Code 128 barcode font and postal bar code font support)	n/a		

### **IBM Coordinated Font Set (IPDS)**

"Resident PSC Strategic Scalable Font Set 2" lists the scalable IBM Coordinated font set typefaces resident in the Printer and includes the valid FGID and code pages for each font.

Where the IBM Core Interchange code pages are referenced in page 108 "IBM Core Interchange Resident Code Page Set", only the Latin 1 Country Extended, Latin 1 EBCDIC Publishing, Latin 1 ASCII and Latin EBCDIC DCF code pages are supported.

#### **GCSGID Subsets**

The following lists provides an a mapping of the valid subsets of the GCSGIDs listed for the PSC Strategic Font Set 2.

#### Resident PSC Strategic Scalable Font Set 2

Typeface	FGID	GCSGID	Font Width	Code Pages
APL	307	1304	Scalable	293, 310, 910
APL Bold	322	1304	Scalable	293, 310, 910
Boldface	20224	2039	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Boldface (Euro)	20224	2041	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Gothic Text	304	2039	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Gothic Text (Euro)	304	2041	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Letter Gothic	400	2039	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Letter Gothic (Euro)	400	2041	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".

Typeface	FGID	GCSGID	Font Width	Code Pages
Letter Gothic Bold	404	2039	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Letter Gothic Bold (Euro)	404	2041	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
OCR A	305	968	Scalable	876, 892
OCR B	306	969	Scalable	877, 893
OCR B (Euro)	306	1502	Scalable	877, 893
Prestige	432	2039	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Prestige (Euro)	432	2041	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Prestige Bold	318	2039	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Prestige Bold (Euro)	318	2041	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Prestige Italic	319	2039	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Prestige Italic (Euro)	319	2041	Scalable	See page 108 "IBM Core Interchange Resident Code Page Set".
Katakana Gothic	304	1306	Scalable	290, 897, 1027, 1041

## **IBM Coordinated Font Set Code Page Set**

The following lists provides the GCSGIDs and CPGIDs for the individual Code Pages listed in the Code Pages column of page 121 "IBM Coordinated Font Set (IPDS)" (Resident PSC Strategic Scalable Font Set 2).

## IBM Coordinated Font Set Code Page Set

Code Page Global ID (CPGID)	Graphic Character Set ID (GCSGID)
293	380
310	963
910	1113
876, 892	968
877, 893	969
877, 893	1502
290, 1027	1172
897	1164
1041	1187

## GCSGID Subsets for the Strategic Font Set 2

GCSGID	Valid GCSGID Subsets
1304	0380, 0963, 1113
2039	0101, 0103, 0119, 0251, 0265, 0269, 0273, 0277, 0281, 0285, 0288, 0289, 0293, 0297, 0301, 0305, 0309, 0313, 0317, 0321, 0325, 0329, 0337, 0341, 0611, 0697, 0919, 0980, 0990, 0991, 0993, 0995, 1132, 1133, 1145, 1146, 1149, 1198, 1220, 1258, 1259, 1260
1306	0332, 1164, 1172, 1187
2041	0695, 0988, 1243, 1353, 1412, 2039

# **IPDS Default Font**

## **Factory Setting**

The factory setting for the default font is Courier Roman Medium 10 pitch (12 point) using code page 037, version 1. The GRID for the default font is: FGID=416, GCSGID=697, CPGID=037, FontWidth=144 (CPI setting is 10.0). The default font may be changed by the operator using the printer's control panel. It will reset to the Factory Setting upon each IML. It can be reset to the Factory Setting by doing a Cold Reset to the printer.

The default font can be set for Single Byte fonts. It does not contain Double Byte Font Character Sets or Code Pages.

## Selectable IPDS Default Font

To change the default font requires the use of the printer's control panel. The printer's control panel will present menu choices for selecting the various parts of the font.

The operator may select the default font using any or all of the Code Page (CPGID), Font (FGID), and Characters Per Inch (CPI) parameters. The available parameters will be listed in Groups to help identify valid/invalid combinations. An invalid combination will be resolved inside the printer because the printer must have a valid default font. However, the parameter adjustment will not be visible at the printer's control panel display. Detailed information listing the valid combinations and how to select them will be available with the printer.

The selection is based upon a hierarchy: Code Page is highest, Font is next, and Font Width (CPI) is the lowest. Should an invalid combination be selected, the Code Page will override Font and CPI, and Font will override CPI.

There are 5 Groups, A-E, into which all the fonts, code pages, and widths fall. All combinations defined within a Group are valid. When internal modification is necessary, the following rules apply:

- An invalid/unsupported CPGID becomes Code Page 037 (Group A).
- An invalid/unsupported Font Width (CPI) becomes 10.0 CPI (which will translate to 12 points).
- For a Group A CPGID, an invalid/unsupported FGID becomes 416 Courier Roman Medium.
- For a Group B CPGID, the FGID is automatically 304 Gothic Katakana.
- For a Group C CPGID, the FGID is automatically 305 OCR A. Font Width is 10.0 CPI.
- For a Group D CPGID, the FGID is automatically 306 OCR B. Font Width is 10.0 CPI.
- For a Group E CPGID, an invalid/unsupported FGID becomes 416 Courier Roman Medium.



The 4028 compatibility fonts are a new addition to the printer's control panel selection. This is
necessary because some of these FGIDs are anamorphically scaled, and therefore cannot be
correctly reproduced with just an AFP FGID and a CPI value.

These fonts are handled specially in that all of these FGIDs (except 5687, 5707, 5815, 5835) ignore the printer's control panel CPI value, because the FGID fully describes the font. In the case of the 4 typographic FGIDs, there are valid discreet sizes associated with them. If the correct CPI values are not used, the printer will default to the nearest discrete size value. Tie goes to the smaller value.

## Selectable Code Pages

The following code pages are selectable by the operator:

Code-Page/Group	Code Page Description
500 A	Belgium, Switzerland / International

Code-Page/Group	Code Page Description
037 A	US, Canada, Netherlands, Portugal
038 A	US English ASCII
260 A	Canadian French
273 A	Austrian / German
274 A	Belgium
276 A	Canadian French (94 character set)
277 A	Danish / Norwegian
278 A	Finnish / Swedish
280 A	Italian
281 A	Japanese
284 A	Spanish
285 A	UK English
286 A	Austrian / German (Alternate)
287 A	Danish / Norwegian (Alternate)
288 A	Finnish / Swedish (Alternate)
297 A	French
871 A	Icelandic
1140 A	US, Canada, Netherlands, Portugal (Euro)
1141 A	Austrian, German (Euro)
1142 A	Danish Norwegian (Euro)
1143 A	Finnish, Swedish (Euro)
1144 A	Italian (Euro)
1145 A	Spanish (Euro)
1146 A	UK English (Euro)
1147 A	Catalan French (Euro)

Code-Page/Group	Code Page Description
1148 A	Multinational (Euro)
1149 A	Icelandic (Euro)
290 B	Japanese / Katakana
892 C	OCR - A
893 D	OCR - B
420 E	Arabic
423 E	Greek
424 E	Hebrew
870 E	Latin 2 Multilingual
875 E	Greek
880 E	Cyrillic
905 E	Turkish
1025 E	Cyrillic (primary)
1026 E	Turkish (primary)

## Selectable Fonts

The following fonts (FGID) are selectable by the operator:

FGID/Group	FGID Description
2304 A, E	Helvetica Roman/ITC Boutros Modern Rokaa/Narkiss Tam - Medium
2305 A, E	Helvetica Roman/ITC Boutros Modern Rokaa/Narkiss Tam - Bold
2306 A, E	Helvetica Roman/ITC Boutros Modern Rokaa/Narkiss Tam - Italic Medium
2307 A, E	Helvetica Roman/ITC Boutros Modern Rokaa/Narkiss Tam - Italic Bold

FGID/Group	FGID Description
2308 A, E	Times New Roman/ITC Boutros Setting Rokaa/Narkissim - Medium
2309 A, E	Times New Roman/ITC Boutros Setting Rokaa/Narkissim - Bold
2310 A, E	Times New Roman/ITC Boutros Setting Rokaa/Narkissim - Italic Medium
2311 A, E	Times New Roman/ITC Boutros Setting Rokaa/Narkissim - Italic Bold
416 A, E	Courier Roman/Boutros Typing/Shalom - Medium
420 A, E	Courier Roman/Boutros Typing/Shalom - Bold
424 A, E	Courier Roman/Boutros Typing/Shalom - Italic Medium
428 A, E	Courier Roman/Boutros Typing/Shalom - Italic Bold
20224 A	Boldface
304 A	Gothic Text
400 A	Letter Gothic
404 A	Letter Gothic Bold
432 A	Prestige
318 A	Prestige Bold
319 A	Prestige Italic
304 B	Katakana Gothic
305 C	OCR A
306 D	OCR B

## 4028 Selectable Fonts

The following 4028 fonts (FGID) are also selectable by the operator:

FGID/Group	FGID Description
159 A	Boldface (Proportional Space 12 pt., based on 10 CPI)

FGID/Group	FGID Description
11 A	Courier 10.0 CPI
85 A	Courier 12.0 CPI
223 A	Courier 15.0 CPI
254 A	Courier 17.1 CPI
46 A	Courier Bold 10.0 CPI
18 A	Courier Italic 10.0 CPI
92 A	Courier Italic 12.0 CPI
203 A	Gothic Text 13.3 CPI
283 A	Gothic Text 20.0 CPI
290 A	Gothic Text 26.7 CPI
281 A	Letter Gothic 20 CPI
19 C	OCR A
03 D	OCR B
12 A	Prestige Pica 10.0 CPI
86 A	Prestige Elite 12.0 CPI
221 A	Prestige Elite 15.0 CPI
256 A	Prestige Elite 17.1 CPI
111 A	Prestige Elite Bold 12.0 CPI
112 A	Prestige Elite Italic 12.0 CPI
5687 A	Times Roman Typographic 6, 8, 10, 12 pt
5707 A	Times Roman Typographic Bold 10, 12, 14, 18, 24 pt
5815 A	Times Roman Typographic Italic 10, 12 pt
5835 A	Times Roman Typographic Bold Italic 10, 12 pt

The following Font Widths (CPI) are selectable by the operator:

Group	Range in characters per inch
A, B, E	5.0 CPI - 30.0 CPI, in increments of 0.1 CPI.
C, D	10.0 CPI.

4028 Fixed Width	Ignored. Handled internally because the FGID defines the size.
5687 6 pt	20.0 CPI
5687 8 pt	15.1 CPI
5687 10 pt	11.9 CPI
5687 12 pt	10.0 CPI
5707 10 pt	11.9 CPI
5707 12 pt	10.0 CPI
5707 14 pt	8.6 CPI
5707 18 pt	6.7 CPI
5707 24 pt	5.0 CPI
5815 10 pt	11.9 CPI
5815 12 pt	10.0 CPI
5835 10 pt	11.9 CPI
5835 12 pt	10.0 CPI

Normally, IPDS Font Width is in terms of 1440ths of an inch (for example, 144, 120). However, printer's control panel Font Width selection is more easily understood (and more universally used) as Characters Per Inch. So the values will range from 5.0 cpi (Font Width 288) to 30.0 cpi (Font Width 48) in increments of 0.1 cpi.

The resulting cpi will be translated internally to the nearest integer font width value. Since CPI is inherently a reciprocal, 0.1 cpi increments will be a non-linear font width progression. This should not prove a serious problem since default fonts for IPDS are not the primary selection path.

An extra note is that font widths for fixed width fonts are calculated differently than for typographic fonts.

The vertical point size is the real common ground. So to get a 12 point size, a fixed width font will use a font width of 144; 10 cpi. A typographic font will use a font width of 80. To keep compatible sizes this is also translated from 10 cpi. The FGID defines which range to use. For further details, refer to the LFE and/or AR command sections of the IPDS architecture spec.

## **IPDS Bar Code Printing**

To support the BCOCA tower for printing of bar codes, the OCR-A and OCR-B fonts and their corresponding code pages (892 and 893) must be resident in the printer. These are supported as shown in page 117 "4028 Compatibility Resident Font Set".

Code page 1303 is also resident to be used for printing code 128 bar codes.

### **IPDS Font Bolding**

The Printer will accept the IPDS Load Font Equivalence command and support the bold and double strike bits for both resident Type 1 and loaded raster fonts. No other bits within the LFE flags byte are supported.

The bold/double strike attributes are handled the same way within the printer. The function is provided by printing a text block multiple times, each time shifted an appropriate amount. Since the attributes are tied to the font LID and not the font resource, the font resource is not affected.

# 7. Appendix

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# Manuals for the IPDS card

Refer to the manuals that are relevant to what you want to do with the IPDS card.



Adobe<sup>®</sup> Acrobat<sup>®</sup> Reader<sup>®</sup>/Adobe Reader must be installed in order to view the manuals as PDF files.

#### IPDS Supplement (IPDS.pdf)

Explains how to configure the IPDS card for the machine. It also explains about items selectable from the Web browser.

### IPDS Printing Configuration Guide (IPDS\_CONF.pdf) \*English Only

Explains about the environment necessary for connecting the mainframe to the machine and performing IPDS printing.

### IPDS Technical Reference 1 (IPDS\_TEC1.pdf) \*English Only

Explains about commands and functions for IPDS printing.

#### IPDS Technical Reference 2 (IPDS\_TEC2.pdf)\*English Only

Explains about IPDS commands.



For details about the necessary environment and how to install the IPDS card and machine, consult
your sales or service representative. For details about the necessary environments and operation of
the mainframe, contact IBM.

# Notice

### **Important**

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

In no event will the company be liable for direct, indirect, special, incidental, or consequential damages as a result of handling or operating the machine.

## How to Read This Manual

### Symbols

This manual uses the following symbols:



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.



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

[]

Indicates the names of keys on the machine's display or control panels.

### **About This Book**

This book provides technical reference information about how printers support the IPDS data stream.

#### Audience

This publication is intended for the system programmers, application programmers, and systems engineers who are familiar with data streams and are writing or modifying programs to operate your printer with the IPDS data stream.

### **Terminology**

#### Paper Input and Output Receptacles

Input receptacles are called trays. Output receptacles are called stackers or bins.

#### **Related Publications**

This book refers to the following:

- PostScript Language Reference Manual, second edition, by Adobe Systems, Inc.
- PCL 5 Printer Language Technical Reference Manual by Hewlett-Packard Company
- PCL 5 Comparison Guide by Hewlett-Packard Company
- Printer Job Language Technical Reference Manual by Hewlett-Packard Company



• For details on the IPDS Architecture, see the Intelligent Printer Data Stream Reference, S544-3417.

## 1. Device Control Command Set

### **About Device Control Command Set**

Device Control commands control basic device operations, error reporting and recovery, and the construction of logical pages on the physical medium.

Before the host program sends the Begin Page command to begin defining a page to be printed, it should establish the printing environment in which the page is to be printed.

The following Device Control commands are described in this section:

- page 10 "Acknowledgement Reply"
- page 13 "Activate Resource"
- page 22 "Begin Page"
- page 23 "Deactivate Font"
- page 26 "End"
- page 27 "End Page"
- page 28 "Load Copy Control"
- page 45 "Load Font Equivalence"
- page 49 "Logical Page Descriptor"
- page 54 "Logical Page Position"
- page 56 "Presentation Fidelity Control"
- page 58 "Sense Type and Model"
- page 71 "Execute Order Any State (XOA)"
- page 71 "XOA Mark Form"
- page 71 "XOA Exception Handling Control"
- page 82 "Execute Order Home State (XOH)"
- page 82 "XOH Obtain Printer Characteristics"
- page 112 "XOH Select Input Media Source"
- page 114 "XOH Set Media Origin"
- page 114 "XOH Set Media Size"
- page 115 "XOH Page Counter Control"
- page 115 "XOH Define Group Boundary"
- page 127 "XOH Specify Group Operation"
- "XOA-RRL Replies for Font Character Sets", IPDS Technical Reference 1

# **Acknowledgement Reply**

The Acknowledge Reply returns device status, sense data, and other information the host program requests. The printer sends an acknowledgement when it finds either of the following:

- A data stream or device error that requires the printer to return a negative acknowledgement (NACK).
- The Acknowledgement Required (ARQ) flag bit in the command the printer receives is set to 1.

The Acknowledge Reply is returned to the host in the standard IPDS command format although it goes from the printer to the host. See Intelligent Printer Data Stream Reference for details.

The following table lists Bit Codes for IPDS command stream flags for Acknowledge Reply.

Bit Code	Meaning
Bit O	Reserved
Bit 1	Correlation Number Present
Bit 2	Acknowledgement Continuation
Bits 3-6	Reserved
Bit 7	The Persistent NACK bit is for Non-SNA DSC Mode NACKs only.
	This bit has no meaning in other attachment environments.



- When a command is received with Bit 1 set, the Acknowledge Reply will be returned with this bit set, indicating that a two byte "Correlation Number" follows.
- The Correlation Number, a two byte identifier, is returned if available for:
  - Synchronous NACKs
  - Response to information request commands
  - Acknowledgement requested (Flag byte bit 0 = 1)
- The Special Data area of the Acknowledgement Reply contains:
  - Error sense bytes when reporting an exception
  - Response to the following information request commands:
    - Sense Type and Model
    - XOH Obtain Printer Characteristics
    - XOA Request Resource List

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Offset	Range	Meaning	Error Code
0		ACKNOWLEDGEMENT TYPE:  A one byte field that identifies the type of acknowledgement record and contents (if any) of the Special Data area.	
	X'40'	None	
	X'41'	Sense Type and Model	
	X'44'	Request Resource List	
	X'46'	Obtain Printer Characteristics	
	X'C0'	Sense Bytes	
1-2	X'0000' - X'FFFF'	Received Page Counter*  * Incremented when the End Page processing is completed.	
3-4	X'0000'- X'FFFF'	Committed Page Counter*  * Incremented by the number of pages on a sheet when the last copy of the sheet is stacked.	
5-6	X'0000'- X'FFFF'	Committed Copy Counter*  * Incremented by the number of pages on a sheet when the sheet is stacked.	
7-8	X'0000'- X'FFFF'	Operator Viewing Page Counter*  * Incremented by the number of pages on a sheet when the last copy of the sheet is stacked.	
9-10	X'0000'- X'FFFF'	Operator Viewing Copy Counter*  *Incremented by the number of pages on a sheet when the sheet is stacked.	
11-12	X'0000'- X'FFFF'	Jam Recovery Page Counter*  *Incremented by the number of pages on a sheet when the last copy of the sheet is stacked.	
13-14	X'0000'- X'FFFF'	Jam Recovery Copy Counter*  *Incremented by the number of pages on a sheet when the sheet is stacked.	

Offset	Range	Meaning	Error Code
15-16	X'0000'- X'FFFF'	Stacked Page Counter*  *Incremented by the number of pages on a sheet when the last copy of the sheet is stacked.	
17-18	X'0000'- X'FFFF'	Stacked Copy Counter*  *Incremented by the number of pages on a sheet when the sheet is stacked.	
19-n		SPECIAL DATA AREA: This area contains zero or more bytes of additional data as requested by the host program defined by the Acknowledgement Type.	

### **Activate Resource**

This command maps a 6-byte Host Assigned Resource ID (HAID/FIS/Section) to a resident Resource ID of the format specified in the Resource ID Format parameter (Byte 6). The Resource ID formats which are supported may be determined using the XOH OPC command (See page 82 "XOH Obtain Printer Characteristics").

An AR mapping (HAID to Resource ID mapping) remains in effect until:

- an XOH Erase Residual Font Data command or Deactivate Font (See page 23 "Deactivate Font")
   command is received (the mapping is removed and font deactivated)
- the printer performs an IML (the mapping is removed)

If a Deactivate Font command is received for a single byte font, the font identified by the HAID is deactivated (made unavailable for use by the host), but all other current font mappings remain in effect until one of the actions described in the preceding paragraph occurs. If a Deactivate Font command is received which specifies all single byte fonts, all font mappings are removed as those fonts are deactivated.

The maximum of Activate Resource ID mappings that may be received is limited only by the available memory.



 IPDS architecture describes the mapping and activation of resident resources as two conceptually separate processes. The printer, however, implements mapping and activation as one inseparable process. Un-map and de-activate are also inseparable operations. Thus, a Deactivate Font command directed at a mapped and activated resident font, both un-maps and de-activates the specified font(s).

Offset	Range	Meaning	Error Code
0-1		ENTRY LENGTH	X'028F
	X'0002'	Null entry	01'
	X'000C'	Specifying without an equivalence	
	X'000E'	Valid for RT=X'06' with RIDF=X'03'	
	X'000E'-0 08D'	Valid for RT=X'42' with RIDF=X'09'	
	X'0010'	Valid for RT=X'06' or X'07' with RIDF=X'03'	
	X'0012'	Valid for RT=X'41' with RIDF=X'OA'	
	X'0014'	Valid for RT=X'01', X'08', X'09', X'10' with RIDF=X'03'	-
	X'001E'	Valid for RT=X'01', X'08', X'09', X'10' with RIDF=X'07'	-
	X'00B8'	Valid for RT=X'01' or X'08' with RIDF=X'06'	-
2		RESOURCE TYPE (RT)	X'028F 01'
	X'01'	Single byte LF1 coded font	
	X'03'	Double-byte LF1 –type coded font sections	
	X'06'	Code Page	
	X'07'	Font Character Set	
	X'08'	Single byte font index	
	X'09'	Double-byte LF1 –type coded font section indexes	
	X'10'	Coded Font	
	X'40'	Data object resource	
	X'41'	Data-object font	
	X'42'	Data-object font component	1
3-4	X'0001'- X'7EFF'	HOST ASSIGNED ID	X'028F 01'
5	X'41'-X'FE'	Ignored for RT=X'01', X'06', X'07', X'08' and X'10'	

Offset	Range	Meaning	Error Code
6		RESOURCE ID FORMAT (RIDF)	X'028F
	X'03'	IBM Registered Global Resource ID parts	01'
	X'06'	MVS host unalterable remote font environment	
	X'07'	Coded font	
	X'09'	Object-OID	
	X'OA'	Data-object font	
7-8		FONT INLINE SEQUENCE	X'028F
	X'0000'	0 degrees	01'
	X'2D00'	90 degrees	
	X'5A00'	180 degrees	
	X'8700'	270 degrees	
		That the Font Inline Sequence is ignored for RT=X'06' and X'07'.	
		For outline fonts with RT=X'10', FIS is used to select the character metrics for a specific writing mode.	
9-10	X'0000'	Reserved	
11		RESOURCE CLASS FLAGS	
	Bit 0 0/1	Public/Private (Resource Capture)	
	Bit 1 O	Retired	
	Bit 2 0/1	Ignored (Reset)	
	Bit 3 0/1	AR NACK Enabled	
	Bit 4 0/1	Outline Font Substitution	
	Bits 5-7 0	Reserved	
Bytes 12-n		RESOURCE ID and triplets	X'028F 01'

### **U** Note

• Zero or more additional entries, analogous to bytes 0 - n above.

### Resource ID example with RIDF = GRID

Offset	Range	Meaning	Error Code
12-13		GRAPHIC CHARACTER SET GLOBAL ID	X'028F
	X'0000'	No value supplied	02'
	X'0001' - X'FFFE'	GCSGID	
	X'FFFF'	All characters with assigned code points in the associated code page	
14-15		CODE PAGE GLOBAL ID	X'028F
	X'0000'	No value supplied	02'
	X'0001' - X'FFFE'	CPGID	
	X'FFFF'	Default Code Page (Configuration Settings)	
16-17		FONT GLOBAL ID	X'028F
	X'0000'	No value supplied	02'
	X'0001' - X'FFFE'	FGID	
	X'FFFF'	Default FGID (Configuration Settings)	
18-19		FONT WIDTH	X'028F
	X'0000'	No value supplied	02'
	X'0001' - X'FFFE'	FW	
	X'FFFF'	Default FW (Configuration Settings)	

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# Resource ID example with RIDF = MVS Host Unalterable Remote Font Environment

Offset	Range	Meaning	Error Code
12-13		CRC	
14-21		Ignored (MVS Host System ID)	
22-27		Ignored (VOLSER of Host library)	
28-71		Ignored (DSNAME of Host library)	
72-77		Date Stamp	
78-85		Time Stamp	
94-95		GRAPHIC CHARACTER SET GLOBAL ID	X'028F
	X'0000'	No value supplied	02'
	X'0001' - X'FFFE'	GCSGID	
	X'FFFF'	All characters with assigned code points in the associated code page	
96-97		CODE PAGE GLOBAL ID	X'028F
	X'0000'	No value supplied	02'
	X'0001' - X'FFFE'	CPGID	
	X'FFFF'	Default Code Page (Configuration Settings)	
98-99		CRC	
100-10		Ignored (MVS Host System ID)	
108-11		Ignored (VOLSER of Host library)	
114-15 7		Ignored (DSNAME of Host library)	

Offset	Range	Meaning	Error Code
158-16 3		Date Stamp	
164-17		Time Stamp	
172-17 9		Ignored (Host Library Member Name)	
180-18		FONT GLOBAL ID	X'028F 02'
1	X'0000'	No value supplied	
	X'0001' - X'FFFE'	FGID	
	X'FFFF'	Default FGID (Configuration Settings)	
182-18		FONT WIDTH	X'028F
3	X'0000'	X'0000' No value supplied	02'
	X'0001' - X'FFFE'	FW	
	X'FFFF'	Default FW (Configuration Settings)	

## Resource ID example with RIDF = Coded Font

Offset	Range	Meaning	Error Code
12-13		FONT CHARACTER SET HAID	
	X'0000'	No value supplied	
	X'0001' - X'7FFF'	FCS HAID	
14-15		CODE PAGE HAID	
	X'0000'	No value supplied	
	X'0001' - X'7FFF'	CP HAID	

Offset	Range	Meaning	Error Code
16-17		GRAPHIC CHARACTER SET GLOBAL ID	
	X'0000'	No value supplied	
	X'0001' - X'FFFE'	GCSGID	
	X'FFFF'	All characters with assigned code points	
18-19		CODE PAGE GLOBAL ID	
	X'0000'	No value supplied	
	X'0001' - X'FFFE'	CPGID	
	X'FFFF'	Default Code Page (Configuration Settings)	
20-21		FONT GLOBAL ID	
	X'0000'	No value supplied	
	X'0001' - X'FFFE'	FGID	
	X'FFFF'	Default FGID (Configuration Settings)	
22-23		FONT WIDTH	
	X'0000'	No value supplied	
	X'0001' - X'FFFE'	FW	
	X'FFFF'	Default FW (Configuration Settings)	
24		PATTERN TECHNOLOGY ID	
	X'00'	No value supplied	
	X'1E'	Composite technology	
	X'1F'	Adobe Type-1 PFB	
25		Reserved	

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Offset	Range	Meaning	Error Code
26-27		VERTICAL SCALE FACTOR	
	X'0000'	No value supplied	
	X'0001' - X'7FFF'	VSF in 1440th of an inch	
28-29		HORIZONTAL SCALE FACTOR	
	X'0000'	No value supplied	
	X'0001' - X'7FFF'	HSF in 1440th of an inch	

## Resource ID example with RIDF = Object-OID

Offset	Range	Meaning	Error Code
12		IDENTIFIER	
	X'06'	Short Form OID	
13		OID LENGTH	
	X'00' - X'7F'		
2 to end		Unique OID	
	Any Value		

### Resource ID example with RIDF = Data-object font

Offset	Range	Meaning	Error Code
12-13		Base Font HAID	
	X'0001' - X'7EFF'	TrueType/OpenType font or TrueType/OpenType collection	

Offset	Range	Meaning	Error Code
14-15		CODE PAGE HAID	
	X'0000'	No Value supplied	
	X'0001' - X'7EFF'	CP HAID	
16-17		TTC Font Index	
	X'0000' - X'FFFF'	Font Identifier	
2 to end		Triplets	
		(One or more of the following triplets)	
	X'02'	Fully Qualified Name triplet	
	X'50'	Encoded Scheme ID triplet	
	X'8B'	Data-Object Font Descriptor triplet	
	X'8D'	Linked Font triplet	

# **Begin Page**

This command is only valid in home state and causes the printer to enter page state. See the Intelligent Printer Data Stream Reference for details.



At Begin Page processing time a test for media source and destination compatibility will be
performed. If it is determined that the processing of this page with the media source and media
destination specified is incompatible an exception X'0237..04' will be reported.

1

## **Deactivate Font**

The Deactivate Font command carries one to six bytes of data used by the host to deactivate one or more coded fonts, coded font indexes, font character sets, or code pages.

Offset	Range	Meaning	Error Code
0		DEACTIVATION TYPE	X'02170
	X'11'	Deactivate one single-byte LF1 Coded Font and related indexes	2' X'02C50
	X'12'	Deactivate one single-byte font index	X'02C60
	X'1E'	Deactivate all single-byte LF1 Coded Fonts and all indexes	1'
	X'1F'	Deactivate all single-byte LF1 Coded Fonts and all indexes (same as above)	
	X'20'	Deactivate double-byte LF1 Coded Font section and related indexes	
	X'21'	Deactivate double-byte LF1 Coded Font section, all higher sections and all related indexes	
	X'22'	Deactivate a font index for a doublebyte Coded Font section	
	X'2F'	Deactivate all double-byte LF1 Coded Fonts and all related indexes	
	X'30'	Deactivate one Code Page	
	X'3F'	Deactivate all Code Pages	
	X'40'	Deactivate one Font Character Set	
	X'4F'	Deactivate all Font Character Sets	
	X'50'	Deactivate one LF1 or LF3 Coded Font	
	X'51'	Deactivate one LF1 or LF3 Coded Font and all associated components	
	X'5D'	Deactivate all resident Coded Fonts and all associated components	
	X'5E'	Deactivate all Coded Fonts	
	X'5F'	Deactivate all Coded Fonts and all associated components	
	X'60'	Deactivate a data-object font	
	X'6E'	Deactivate all data-object fonts	

Offset	Range	Meaning	Error Code
1-2	X'0001' - X'7EFF'	HOST ASSIGNED ID (Deactivation Types X'11', X'12', X'20', X'21', X'22', X'30', X'40', X'50' and X'51')	X'02140 2' X'02150 2' X'02C50
			X'02C60
3		SECTION ID	
	X'00'	Single-byte font	
	X'41' - X'FD'	Double-byte font (Deactivation types X'20', X'21' and X'22')	
4-5		FONT INLINE SEQUENCE	
		(Deactivation Type X'12' and X'22')	
	X'0000'	0 degrees	X'02400
	X'2D00'	90 degrees	2'
	X'5A00'	180 degrees	
	X'8700'	270 degrees	

## **End**

The End command is the ending control for a series of Write Image, Write Image 2, Write Graphics, Write Bar Code, Load Code Page, or Load Font commands. This command marks either the end of an image object, a graphics object, a bar code object, or the end of a downloaded font sequence. See the Intelligent Printer Data Stream Reference, S544-3417, for more details.

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# **End Page**

The End Page (EP) command causes the printer to return to home state from page state, page segment state, or overlay state and thus marks the end of a page, a page segment, or an overlay. The EP command is an implicit command to schedule that page for printing if the command is being used to exit page state; all data for that page is available to the printer. Zero or more data bytes can be transmitted but are ignored. See the Intelligent Printer Data Stream Reference, S544-3417, for more details.

# **Load Copy Control**

A copy control record 2 to 32760 bytes long specifies how the printer is to modify and print logical pages in one or more copy subgroup definitions. Each copy subgroup definition can be from 2 to 254 bytes long (divisible by 2). The maximum number of key-words that the host program can specify in a copy subgroup definition is:

- X'80nn' specify 1 time
- X'90nn' specify 1 time
- X'91nn' specify 1 time
- X'C1nn' specify 1 time
- X'C2nn' specify 1 time
- X'D1nn' specify 1 to 126 times
- X'E1nn' specify 1 to 126 times
- X'E4nn' specify 1 to 63 times
- X'E5nn' specify 1 to 63 times



- · Actual tray capacity is determined by media weight.
- The machine supports media source tray numbering. Media source values in the LCC support
  tables represent the default settings when the printer is initially installed. The printer's control panel
  menu mode is provided to allow customers to specify the source tray numbers to meet requirements
  of legacy applications. Example: customer might want to address the Manual Tray as tray 4
  instead of the tray 100 (default).
- For the tray in which "envelope" has been specified as the paper type, the tray values of the tray ID are (in ascending for each respective tray that is installed) as follows: X'8040', X'8041', etc. If a different paper type is specified for the tray, the tray values of the tray ID are (in ascending for each respective tray that is installed) as follows: X'8000', X'8001', etc. In regards to the bypass tray and default tray, even if you specify "envelope" as the paper type, the tray value will not be changed.

Offset	Range	Meaning	Error Code
0	X'02' - X'FE'	COPY SUBGROUP DEFINITION LENGTH	
1	X'01' - X'FF'	NUMBER OF IDENTICAL COPIES	X'02310 1'

1

Offset	Range	Meaning	Error Code
2-n		COPY MODIFICATION KEYWORDS	X'02320 1'
		Media Source (Reference Notes)	
	X'8000'	Tray 1	X'02C20 2'
	X'8001'	Tray 2	X'02C80
	X'8002'	Tray 3	
	X'8002'	Tray 3 (LCT)	
	X'8003'	Tray 4	
		Large capacity tray (LCT)*1	
	X'8003'	Tray 1 + Tray 2 + Bypass tray + Tray 3 (LCT) + Large capacity tray (LCT)	
	X'8004'	Tray 1 + Tray 2 + Bypass tray + Tray 3 + Tray 4 + Large capacity tray (LCT)	
	X'8063'	Bypass tray	
	X'80FF'	Default tray	
		Media Destination (Byte Pairs)	
	X'9101'	Internal shift tray	
	X'9101'	Finisher shift tray	
	X'9102'	Finisher upper tray	
	X'9102'	External tray	
	X'9103'	Finisher booklet tray	

Offset	Range	Meaning	Error Code
2-n		Internal tray 1*1	
	X'9101'	Internal tray 1	
	X'9101'	Internal tray 1 + Internal tray 2	
	X'9101'	Internal tray 1 + External tray	
	X'9101'	Internal tray 1 + External tray + Internal tray 2	
	X'9103'	Internal tray 1 + Finisher SR3140	
	X'9103'	Internal tray 1 + Finisher SR3160	
	X'9103'	Internal tray 1 + Finisher SR3140 + Internal tray 2	
	X'9103'	Internal tray 1 + Finisher SR3160 + Internal tray 2	
	X'9104'	Internal tray 1 + Booklet Finisher SR3150	
	X'9104'	Internal tray 1 + Booklet Finisher SR3170	
	X'9104'	Internal tray 1 + Booklet Finisher SR3 150 + Internal tray 2	
	X'9104'	Internal tray 1 + Booklet Finisher SR3 170 + Internal tray 2	
		Internal tray 2 <sup>*</sup> 1	
	X'9102'	Internal tray 2 + Internal tray 1	
	X'9102'	Internal tray 2 + Internal shift tray	
	X'9102'	Internal tray 2 + Internal Finisher SR3130	
	X'9103'	Internal tray 2 + Internal tray 1 + External tray	
	X'9104'	Internal tray 2 + Finisher SR3140 + Internal tray 1	
	X'9104'	Internal tray 2 + Finisher SR3160 + Internal tray 1	
	X'9105'	Internal tray 2 + Booklet Finisher SR3 150 + Internal tray 1	
	X'9105'	Internal tray 2 + Booklet Finisher SR3 170 + Internal tray 1	

 $<sup>\</sup>ensuremath{^{\star}}\xspace 1$  . Available values vary depending on the installed option.

### Media Source and Destination Support Matrices

The following tables are provided to document Media Source and Destination support. This information is provided to ensure better overall understanding of the media handling characteristics. For more details on the actual X and Y media extents see page 82 "Printable Area Self-Defining Field".

#### Media Source and Destination Support Matrices

A = Tray 1, Capacity: 550

B = Tray 2, Capacity: 550

C = Tray 3, Capacity: 550

D = Tray 3 (LCT), Capacity: 1000 + 1000

E = Tray 4, Capacity: 550

F = Large capacity tray (LCT), Capacity: 1500

G = Bypass tray, Capacity: 100

O= Duplex SEF /  $\triangle$  = Duplex LEF /  $\blacksquare$  = SEF /  $\triangle$  = LEF

	А	В	С	D	Е	F	G
A3 (297 × 420 mm)		0	0		0		0
A4 (210 × 297 mm)	Δ	О Д	О Д	Δ	О Д	Δ	О Д
A5 (210 × 148 mm)	Δ	О Д	Δ		Δ		О Д
A6 (105 × 148 mm)		0					0
B4 (257 × 364 mm)		0	0		0		0
B5 (182 × 257 mm)	Δ	О Д	О Д		О Д	Δ	О Д
B6 (128 × 182 mm)		0					0
DLT (11 × 17 in.)		0	0		0		0

П

	А	В	С	D	Е	F	G
Legal (8.5 × 14 in.)		0	0		0		0
Foolscap (8.5 × 13 in.)		0	0		0		0
Letter (8.5 × 11 in.)	Δ	О Д	О Д	Δ	О Д	Δ	О Д
GovernmentLG (8.25 × 14 in.)		0	0		0		0
Folio (8.25 × 13 in.)		0	0		0		0
F/GL (8 × 13 in.)		0	0		0		0
Eng Quatro (8 × 10 in.)		0	0		0		0
Executive (7.25 × 10.5 in.)		О Д	О Д		О Д		О Д
HalfLetter (5.5 × 8.5 in.)		0					0
Com10 (4.125 × 9.5 in.)		•	<b>A</b>		<b>A</b>		•
Monarch (3.875 × 7.5 in.)		•					•
C5 (162 × 229 mm)		•	<b>A</b>		<b>A</b>		•
C6 (114 × 162 mm)		•					•

	А	В	С	D	Е	F	G
DL Env (110 × 220 mm)		•					•
8K (267 × 390 mm)		0	0		0		0
16K		0	0		0		0
(195 × 267 mm)		Δ	Δ		Δ		Δ
12 × 18 in.		0	0		0		0
11 × 15 in.		0	0		0		0
10 × 14 in.		0	0		0		0
SRA3 (320 × 450 mm)		0	0		0		0
SRA4							0
(225 × 320 mm)							Δ
Custom Sizes	-	*1	*2	-	*2	-	*3

<sup>\*1 90.0</sup>  $\times$  148.0 mm to 320.0  $\times$  457.2 mm

A = Internal tray 1, Capacity: 500

B = Internal tray 1 (when the external tray or bridge unit is installed), Capacity: 250

C = Internal tray 2, Capacity: 125

D = Internal shift tray, Capacity: 250

E = External tray, Capacity: 125

Y = Yes / N = No

<sup>\*2</sup>  $182.0 \times 148.0 \text{ mm}$  to  $320.0 \times 457.2 \text{ mm}$ 

<sup>\*3 90.0</sup>  $\times$  148.0 mm to 320.0  $\times$  600.0 mm

П

	А	В	С	D	Е
A3 (297 × 420mm) SEF	Y	Y	Υ	Y	Y
A4 (210 × 297mm) SEF / LEF	Y	Y	Y	Y	Y
A5 (210 × 148mm) SEF / LEF	Y	Y	Y	Y	Y
A6 (105 × 148mm) SEF	Y	Y	Y	Y	Y
B4 (257 × 364 mm) SEF	Y	Y	Υ	Y	Y
B5 (182 × 257mm) SEF / LEF	Y	Y	Υ	Y	Y
B6 (128 × 182mm) SEF	Y	Y	Y	Y	Y
DLT (11 × 17 in.) SEF	Y	Y	Y	Y	Y

	А	В	С	D	Е
Legal (8.5 × 14in.) SEF	Y	Y	Y	Y	Y
Foolscap (8.5 × 13in.) SEF	Y	Y	Y	Y	Y
Letter (8.5 × 11 in.) SEF / LEF	Y	Y	Y	Y	Y
GovernmentL G (8.25 × 14 in.) SEF	Y	Y	Y	Y	Y
Folio (8.25 × 13in.) SEF	Y	Y	Y	Y	Y
F/GL (8 × 13in.) SEF	Y	Y	Y	Y	Y
Eng Quatro (8 × 10 in.) SEF	Y	Y	Y	Y	Y
Executive (7.25 × 10.5in.) SEF / LEF	Y	Y	Y	Y	Y
HalfLetter (5.5 × 8.5in.) SEF	Y	Y	Y	Y	Y

	А	В	С	D	Е
Com10 (4.125 × 9.5in.) SEF / LEF	Y	Y	Y	Y	Y (SEF) / N (LEF)
Monarch (3.875 × 7.5in.) SEF / LEF	Y	Y	Y	Y	Y (SEF) / N (LEF)
C5 (162 × 229mm) SEF / LEF	Y	Y	Y	Y	Y
C6 (114 × 162mm) SEF / LEF	Y	Y	Y	Y	Y (SEF) / N (LEF)
DL Env (110 × 220mm) SEF / LEF	Y	Y	Y	Y	Y (SEF) / N (LEF)
8K (267 × 390mm) SEF	Y	Y	Y	Y	Y
16K (195 × 267mm) SEF / LEF	Y	Y	Y	Y	Y
12 × 18 in. SEF	Y	Y	Υ	Y	Y

	А	В	С	D	Е
11 × 15 in. SEF	Y	Y	Y	Y	Y
10 × 14 in. SEF	Y	Y	Υ	Υ	Y
SRA3 (320 × 450 mm) SEF	Y	Y	Y	Y	Y
SRA4 (225 × 320 mm) SEF / LEF	Y	Y	Y	Y	Y
Custom Sizes	*1	*1	*2	*1	*2

<sup>\*]</sup>  $90.0 \times 148.0 \text{ mm}$  to  $320.0 \times 600.0 \text{ mm}$ 

A = Internal Finisher SR3130, Capacity: 500

B = Finisher SR3140, Capacity: 250 (Finisher upper tray) / 1000 (Finisher shift tray)

C = Booklet Finisher SR3150, Capacity: 250 (Finisher upper tray) / 1000 (Finisher shift tray) / 125 (Finisher booklet tray)

D = Finisher SR3160, Capacity: 250 (Finisher upper tray) / 3000 (Finisher shift tray)

E = Booklet Finisher SR3170, Capacity: 250 (Finisher upper tray) / 2000 (Finisher shift tray) / 150 (Finisher booklet tray)

	А	В	С	D	Е
A3 (297 × 420mm) SEF	Y	Y	Y	Y	Y

<sup>\*2 90.0</sup>  $\times$  148.0 mm to 320.0  $\times$  457.2 mm

	А	В	С	D	Е
A4 (210 × 297mm) SEF / LEF	Y	Y	<ul> <li>Finisher upper tray: Y</li> <li>Finisher shift tray: Y</li> <li>Finisher booklet tray: Y</li> <li>(SEF) / N (LEF)</li> </ul>	Υ	<ul> <li>Finisher upper tray: Y</li> <li>Finisher shift tray: Y</li> <li>Finisher booklet tray: Y</li> <li>(SEF) / N (LEF)</li> </ul>
A5 (210 × 148mm) SEF / LEF	Y	Y	<ul> <li>Finisher upper tray: Y</li> <li>Finisher shift tray: Y</li> <li>Finisher booklet tray: N</li> </ul>	Υ	Finisher upper tray: Y     Finisher shift tray: Y     Finisher booklet tray: N
A6 (105 × 148mm) SEF	Y	Y	<ul> <li>Finisher upper tray: Y</li> <li>Finisher shift tray: Y</li> <li>Finisher booklet tray: N</li> </ul>	Υ	Finisher upper tray: Y Finisher shift tray: Y Finisher booklet tray: N
B4 (257 × 364 mm) SEF	Y	Y	Y	Y	Y

	А	В	С	D	Е
B5 (182 × 257mm) SEF / LEF	Y	Y	<ul> <li>Finisher upper tray: Y</li> <li>Finisher shift tray: Y</li> <li>Finisher booklet tray: Y</li> <li>(SEF) / N (LEF)</li> </ul>	Y	<ul> <li>Finisher upper tray: Y</li> <li>Finisher shift tray: Y</li> <li>Finisher booklet tray: Y</li> <li>(SEF) / N (LEF)</li> </ul>
B6 (128 × 182mm) SEF	Υ	Y	<ul> <li>Finisher upper tray: Y</li> <li>Finisher shift tray: Y</li> <li>Finisher booklet tray: N</li> </ul>	Υ	Finisher upper tray: Y     Finisher shift tray: Y     Finisher booklet tray: N
DLT (11 × 17 in.) SEF	Y	Y	Y	Y	Y
Legal (8.5 × 14in.) SEF	Y	Y	Y	Y	Y
Foolscap (8.5 × 13in.) SEF	Y	Y	<ul> <li>Finisher upper tray: Y</li> <li>Finisher shift tray: Y</li> <li>Finisher booklet tray: N</li> </ul>	Y	<ul> <li>Finisher upper tray: Y</li> <li>Finisher shift tray: Y</li> <li>Finisher booklet tray: N</li> </ul>

Ш

	А	В	С	D	Е
Letter (8.5 × 11in.) SEF / LEF	Y	Y	<ul> <li>Finisher upper tray: Y</li> <li>Finisher shift tray: Y</li> <li>Finisher booklet tray: Y</li> <li>(SEF) / N (LEF)</li> </ul>	Y	<ul> <li>Finisher upper tray: Y</li> <li>Finisher shift tray: Y</li> <li>Finisher booklet tray: Y</li> <li>(SEF) / N (LEF)</li> </ul>
GovernmentL G (8.25 × 14 in.) SEF	Y	Y	<ul> <li>Finisher upper tray: Y</li> <li>Finisher shift tray: Y</li> <li>Finisher booklet tray: N</li> </ul>	Y	Y
Folio (8.25 × 13in.) SEF	Y	Y	<ul> <li>Finisher upper tray: Y</li> <li>Finisher shift tray: Y</li> <li>Finisher booklet tray: N</li> </ul>	Y	Y

	А	В	С	D	Е
F/GL (8 × 13in.) SEF	Y	Y	<ul> <li>Finisher upper tray: Y</li> <li>Finisher shift tray: Y</li> <li>Finisher booklet tray: N</li> </ul>	Υ	<ul> <li>Finisher upper tray: Y</li> <li>Finisher shift tray: Y</li> <li>Finisher booklet tray: N</li> </ul>
Eng Quatro (8 × 10 in.) SEF	Y	Y	<ul> <li>Finisher upper tray: Y</li> <li>Finisher shift tray: Y</li> <li>Finisher booklet tray: N</li> </ul>	Υ	Finisher upper tray: Y     Finisher shift tray: Y     Finisher booklet tray: N
Executive (7.25 × 10.5in.) SEF / LEF	Y	Y	<ul> <li>Finisher upper tray: Y</li> <li>Finisher shift tray: Y</li> <li>Finisher booklet tray: N</li> </ul>	Y	<ul> <li>Finisher upper tray: Y</li> <li>Finisher shift tray: Y</li> <li>Finisher booklet tray: N</li> </ul>
HalfLetter (5.5 × 8.5in.) SEF	Y	Y	<ul> <li>Finisher upper tray: Y</li> <li>Finisher shift tray: Y</li> <li>Finisher booklet tray: N</li> </ul>	Y	<ul> <li>Finisher upper tray: Y</li> <li>Finisher shift tray: Y</li> <li>Finisher booklet tray: N</li> </ul>

	А	В	С	D	Е
Com10 (4.125 × 9.5in.) SEF / LEF	Y	N	N	Ν	Z
Monarch (3.875 × 7.5in.) SEF / LEF	Y	N	N	N	N
C5 (162 × 229mm) SEF / LEF	Y	N	Ν	Ν	N
C6 (114 × 162mm) SEF / LEF	Y	N	Ν	Ν	N
DL Env (110 × 220mm) SEF / LEF	Y	N	N	N	N
8K (267 × 390mm) SEF	Y	Y	<ul> <li>Finisher upper tray: Y</li> <li>Finisher shift tray: Y</li> <li>Finisher booklet tray: N</li> </ul>	Y	<ul> <li>Finisher upper tray: Y</li> <li>Finisher shift tray: Y</li> <li>Finisher booklet tray: N</li> </ul>

	А	В	С	D	Е
16K (195 × 267mm) SEF / LEF	Y	Y	<ul> <li>Finisher upper tray: Y</li> <li>Finisher shift tray: Y</li> <li>Finisher booklet tray: N</li> </ul>	Y	<ul> <li>Finisher upper tray: Y</li> <li>Finisher shift tray: Y</li> <li>Finisher booklet tray: N</li> </ul>
12 × 18 in. SEF	Y	Y	Y	Y	Y
11 × 15 in. SEF	Y	Y	<ul> <li>Finisher upper tray: Y</li> <li>Finisher shift tray: Y</li> <li>Finisher booklet tray: N</li> </ul>	Υ	Y
10 × 14 in. SEF	Υ	Y	<ul> <li>Finisher upper tray: Y</li> <li>Finisher shift tray: Y</li> <li>Finisher booklet tray: N</li> </ul>	Y	Y

	А	В	С	D	Е
SRA3 (320 × 450 mm) SEF	Y	Y	<ul> <li>Finisher upper tray: Y</li> <li>Finisher shift tray: Y</li> <li>Finisher booklet tray: N</li> </ul>	Υ	<ul> <li>Finisher upper tray: Y</li> <li>Finisher shift tray: Y</li> <li>Finisher booklet tray: N</li> </ul>
SRA4 (225 × 320 mm) SEF / LEF	Y	Y	<ul> <li>Finisher upper tray: Y</li> <li>Finisher shift tray: Y</li> <li>Finisher booklet tray: N</li> </ul>	Y	Finisher upper tray: Y Finisher shift tray: Y Finisher booklet tray: N
Custom Sizes	* 1	* ]	<ul> <li>Finisher upper tray: * 1</li> <li>Finisher shift tray: * 1</li> <li>Finisher booklet tray: N</li> </ul>	*2	Finisher upper tray: *2 Finisher shift tray: *2 Finisher booklet tray: *3

<sup>\*1 90.0</sup>  $\times$  148.0 mm to 320.0  $\times$  600.0 mm

<sup>\*2 90.0</sup>  $\times$  148.0 mm to 320.0  $\times$  457.2 mm

<sup>\*3</sup>  $182.0 \times 257.0 \text{ mm}$  to  $304.8 \times 457.2 \text{ mm}$ 

#### 1

## **Load Font Equivalence**

The font equivalence record is a list of 0 to 254 font equivalence entries (each entry is 16 bytes). The font equivalence record permits the host program to equate a Local-Font ID (specified in text control page 137 "Set Coded Font Local", page 196 "Bar Code Data Descriptor", page 194 "Write Bar Code Control", or graphics order "Character Set", IPDS Technical Reference 1) with:

- Font Host Assigned ID (HAID)
- The Font Inline Sequence or character rotation table to be used when processing characters
- Global Resource ID (GRID) for resident fonts. The GRID is made up of the following components:
  - GCSGID Graphic Character Set Global ID
  - CPGID Code Page Global ID
  - FGID Font Global ID
  - FW Font width in 1/1440 inch units

If a GRID is specified in bytes 5-12, the entry is requesting the activation of a coded font and assigning a HAID to it. The printer uses the information provided in the GRID to locate the component parts of the coded font. First, the GCSGID and FGID values are used to find the font character set, and GCSGID and CPGID are used to find the code page. In some cases, the printer will locate the code page using just the CPGID value. If the character set and code page are not found in the above manner, information in the GRID will be used together with the Font Inline Sequence value (Bytes 3-4) to locate a single-byte fully described font and font index.

The set of supported GCSGID/CPGID/FGID/FW (GRID) combinations (described in "Code Page and Font Identification", IPDS Technical Reference 1) is available to the host PSF by means of the XOA-RRL command. For typographic and scalable fonts, a Font Width (FW) must be specified in order to uniquely select a point size, unless FW=0 or X'FFFF', in which case the printer's control panel [Characters Per Inch] setting is used ([Characters Per Inch] on the IPDS Menu).

Exception X'021D..02' is reported back if a non-zero GRID is requested with parts that are not supported in the printer, except in the case of GCSGID subset substitution or LFE Bold Attribute substitution.

For outline coded fonts, the FW value is used to derive a scale factor as follows:

- For typographic and proportionally spaced fonts, both horizontal and vertical scale factors are 3
  (FW).
- For fixed pitch, uniform character increment fonts, both horizontal and vertical scale factors are derived using the following algorithm (fractions are truncated):

```
V_Scale = H_Scale = 1000 *1 FW/SPACE
```

In this case SPACE is the value of the Space Character increment in relative units.

\*1 4028-type font substitution is provided as the printer's control panel feature. It is independent of the device emulation mode setting (native or 4028). Default is No Font Substitution.

Offset	Range	Meaning	Error Code
0	X'00' - X'FE'	LOCAL-FONT ID	X'02190 2'
	X'FF'	Reserved	X'02180 2'
1-2	X'0001' - X'7EFF'	FONT HOST ASSIGNED ID	X'02180 2'
			X'021F 02'
3-4		FONT INLINE SEQUENCE	X'02470
	X'0000'	0 degrees	2'
	X'2D00'	90 degrees	
	X'5A00'	180 degrees	
	X'8700'	270 degrees	
5-6		GCSGID	
	X'0000'	No value assigned (Note 2)	
	X'0001' - X'FFFE'	Graphic Character Set Global ID	
	X'FFFF'	All characters with assigned code points in the associated code page	
7-8		CPGID	X'021D
	X'0000'	No value assigned (Note 2)	02'
	X'0001' - X'FFFE'	Code Page Global ID	
	X'FFFF'	Printer Default (Configuration Setting)	

Offset	Range	Meaning	Error Code
9-10		FGID	X'021D
	X'0000'	No value assigned (Note 2)	02'
	X'0001' - X'FFFE'	Font Global ID	
	X'FFFF'	Printer Default (Configuration Setting)	
11-12		FW	
	X'0000'	No value assigned (Note 2)	
	X'0001' - X'7FFF'	Font Width (Ignored for Fixed Pitch Fonts)	
	X'FFFF'	Printer Default as specified by Configuration Settings	
13	X'00'	Reserved	
14		FONT ATTRIBUTES (Note 3)	
	Bit 0 0/1	Ignored (Symbol Sets)	
	Bits 1-2 00	Reserved	
	Bit 3 0/1	Ignored (Double High)	
	Bit 4 0/1	Ignored (Italics)	
	Bit 5 0/1	Ignored (Double Strike)	
	Bit 6 0/1	Bold = 1	
	Bit 7 0/1	Ignored (Double Wide)	
15	X'00'	Reserved	
16-n		Additional LFE ENTRIES	X'023A 02'

## **U**Note

- For LF1 coded fonts, FIS specifies the font index table for character rotation. For LF3 coded fonts, FIS is used to select the metrics for a specific writing mode.
- Global Resource IDs (bytes 5-12) apply to printer resident fonts only. If these fields are all X'0000', then an activation is not done. If GCSGID and/or FW are 0 or X'FFFF':

- 1
- CPGID (non-zero) defines the CPGID/GCSGID
- FGID (non-zero) defines the FGID/FW (Non-Typographic)
- FGID (non-zero) and the printer's control panel CPI defines the FGID/FW (Typographic)
- When the chosen font and attribute combination is restricted by a licensing agreement the font
  attributes may be executed by substitution or other means. If an appropriate font is not available,
  the attribute may not occur. Also, with font substitution, the available characteristics may change.
  Combinations of attributes may not be available. Font attributes will not be applied to host
  downloaded fonts.

#### 1

## **Logical Page Descriptor**

Before the printer can present a page of data it must know the following:

- The units in which distances have been measured
- The boundaries of the logical page
- Initialization values for control parameters (Margins, Line spacing...)

The controls established in a Logical Page Descriptor command remain in effect until the next Logical Page Descriptor is received unless superseded by explicit controls in other commands (See page 129 "Write Text"). In any case, the latest LPD control values are restored with each Begin Page or Begin Overlay command.

The LPD command is valid with 24, 28, 34, 36, 38, 40, 41 or 43 bytes. The printer accepts the LPD command using any of these valid lengths.

Offset	Range	Meaning	Error Code
0		UNIT-BASE (Measurement Units)	X'02640
	X'00'	10 in.	2'
	X'01'	10 centimeters	
1		Reserved	
2-3		Xp AND I L-units PER UNIT-BASE	X'02600
	X'3840'	14400 L-units per 10 in.	2'
	X'1626'	5670 L-units per 10 centimeters	
	X'0960'	2400 L-units per 10 in.	
	X'03B1'	945 L-units per 10 centimeters	
4-5		Yp AND B L-units PER UNIT-BASE	X'02610
	X'3840'	14400 L-units per 10 in.	2'
	X'1626'	5670 L-units per 10 centimeters	
	X'0960'	2400 L-units per 10 in.	
	X'03B1'	945 L-Units per 10 centimeters	
6		Reserved	

Offset	Range	Meaning	Error Code
7-9	X'000001' - X'007FFF'	Xp-EXTENT OF LOGICAL PAGE (Width) See "Notation Conventions", IPDS Technical Reference 1.	X'02620 2'
10		Reserved	
11-13	X'000001' - X'007FFF'	Yp-EXTENT OF LOGICAL PAGE (Height) See "Notation Conventions", IPDS Technical Reference 1.	X'02630 2'
14		Reserved	
15		Ignored (Ordered Data)	
16-23		Reserved	
24-25		I-AXIS ORIENTATION	X'02680
	X'0000'	0 degrees	2'
	X'2D00'	90 degrees	
	X'5A00'	180 degrees	
	X'8700'	270 degrees	
	X'FFFF'	Printer Default	
26-27		B-AXIS ORIENTATION	X'02690
	X'0000'	0 degrees	2'
	X'2D00'	90 degrees	
	X'5A00'	180 degrees	
	X'8700'	270 degrees	
	X'FFFF'	Printer Default  See page 145 "Set Text Orientation" for valid combinations of I-axis and B-axis orientations.	
28-29	X'0000' - X'7FFF'	INITIAL I PRINT COORDINATE  See "Notation Conventions", IPDS Technical Reference 1.	X'026A 02'

Offset	Range	Meaning	Error Code
30-31	X'0000' - X'7FFF'	INITIAL B PRINT COORDINATE  See "Notation Conventions", IPDS Technical Reference 1.	X'026B 02'
32-33	X'0000' - X'7FFF'	INLINE MARGIN See "Notation Conventions", IPDS Technical Reference 1.	X'02100 1'
	X'FFFF'	Printer Default	
34-35	X'0000' - X'7FFF'	INTERCHARACTER ADJUSTMENT (+) See "Notation Conventions", IPDS Technical Reference 1.	X'02120 1'
	X'FFFF'	Printer Default	
36-37		Reserved	
38-39	X'0000' - X'7FFF'	BASELINE INCREMENT See "Notation Conventions", IPDS Technical Reference 1.	X'02110 1'
	X'FFFF'	Printer Default	
40	X'00' - X'FE'	LOCAL FONT ID	
	X'FF'	Printer Default	

Offset	Range	Meaning	Error Code
41-42		TEXT COLOR	X'02580
	X'0000' or X'FF00'	Printer Default (Black)	3'
	X'0001' or X'FF01'	Blue - Limited Simulated Color Support	
	X'0002' or X'FF02'	Red - Limited Simulated Color Support	
	X'0003' or X'FF03'	Pink - Limited Simulated Color Support	
	X'0004' or X'FF04'	Green - Limited Simulated Color Support	
	X'0005' or X'FF05'	Turquoise - Limited Simulated Color Support	
	X'0006' or X'FF06'	Yellow - Limited Simulated Color Support	
	X'0008'	Black	
	X'0010'	Brown - Limited Simulated Color Support	
	X'FFO7'	Printer Default (Black)	
	X'FFO8'	Color of Medium (Reset)	
	X'FFFF'	Printer Default (Black)	

Offset	Range	Meaning	Error Code
43-end		<ul> <li>LPD Triplets</li> <li>Color Specification Triplet. This optional triplet can be placed at the end of the LPD command to specify the foreground color of the object area, before any object data is placed on the object area. Any number of LPD triplets can be received, they are processed in the order received and the resulting color of the object area depends on the last instance of the triplet received. For details, see "Color Simulation", IPDS Technical Reference 1.</li> <li>Presentation Space Reset Mixing Triplet. This optional triplet can be placed at the end of the LPD command to specify whether or not an object area is reset to the color of medium before any object data is placed on the object area. Any number of LPD triplets can be received, they are processed in the order received and the resulting color of the object area depends on the last instance of</li> </ul>	
		the triplet received. For details, see "Presentation Space Reset Mixing", IDPS Technical Reference 1.	

# **Logical Page Position**

This command defines the position on the physical sheet of paper where the logical page is to be placed.

Offset	Range	Meaning	Error Code
0	X'00'	RESERVED	
1-3	X'FF8000' - X'007FFF'	Xm OFFSET of the LOGICAL PAGE ORIGIN in L-Units See "Notation Conventions", IPDS Technical Reference 1.	X'02A40 1' X'02AD 01'
4		PAGE PLACEMENT	
	X'00'	Default placement	
	X'10'	Partition 1, front side	
	X'11'	Partition 1, back side	
	X'20'	Partition 2, front side	
	X'21'	Partition 2, back side	
	X'30'	Partition 3, front side	
	X'31'	Partition 3, back side	
	X'40'	Partition 4, front side	
	X'41'	Partition 4, back side	
5-7	X'FF8000' - X'007FFF'	Ym OFFSET of the LOGICAL PAGE ORIGIN in L-Units See "Notation Conventions", IPDS Technical Reference 1.	X'02A50 1' X'02AD 01'

1

Offset	Range	Meaning	Error Code
8-9		PAGE ORIENTATION	
	X'0000'	0 degrees	
	X'2D00'	90 degrees	
	X'5A00'	180 degrees	
	X'8700'	270 degrees	
		Explicit placement is supported.	

# **Presentation Fidelity Control**

The Presentation Fidelity Control (PFC) command is only valid in home state and specifies the fidelity requirements for certain presentation functions. The desired fidelity for each supported presentation function can be specified with a triplet on the PFC command. The activate flag can be used to reset all fidelity controls to their default settings before activating the settings specified in the PFC triplets. A PFC command with no triplets and with the activate flag set to B'O' resets all fidelity controls to their default settings.

Offset	Range	Meaning	Error Code
0	X'00'	RESERVED	
1		FLAGS	
	Bit O	ACTIVATE	
	0	Reset to default fidelity controls and activate PFC triplets	
	1		
	Bits 1-7	Reserved	
	0000000		
2-3	X'0000'	Reserved	
4-n		Triplets (Zero or more optional PFC triplets)	X'02540
		X'86' Text Fidelity Control	5'
		X'88' Finishing Fidelity Control	

## **Text Fidelity Control**

The Text Fidelity triplet specifies the exception continuation and reporting rules when an unrecognized or unsupported text control sequence is encountered.

Offset	Range	Meaning	Error Code
0	X'07'	LENGTH	X'02545 1'
1	X'86'	Text Fidelity Triplet ID	

1

Offset	Range	Meaning	Error Code
2		CONTINUE	X'02545
	X'01'	Stop on Exception ID X'020001'	2'
	X'02'	Continue Processing Write Text Data	
3	X'00'	Reserved	
4		REPORT	X'02545
	X'01'	Report X'020001' Exception	3'
	X'02'	Do Not Report X'020001' Exception	
5-6	X'0000'	Reserved	

## **Finishing Fidelity Control**

The Finishing Fidelity triplet specifies the exception continuation and reporting rules for finishing exceptions. This fidelity control applies when a request for a specific finishing operation cannot be satisfied.

Offset	Range	Meaning	Error Code
0	X'07'	LENGTH	X'02545 1'
1	X'86'	Text Fidelity Triplet ID	
2		CONTINUE	X'02545
	X'01'	Stop at first finishing exception	2'
	X'02'	Continue without the finishing operation	
3	X'00'	Reserved	
4		REPORT	X'02545
	X'01'	Report Finishing Exceptions	3'
	X'02'	Do Not Report Finishing Exceptions	
5-6	X'0000'	Reserved	

# Sense Type and Model

Causes the printer to place into the Special Data Area of the Acknowledge Reply (See page 10 "Acknowledgement Reply") a record containing type and model information and the functions the printer supports.

This command is effectively a NOP if the ARQ bit is NOT ON in the command header.

#### Sense Type and Model

Offset	Range	Meaning
0	X'FF'	Convention
1-2		Product Code
	X'2707'	Type 1 / Type 2 / Type 3 / Type 4 / Type 5
	X'4028'	4028 Emulation (4028)
3		Model
	X'01'	Type 1
	X'02'	Type 2
	X'03'	Type 3
	X'04'	Type 4
	X'05'	Type 5
	X'00'	4028 Emulation (Simplex)
	X'12'	4028 Emulation (Duplex)
4-5	X'0000'	Reserved

#### **Device-Control Command Set**

Offset	Range	Meaning
0-1	X'nnnn'	VECTOR LENGTH
2-3	X'C4C3'	DEVICE CONTROL Command-Set ID
4-5	X'FF10'	DC1 Subset ID
6-7	X'6001'	MULTIPLE COPY and COPY-SUBGROUP support in LCC

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Offset	Range	Meaning
8-9	X'6002'	Media-source-selection support in LCC
10-11	X'6003'	Media-destination-selection support in LCC
12-13	X'6101'	Explicit Page Placement and Orientation Support
14-15	X'6201'	LOGICAL PAGE AND OBJECT AREA COLORING support
16-17	X'7008'	Set Presentation Environment
18-19	X'702E'	ACTIVATE RESOURCE Command support
20-21	X'7034'	PRINT FIDELITY Command support
22-23	X'706B'	ICMR command support
24-25	X'8008'	XOA Order MARK FORM
26-27	X'800A'	XOA Order ALTERNATE OFFSET STACKER
28-29	X'80F2'	XOA Order DISCARD BUFFERED DATA
30-31	X'80F4'	XOA Order REQUEST RESOURCE LIST
32-33	X'80F6'	XOA Order EXCEPTION HANDLING CONTROL
34-35	X'80F8'	XOA Order PRINT QUALITY CONTROL
36-37	X'9001'	XOH Order PRINT BUFFERED DATA
38-39	X'9003'	XOH Order SPECIFY GROUP OPERATION
40-41	X'9004'	XOH Order DEFINE GROUP BOUNDARY
42-43	X'9005'	XOH Order ERASE RESIDUAL PRINT DATA
44-45	X'9007'	XOH Order ERASE RESIDUAL FONT DATA
46-47	X'900D'	XOH Order STACK RECEIVED PAGES
48-49	X'9013'	XOH Order EJECT to FRONT FACING
50-51	X'9015'	XOH Order SELECT INPUT MEDIA SOURCE
52-53	X'9016'	XOH Order SET MEDIA ORIGIN
54-55	X'9017'	XOH Order SET MEDIA SIZE
56-57	X'e000'	CMRs can be captured

Offset	Range	Meaning
58-59	X'e001'	Host-activated link color conversion CMRs supported
60-61	X'e004'	Host-activated indexed CMRs supported
62-63	X'e102'	Pass-thru audit color conversion CMRs supported
64-65	X'F001'	END PERSISTENT NACK Without Leaving IPDS
66-67	X'F200'	OBJECT DATE AND TIME STAMP TRIPLETS SUPPORTED
68-69	X'F201'	ACTIVATION (AR) FAILED NACK SUPPORTED
70-71	X'F202'	Font resolution and metric technology triplets supported
72-73	X'F203'	Metric adjustment triplets supported in AR commands
74-75	X'F204'	Data-object font support
76-77	X'F205'	Color Mgmt Triplet Support
78-79	X'F206'	Device Appearance Triplet support in SPE cmd
80-81	X'F601'	Position check highlighting support in XOA EHC
82-83	X'F602'	Independent exception page print in XOA-EHC
		Independent Exception Page Print is only present in Native mode, not 4028 Emulation mode.
84-85	X'F804'	SIMPLEX and DUPLEX 4-UP supported in LCC
86-87	X'FFO1'	Position exception sense format (1)
88-89	X'FBOO'	All architected units of measure
90-91	X'FC00'	All function listed for IS/3 is supported

#### **Presentation Text Command Set**

Offset	Range	Meaning
0-1	X'000C'	VECTOR LENGTH
2-3	X'D7E3'	PRESENTATION TEXT Command Set - TX1 Subset
4-5	X'FF30'	PT3 Data
6-7	X'1001'	UNORDERED TEXT

Offset	Range	Meaning
8-9	X'4022'	COLOR of MEDIUM SUPPORTED  LIMITED SIMULATED COLOR SUPPORTED
		For details about color simulation and product support specifics, see "Color Simulation", IPDS Technical Reference 1.
10-11	X'50FF'	8 TEXT ORIENTATIONS supported

## IM Image Command Set

Offset	Range	Meaning
0-1	X'000C'	VECTOR LENGTH
2-3	X'C9D4'	IM IMAGE Command Set - IM1 Subset
4-5	X'FF10'	IMD1 Data
6-7	X'1001'	UNORDERED IMAGE BLOCKS
8-9	X'4022'	COLOR of MEDIUM SUPPORTED  LIMITED SIMULATED COLOR SUPPORTED  For details about color simulation and product support specifics, see "Color Simulation", IPDS Technical Reference 1.
10-11	X'A004'	ALL 4 ORIENTATIONS Supported

## IO Image Command Set (IOCA FS10)

Offset	Range	Meaning
0-1	X'0022'	VECTOR LENGTH
2-3	X'C9D6'	IO Image Command Set
4-5	X'FF10'	IO/1 Level
6-7	X'1001'	Unordered Image Blocks
8-9	X'1202'	IO Image Objects Downloaded Resources in Home State

Offset	Range	Meaning
10-11	X'4022'	COLOR of MEDIUM SUPPORTED
		LIMITED SIMULATED COLOR SUPPORTED
		For details about color simulation and product support specifics, see "Color Simulation", IPDS Technical Reference 1.
12-13	X'5001'	MMR Compression algorithm supported
14-15	X'5003'	Uncompressed Image supported
16-17	X'5006'	RL4 Compression supported
18-19	X'5081'	G3 Facsimile Coding Scheme (CCITT G3MR)
20-21	X'5082'	G4 Facsimile Coding Scheme (CCITT G4MMR)
22-23	X'5101'	Bit ordering supported
24-25	X'5204'	Unpadded RIDIC Recording Algorithm supported
26-27	X'5505'	Multiple Image Content Supported
28-29	X'A004'	All four orientations supported
30-31	X'F300'	Replicate and Trim mapping supported
32-33	X'F301'	Scale-to-fill mapping supported



• The Replicate and Trim Mapping Control Option is not supported when IPDS Print Mode = STD (Standard 300 dpi).

## IO Image Command Set (IOCA FS11)

Offset	Range	Meaning
0-1	X'0028'	VECTOR LENGTH
2-3	X'C9D6'	IO Image Command Set
4-5	X'FF11'	IO/1 Level
6-7	X'1001'	Unordered Image Blocks
8-9	X'1202'	IO Image Objects Downloaded Resources in Home State

Offset	Range	Meaning
10-11	X'4020'	LIMITED SIMULATED COLOR SUPPORTED
12-13	X'4022'	COLOR of MEDIUM SUPPORTED
		LIMITED SIMULATED COLOR SUPPORTED
		For details about color simulation and product support specifics, see "Color Simulation", IPDS Technical Reference 1.
14-15	X'4003'	COLOR of MEDIUM SUPPORTED
		MULTIPLE-COLOR SUPPORTED
16-17	X'4401'	Extended IOCA Bi-level Image Color supported
18-19	X'5001'	MMR Compression algorithm supported
20-21	X'5003'	Uncompressed Image supported
22-23	X'5008'	ABIC Compression supported
24-25	X'500A'	Concatenated ABIC
26-27	X'5082'	G4 Facsimile Coding Scheme (CCITT G4MMR)
28-29	X'5083'	ISO/ITU-TSS JPEG supported
30-31	X'5101'	Bit ordering supported
32-33	X'5204'	Unpadded RIDIC Recording Algorithm supported
34-35	X'5505'	Multiple Image Content supported
36-37	X'A004'	All four orientations supported
38-39	X'F301'	Scale-to-fill mapping supported

## IO Image Command Set (IOCA FS40)

Offset	Range	Meaning
0-1	X'0026'	VECTOR LENGTH
2-3	X'C9D6'	IO Image Command Set
4-5	X'FF40'	IO/1 Level
6-7	X'1001'	Unordered Image Blocks

Offset	Range	Meaning
8-9	X'1202'	IO Image Objects Downloaded Resources in Home State
10-11	X'4022'	COLOR of MEDIUM SUPPORTED
		LIMITED SIMULATED COLOR SUPPORTED
		For details about color simulation and product support specifics, see
		"Color Simulation", IPDS Technical Reference 1.
12-13	X'4401'	Extended IOCA Bi-level Image Color supported
14-15	X'4402'	Extended IOCA Tile-Set Color support
16-17	X'5001'	MMR Compression algorithm supported
18-19	X'5003'	Uncompressed Image supported
20-21	X'5008'	ABIC Compression supported
22-23	X'5080'	G3 Facsimile Coding Scheme (CCITT G3MH)
24-25	X'5081'	G3 Facsimile Coding Scheme (CCITT G3MR)
26-27	X'5082'	G4 Facsimile Coding Scheme (CCITT G4MMR)
28-29	X'5101'	Bit ordering supported
30-31	X'5204'	Unpadded RIDIC Recording Algorithm supported
32-33	X'5505'	Multiple image Content supported
34-35	X'A004'	All four orientations supported
36-37	X'F301'	Scale-to-fill mapping supported

## IO Image Command Set (IOCA FS42)

Offset	Range	Meaning
0-1	X'0024'	VECTOR LENGTH
2-3	X'C9D6'	IO Image Command Set
4-5	X'FF42'	IO/1 Level
6-7	X'1001'	Unordered Image Blocks
8-9	X'1202'	IO Image Objects Downloaded Resources in Home State

Offset	Range	Meaning
10-11	X'4022'	COLOR of MEDIUM SUPPORTED
12-13	X'4401'	Extended IOCA Bi-level Image Color SDF supported
14-15	X'4402'	Extended IOCA Tile-Set Color support
16-17	X'5001'	MMR Compression algorithm supported
18-19	X'5003'	Uncompressed Image supported
20-21	X'5008'	ABIC Compression supported
22-23	X'5020'	Solid Fill Rectangle
24-25	X'5082'	G4 Facsimile Coding Scheme (CCITT G4MMR)
26-27	X'5101'	Bit ordering supported
28-29	X'5204'	Unpadded RIDIC Recording Algorithm supported
30-31	X'5505'	Multiple image content supported
32-33	X'A004'	All four orientations supported
34-35	X'F301'	Scale-to-fill mapping supported

## IO Image Command Set (IOCA FS45)

Offset	Range	Meaning
0-1	X'001C'	VECTOR LENGTH
2-3	X'C9D6'	IO Image Command Set
4-5	X'FF45'	IO/1 Level
6-7	X'1001'	Unordered Image Blocks
8-9	X'1202'	IO Image Objects Downloaded Resources in Home State
10-11	X'4022'	COLOR of MEDIUM SUPPORTED  LIMITED SIMULATED COLOR SUPPORTED  For details about color simulation and product support specifics, see "Color Simulation", IPDS Technical Reference 1.
12-13	X'4401'	Extended IOCA Bi-level Image Color supported

Offset	Range	Meaning
14-15	X'4402'	Extended IOCA Tile-Set Color support
16-17	X'5020'	Solid Rectangle Fill support
18-19	X'5101'	Bit ordering supported
20-21	X'5204'	Unpadded RIDIC Recording Algorithm supported
22-23	X'5505'	Multiple image Content supported
24-25	X'A004'	All four orientations supported
26-27	X'F301'	Scale-to-fill mapping supported

#### **Graphics Command Set**

Offset	Range	Meaning
0-1	X'001A'	VECTOR LENGTH
2-3	X'E5C7'	GRAPHICS Command Set - GR1 Subset
4-5	X'FF30'	GRS3 Data
6-7	X'1001'	unordered graphics blocks
8-9	X'4022'	COLOR of MEDIUM SUPPORTED LIMITED
		SIMULATED COLOR SUPPORTED
		For details about color simulation and product support specifics, see "Color Simulation", IPDS Technical Reference 1.
10-11	X'4100'	Set Process Color Supported
12-13	X'4101'	GOCA Box Drawing Supported
14-15	X'4102'	Partial Arc Drawing Supported
16-17	X'4106'	Set Fractional Line Width Supported
18-19	X'4108'	Normal line width default
20-21	X'4109'	Process Color default
22-23	X'4112'	Clockwise partial arc
24-25	X'A004'	All 4 orientations supported

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## Page Segment Command Set

Offset	Range	Meaning
0-1	X'0008'	VECTOR LENGTH
2-3	X'D7E2'	PAGE SEGMENT Command Set
4-5	X'FF10'	PS1 Subset
6-7	X'1101'	EXTENDED PAGE SEGMENT SUPPORT (32K)

#### **Overlay Command Set**

Offset	Range	Meaning
0-1	X'000C'	VECTOR LENGTH
2-3	X'D6D3'	OVERLAY Command Set
4-5	X'FF10'	OL1 Subset
6-7	X'1506'	OVERLAY NESTING = 6 Levels
8-9	X'1102'	EXTENDED OVERLAY SUPPORT (32K)
10-11	X'A004'	page-overlay-rotation support; all 4 orientations

## Loaded Font Command Set (LF1) - Single Byte

Offset	Range	Meaning
0-1	X'0010'	VECTOR LENGTH
2-3	X'C3C6'	LOADED FONT Command Set
4-5	X'FF10'	LF1 subset - fully described font + font index
6-7	X'A004'	4 CHARACTER ROTATIONS (LFI command)
8-9	X'B002'	LFI UNDERSCORE Width and Position USED
10-11	X'C005'	BOUNDED BOX RASTER FONT TECHNOLOGY
12-13	X'C100'	FIXED METRICS
14-15	X'C101'	RELATIVE METRICS

Offset	Range	Meaning
0-1	X'0012'	VECTOR LENGTH
2-3	X'C3C6'	LOADED FONT Command Set
4-5	X'FF10'	LF1 subset - fully described font + font index
6-7	X'A004'	4 CHARACTER ROTATIONS (LFI command)
8-9	X'B001'	Double-Byte coded fonts supported
10-11	X'B002'	LFI UNDERSCORE Width and Position USED
12-13	X'C005'	BOUNDED BOX RASTER FONT TECHNOLOGY
14-15	X'C100'	FIXED METRICS
16-17	X'C101'	RELATIVE METRICS

## Loaded Font Command Set (LF3) - Single Byte

Offset	Range	Meaning
0-1	X'0014'	VECTOR LENGTH
2-3	X'C3C6'	LOADED FONT Command Set
4-5	X'FF30'	LF3 subset - code page + font character set
6-7	X'A004'	4 CHARACTER ROTATIONS (LFI command)
8-9	X'B002'	LFI UNDERSCORE Width and Position USED
10-11	X'B003'	GRID PARTS REQUIRED IN LFC, LFCSC and LCPC COMMANDS
12-13	X'B004'	Default Character Parameters in LCPC Supported
14-15	X'B005'	Extended (Unicode mapping) code page support
16-17	X'C01F'	ADOBE TYPE-1 PFB OUTLINE FONT TECHNOLOGY
18-19	X'C101'	RELATIVE METRICS

## Loaded Font Command Set (LF3) - Double Byte

Offset	Range	Meaning
0-1	X'0018'	VECTOR LENGTH
2-3	X'C3C6'	LOADED FONT Command Set
4-5	X'FF30'	LF3 subset - code page + font character set
6-7	X'A004'	4 CHARACTER ROTATIONS (LFI command)
8-9	X'B001'	Double-Byte coded fonts supported
10-11	X'B002'	LFI UNDERSCORE Width and Position USED
12-13	X'B003'	GRID PARTS REQUIRED IN LFC, LFCSC and LCPC COMMANDS
14-15	X'B004'	Default Character Parameters in LCPC Supported
16-17	X'B005'	Extended (Unicode mapping) code page support
18-19	X'C01E'	CID-keyed OUTLINE FONT TECHNOLOGY
20-21	X'C01F'	ADOBE TYPE-1 PFB OUTLINE FONT TECHNOLOGY
22-23	X'C101'	RELATIVE METRICS

#### **Bar Code Command Set**

Offset	Range	Meaning
0-1	X'000C'	VECTOR LENGTH
2-3	X'C2C3'	BAR CODE Command Set - BC1 Subset
4-5	X'FF20'	BCD2 Data
6-7	X'1001'	UNORDERED BAR CODE BLOCKS
8-9	X'4022'	COLOR of MEDIUM SUPPORTED LIMITED SIMULATED COLOR SUPPORTED
		For details about color simulation and product support specifics, see "Color Simulation", IPDS Technical Reference 1.
10-11	X'A004'	All four orientations supported

• See page 201 "Bar Code Type and Modifier Description and Values" for a list of supported Bar Code Types.

## **Object Container Command Set**

Offset	Range	Meaning
0-1	X'000C'	VECTOR LENGTH
2-3	X'D6C3'	Object Container Command set - OC1 Subset
4-5	X'0000'	No levels defined
6-7	X'1201'	Data-object resource support
8-9	X'F301'	Scale-to-fill mapping supported
10-11	X'5800'	Image resolution triplet supported

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## **Execute Order Any State (XOA)**

This command identifies a set of subcommands which take effect immediately, regardless of the current printer operating state.

Each Execute Order Any state command consists of a two-byte order code followed by zero or more bytes of parameters.

#### **XOA Mark Form**

The MF order causes the printer to place two rectangular blocks of job separation marks on the current or the next sheet. One block is printed on the leading edge of the sheet and one block is printed on the trailing edge of the sheet.

If the MF order is included in a page that is part of a Load Copy Control copy group (See page 28 "Load Copy Control") all the copies of the page will have a job separator mark included.

Offset	Range	Meaning	Error Code
0-1	X'0800'	MARK FORM	

## **XOA Exception Handling Control**

The Exception-Handling Control command allows the host to control how the printer reports and processes exceptions. A data-stream exception exists when the printer detects an invalid or unsupported command, control, or parameter value.

Offset	Range	Meaning	Error Code
0-1	X'F600'	EXCEPTION HANDLING CONTROL (EHC)	

Offset	Range	Meaning	Error Code
2		EXCEPTION REPORTING	
	Bit O: O	Do not Report Undefined Character Check	
	Bit O: 1	Report Undefined Character Check	
	Bit 1: 0	Do not Report Page Position Check	
	Bit 1: 1	Report Page Position Check	
	Bits 2-5:	Reserved	
	Bit 6: 0	Do not Highlight Position Checks	
	Bit 6: 1	Highlight Position Checks (08C100 and 041100)	
	Bit 7: 0	Do not Report All other Exceptions with AEA's	
	Bit 7: 1	Report All other Exceptions with AEA's	
3		ALTERNATE EXCEPTION ACTIONS	
	Bits 0-6: 0	Reserved	
	Bit 7: 0	Take AEA (if defined)	
	Bit 7: 1	Don't take AEA	
4		EXCEPTION PRESENTATION PROCESSING	
	Bits 0-5: 0	Reserved	
	Bit 6: 0	No Page Continuation	
	Bit 6: 1	Page Continuation Action (Independent Exception Page Print Supported)	
		Discard Page	
	Bit 7: 0	Print to point of Exception	
	Bit 7: 1	(Process limits may apply)	
		Independent Exception Page Print is only present in Native mode, not 4028 Emulation mode.	

#### **XOA Request Resource List**

This order causes the Resource List (See "Resource List Reply") to be placed in the Special Data Area of the Acknowledge Reply (See page 10 "Acknowledgement Reply") requested with this order. If the ARQ flag was not set for this XOA subcommand, it is treated as a NOP.

A Resource List Reply may consist of multiple entries. If the Resource List Reply contains an entry that does not fit in the space available in the Special Data Area of Acknowledge Reply, the printer will follow either the acknowledge continuation method or the RRL-continuation method, depending on the host, as described in Intelligent Printer Data Stream Reference.

Offset	Range	Meaning	Error Code
0-1	X'F400'	REQUEST RESOURCE LIST (RRL)	
2		QUERY TYPE	X'02910
	X'05'	Resource Activation Status	2'
	X'00' or X'FF'	General Resource Status	
3-4	X'0000'- X'FFFF'	ENTRY CONTINUATION Indicator	
5	X'03'-X'xx'	ENTRY LENGTH  Multiple-entry queries are not supported. Byte 5 indicates the length of the command.	X'02910 2'

Offset	Range	Meaning	Error Code
6		RESOURCE TYPE	X'02910 2'
	X'01'	Single Byte Coded Fonts	
	X'02'	Double-byte LF1-type Coded Fonts	
	X'03'	Double-byte LF1-type Coded Font Sections	
	X'04'	Page Segments	
	X'05'	Overlays	
	X'06'	Device Version Code Pages	
	X'07'	Font Character Sets	
	X'08'	Single-byte coded-font indexes	
	X'09'	Double-byte LF1-type Coded Font Section Indexes	
	X'10'	Coded Fonts (treated as RT 01)	
	X'11'	Graphic Character Sets supported in a font character set	
	X'12'	Specific Code Pages	
	X'41'	Data-object font	
	X'42'	Data-object font component	
	X'40'	Data Object Resource	
	X'FF'	All Resources	
7		RESOURCE ID FORMAT	X'02910 2'
	X'00'	Host-Assigned Resource ID	
	X'03'	IBM Registered Global Resource ID parts	
	X'09'	Object-OID	
8-n		RESOURCE IDENTIFIER	

- Multiple-entry queries are not supported. Byte 5 indicates the length of the command.
- If the entire resource list does not fit in the Special Data area of the Acknowledge Reply, continuation is necessary. The printer indicates continuation using the acknowledgement

continuation bit in the flag byte of the Acknowledge Reply. If the host requests Acknowledgement continuation by sending a command with ARQ bit and the Continuation bit set, the printer will complete the RRL reply using Acknowledgement continuation. If the host requests RRL continuation (by sending an RRL command with non-zero value in bytes 3 and 4) the printer will use conventional RRL continuation to finish the reply. If the host requests both RRL and ACK continuation, the printer will default to RRL continuation.

- Bytes 8 and 9 are ignored when the resource type is ALL.
- Exception ID 0291..02 in bytes 6 and 7 are for invalid values. If either value is unsupported, then the query is not understood and the reply is a single entry that sets the resource type to zero, echoes other values, and sets the resource size to zero (not present).

#### **Resource List Reply**

Offset	Range	Meaning	Error Code
0	X'FF	UNORDERED LIST	
1	X'01'	END of LIST	
	X'04' - X'nn'	LENGTH of this ENTRY	

Offset	Range	Meaning	Error Code
2		RESOURCE TYPE	
	X'00'	Resource Size=0. The queried Resource Type,ID Format, or ID is unknown, unsupported, or inconsistent	
	X'01'	Single Byte Coded Font	
	X'02'	Double Byte Coded Fonts	
	X'03'	Double Byte Coded-font Sections	
	X'04'	Page Segment	
	X'05'	Overlay	
	X'06'	Device Version Code Pages	
	X'07'	Font Character Sets	
	X'08'	Single Byte Coded Font Index	
	X'09'	Double Byte Coded-font Section Indexes	
	X'11'	Graphic Character Sets supported in a font character set	
	X'12'	Specific Code Pages	
	X'41'	Data-object font	
	X'42'	Data-object font component	
	X'FF'	All Resources	
3		RESOURCE ID FORMAT	
	X'00'	Host-Assigned Resource ID	
	X'03'	IBM Registered Global Resource ID parts	
4		RESOURCE SIZE Indicator	
	X'00'	Resource not present	
	X'01'	Resource present	
5-6	X'xxxx'	Resource ID	

- Bytes 2-6 repeat for each resource type.
- A query for a HARID that maps to a GCSGID/CPGID/FGID/FW combination which is not supported in the current configuration will result in a negative response (Reply Byte 4 = 0).
- For details about a description of the supported GCSGID/CPGID/FGID/FW combinations, see "Code Page and Font Identification", IPDS Technical Reference 1.

#### **XOA Alternate Offset Stacker (AOS)**

The AOS order command signals the printer to jog the current sheet. If copies of the current sheet are stacked in more than one media destination, the jogging will occur in each selected media destination, if the media destination supports offset stacking.

Offse	t Range	Meaning	Error Code
0-1	X'0A00'	Alternate Offset Stacker	

#### **Media Jogging Support Matrices**

A = Internal shift tray

B = Internal Finisher SR3130: Finisher shit tray

C = Finisher SR3 140: Finisher shit tray

D = Booklet Finisher SR3150: Finisher shit tray

E = Finisher SR3160: Finisher shit tray

F = Booklet Finisher SR3170: Finisher shit tray

Y = Yes / N = No

	А	В	С	D	Е	F
A3 (297 × 420mm) SEF	Y	Y	Y	Y	Y	Y
A4 (210 × 297mm) SEF / LEF	Υ	Υ	Y	Υ	Υ	Y

	А	В	С	D	E	F
A5 (210 × 148mm) SEF / LEF	Y	Y	Y	Y	Y	Y
A6 (105 × 148mm) SEF	Y	Z	Ν	Ν	Ν	N
B4 (257 × 364 mm) SEF	Y	Y	Y	Y	Y	Y
B5 (182 × 257mm) SEF / LEF	Y	Y	Y	Y	Y	Y
B6 (128 × 182mm) SEF	Y	N	N	N	Y	Y
DLT (11 × 17 in.) SEF	Y	Y	Y	Y	Y	Y
Legal (8.5 × 14in.) SEF	Y	Υ	Y	Y	Y	Υ

	А	В	С	D	Е	F
Foolscap (8.5 × 13in.) SEF	Y	Y	Y	Y	Y	Y
Letter (8.5 × 11in.) SEF / LEF	Y	Y	Y	Y	Y	Y
Governme ntLG (8.25 × 14 in.) SEF	Y	Y	Y	Y	Y	Y
Folio (8.25 × 13in.) SEF	Y	Y	Y	Y	Y	Y
F/GL (8 × 13in.) SEF	Y	Y	Y	Y	Y	Y
Eng Quatro (8 × 10 in.) SEF	Y	Y	Y	Y	Y	Y
Executive (7.25 × 10.5in.)	Y	Y	Y	Y	Y	Y
HalfLetter (5.5 × 8.5in.) SEF	Y	Ν	Y	Y	Y	Υ

	Α	В	С	D	Е	F
Com10 (4.125 × 9.5in.) SEF / LEF	Y	N	N	N	Ν	Z
Monarch (3.875 × 7.5in.) SEF / LEF	Y	N	N	N	N	Z
C5 (162 × 229mm) SEF / LEF	Y	Υ	N	N	Ν	Z
C6 (114 × 162mm) SEF / LEF	Y	Υ	N	N	N	N
DL Env (110 × 220mm) SEF / LEF	Y	N	N	N	Ν	Z
8K (267 × 390mm) SEF	Y	Y	Y	Y	Y	Y
16K (195 × 267mm) SEF / LEF	Y	Y	Y	Y	Y	Y
12 × 18 in. SEF	Υ	N	Y	Y	Y	Υ

	А	В	С	D	E	F
11 × 15 in. SEF	Y	Y	Y	Y	Y	Υ
10 × 14 in. SEF	Y	Y	Y	Y	Y	Υ
SRA3 (320 × 450 mm) SEF	Y	N	N	N	N	N
SRA4 (225 × 320 mm) SEF / LEF	Y	Y (SEF) / N (LEF)				
Custom Sizes	*1	*2	*3	*3	*4	*4

<sup>\*1 90.0</sup>  $\times$  148.0 mm to 320.0  $\times$  600.0 mm

<sup>\*2 148.0</sup>  $\times$  148.0 mm to 297.0  $\times$  431.8 mm

<sup>\*3</sup>  $139.7 \times 148.0 \text{ mm}$  to  $304.8 \times 457.2 \text{ mm}$ 

<sup>\*4 125.0</sup>  $\times$  148.0 mm to 304.8  $\times$  457.2 mm

# **Execute Order Home State (XOH)**

Each Execute Order Homestate command consists of a two-byte order code followed by zero or more bytes of parameters.

#### **XOH Obtain Printer Characteristics**

This order causes a set of self-defined fields describing printer characteristics to be placed in the Special Data Area of the requested Acknowledge Reply and is identified with an acknowledgement type of X'46'. If the ARQ flag was not set on the XOH command containing this order, then this order is equivalent to a No Operation.

Offset	Range	Meaning	Error Code
0-1	X'F300'	OPC Order Code	

#### Printable Area Self-Defining Field

- The printer provides two modes that determine the specification of the Xm Offset, Ym Offset, Xm Extent and Ym Extent of the Printable Area.
  - Restricted (No Print Border) (Guaranteed Print Legibility) (Default)
  - Unrestricted (Edge-to-Edge Addressability)
- The Xm Extent and Ym Extent of the Printable Area parameters documented in the following table
  are representative of the standard printer source media configuration. These extents can be
  modified as a result of receiving a XOHSMO command, as described in page 114 "XOH Set
  Media Origin".
- Actual tray capacities are determined media weight. The capacities in the following table are the maximum allowable.
- The machine supports media source tray numbering. Media source values in the printer's control
  panel OPC support tables represent the default settings when the printer is initially installed. An the
  menu mode is provided to allow customers to specify the source tray numbers to meet requirements
  of legacy applications. Example: customer might want to address the Manual Tray as tray 4
  instead of the tray 100 (default).

### **U**Note

• For the tray in which "envelope" has been specified as the paper type, the tray values of the tray ID are (in ascending for each respective tray that is installed) as follows: X'8040', X'8041', etc. If a different paper type is specified for the tray, the tray values of the tray ID are (in ascending for each respective tray that is installed) as follows: X'8000', X'8001', etc. In regards to the bypass

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tray and default tray, even if you specify "envelope" as the paper type, the tray value will not be changed.

Offset	Range	Meaning
0-1		LENGTH of this Self-Defining Field
	X'0018' or	Machine with NO Media OID
	X'0024' or	Machine with Single Media OID
	X'0025' or	Machine with Double Media OID
	X'0026' or	Machine with Triple Media OID
	X'0027' or	Machine with Quadruple Media OID
	X'nnnn'	Machine with Media Name
2-3	X'0001'	PRINTABLE AREA Self-Defining Field ID
4		INPUT MEDIA SOURCE
	X'00'	Tray 1
	X'01'	Tray 2
	X'02'	Tray 3
	X'02'	Tray 3 (LCT)
	X'03'	Tray 4
		Large capacity tray (LCT)* 1
	X'03'	Tray 1 + Tray 2 + Bypass tray + Tray 3 (LCT) + Large capacity tray (LCT)
	X'04'	Tray 1 + Tray 2 + Bypass tray + Tray 3 + Tray 4 + Large capacity tray (LCT)
	X'63'	Bypass tray
	X'FF'	Default tray
	X'00'	Reserved
6	X'00'	UNIT BASE 10 in.
7	X'00'	Reserved
8-9	X'3840'	L-units per UNIT BASE

Offset	Range	Meaning
10-11	X'0001' - X'xxxx'	WIDTH of the Medium Presentation Space in L-units (determined by configuration)
12-13	X'0001' - X'xxxx'	LENGTH of the Medium Presentation Space in L-units (determined by configuration)
14-15		Xm OFFSET of the Printable Area in L-Units
	X'00E3'	Restricted (4mm)
	X'0000'	Unrestricted (0mm)
16-17		Ym OFFSET of the Printable Area in L-units
	X'00E3'	Restricted (4mm)
	X'0000'	Unrestricted (Omm)
		For A4 media there is special processing with respect to reporting the Xm OFFSET and subsequentially the Xm EXTENT of the printable area. The 4028 printer used an offset of 3.386 mm for A4 paper (short edge) instead of 4 mm. This was done as a customer satisfaction issue to allow a printable area 8 in. wide.

Offset	Range	Meaning
18-19 (Restricte d: No		Xm EXTENT of the Printable Area in L-units
		Paper
Print Border)	X'1D2A'	Statement (5.185 in.)
borderj	X'2702'	Executive (6.935 in.)
	X'2B3A'	8in. × 10in. (7.685 in.)
	X'2E0A'	Letter (8.185 in.)
	X'30DA'	Letter Tabstock (8.685 in.)
	X'2B3A'	8in. × 13in. (7.685 in.)
	X'2CA2'	8.25in. × 13in. (7.935 in.)
	X'2E0A'	8.5 × 13 in. (8.185 in.)
	X'2E0A'	Legal (8.185 in.)
	X'367A'	10in. × 14in. (9.685 in.)
	X'367A'	10in. × 15in. (9.685 in.)
	X'3C1A'	11in. × 14in. (10.685 in.)
	X'3C1A'	11in. × 15in. (10.685 in.)
	X'3C1A'	Ledger (10.685 in.)
	X'41BA'	12in. × 18in. (11.685 in.)
	X'1 <i>57</i> B'	A6 (97 mm)
	X'1A93'	B6 (120 mm)
	X'1F1D'	A5 (140.5 mm)
	X'23E0'	170 × 210mm (162 mm)
	X'2689'	182 × 210mm (174 mm)
	X'2CBC'	210 × 340mm (202 mm)

Offset	Range	Meaning
18-19	X'2688'	B5 (JIS) (174 mm)
(Restricte d: No	X'2CBC'	A4 (202 mm)
Print Border)	X'2F86'	A4 Tabstock (214.6 mm)
Bordery	X'3724'	B4 (ISO) (249 mm)
	X'395C'	8 Kai (259 mm)
	X'296A'	16 Kai (187 mm)
	X'4000'	A3 (289 mm)
	X'145F' - X'474F'	Custom (92 mm to 322 mm)
		Transparencies/Labels
	X'2E0A'	Letter (8.185 in.)
	X'2CBC'	A4 (202 mm)

Offset	Range	Meaning
18-19 (Unrestri cted: Edge-to- Edge		Xm EXTENT of the Printable Area in L-units
		Paper
	X'1EFO'	Statement (5.5 in.)
Address	X'28C8'	Executive (7.25 in.)
ability)	X'2D00'	8in. × 10in. (8 in.)
	X'2FD0'	Letter (8.5 in.)
	X'32A0'	Letter Tabstock (9 in.)
	X'2D00'	8in. × 13in. (8 in.)
	X'2E68'	8.25in. × 13in. (8.25 in.)
	X'2FD0'	8.5in. × 13in. (8.5 in.)
	X'2FD0'	Legal (8.5 in.)
	X'3840'	10in. × 14in. (10 in.)
	X'3840'	10in. × 15in. (10 in.)
	X'3DEO'	11in. × 14in. (11 in.)
	X'3DEO'	11in. × 15in. (11 in.)
	X'3DEO'	Ledger (11 in.)
	X'4380'	12in. × 18in. (12 in.)
	X'1741'	A6 (105 mm)
	X'1C59'	B6 (128 mm)
	X'20E3'	A5 (148.5 mm)
	X'25A6'	170 × 210mm (170 mm)
	X'284E'	182 × 210mm (182 mm)
	X'2E82'	210 × 340mm (210 mm)

Offset	Range	Meaning
18-19	X'284E'	B5 (JIS) (182 mm)
(Unrestri cted:	X'2E82'	A4 (210 mm)
Edge-to- Edge	X'314C'	A4 Tabstock (222.6 mm
Address	X'38EA'	B4 (ISO) (257 mm)
ability)	X'3B21'	8 Kai (267 mm)
	X'2B30'	16 Kai (195 mm)
	X'41C6'	A3 (297 mm)
	X'1625' - X'4914'	Custom (100 mm to 330 mm)
		Transparencies/Labels
	X'2FD0'	Letter (8.5 in.)
	X'2E82'	A4 (210 mm)

Offset	Range	Meaning
20-21		Ym EXTENT of the Printable Area in L-units
(Restricte d: No		Paper
Print Border)	X'2EOA'	Statement (8.185 in.)
Bordery	X'394A'	Executive (10.185 in.)
	X'367A'	8in. × 10in. (9.685 in.)
	X'394A'	8in. × 10.5in. (10.185 in.)
	X'3C1A'	Letter (10.685 in.)
	X'3C1A'	Letter Tabstock (10.685 in.)
	X'475A'	8in. × 13in. (12.685 in.)
	X'475A'	8.25in. × 13in. (12.685 in.)
	X'475A'	8.5in. × 13in. (12.685 in.)
	X'4CFA'	Legal (13.685 in.)
	X'4CFA'	10in. × 14in. (13.685 in.)
	X'529A'	10in. × 15in. (14.685 in.)
	X'4CFA'	11in. × 14in. (13.685 in.)
	X'529A'	11in. × 15in. (14.685 in.)
	X'5DDA'	Ledger (16.685 in.)
	X'637A'	12in. × 18in. (17.685 in.)
	X'1F1D'	A6 (140.5 mm)
	X'2689'	B6 (174 mm)
	X'2CBC'	A5 (202 mm)
	X'2CBC'	170 × 210mm (202 mm)
	X'2CBC'	182 × 210mm (202 mm)
	X'4986'	210 × 340mm (332 mm)

Offset	Range	Meaning
20-21	X'3724'	B5 (JIS) (249 mm)
(Restricte d: No	X'4000	A4 (289 mm)
Print Border)	X'4000'	A4 Tabstock (289 mm)
Bordery	X'4ED6'	B4 (ISO) (356 mm)
	X'5499'	8 Kai (382 mm)
	X'395C'	16 Kai (259 mm)
	X'5B3D'	A3 (412 mm)
	X'1D02 - 63A8'	Custom (131 mm to 450 mm)
		Transparencies/Labels
	X'3C1A'	Letter (10.685 in.)
	X'4000'	A4 (289 mm)

Offset	Range	Meaning
20-21(U		Ym EXTENT of the Printable Area in L-units
nrestricte d: Edge-		Paper
to-Edge Address	X'2FD0'	Statement (8.5 in.)
ability)	X'3B10'	Executive (10.5 in.)
	X'3840'	8in. × 10in. (10 in.)
	X'3DEO'	Letter (11 in.)
	X'3DEO'	Letter Tabstock (11 in.)
	X'4920'	8in. × 13in. (13 in.)
	X'4920'	8.25in. × 13in. (13 in.)
	X'4920'	8.5in. × 13in. (13 in.)
	X'4ECO'	Legal (14 in.)
	X'4ECO'	10in. × 14in. (14 in.)
	X'5460'	10in. × 15in. (15 in.)
	X'4EC0'	11in. × 14in. (14 in.)
	X'5460'	11in. × 15in. (15 in.)
	X'5FA0'	Ledger (17 in.)
	X'20C7'	12in. × 18in. (18 in.)
	X'20E3'	A6 (148.5 mm)
	X'284E'	B6 (182 mm)
	X'2E82'	A5 (210 mm)
	X'2E82'	170 × 210mm (210 mm)
	X'2E82'	182 × 210mm (210 mm)
	X'4B4C'	210 × 340mm (340 mm)

Offset	Range	Meaning
20-21(U	X'38EA'	B5 (JIS) (257 mm)
nrestricte d: Edge-	X'41C6'	A4 (297 mm)
to-Edge Address	X'41C6'	A4 Tabstock (297 mm)
ability)	X'509C'	B4 (ISO) (364 mm)
	X'565F'	8 Kai (390 mm)
	X'3B21'	16 Kai (267 mm)
	X'5D03'	A3 (420 mm)
	X'1EC8 - 656D'	Custom (139 mm to 458 mm)
		Transparencies/Labels
	X'3DEO'	Letter (11 in.)
	X'41C6'	A4 (297 mm)
22-23		INPUT MEDIA SOURCE CHARACTERISTICS
	Bit 0: 0/1	0 = No Duplex; 1 = Duplex
	Bits 1-2:	10 = Cut Sheet Media
	Bit 3: 1	0 = Tray Not Available; 1 = Tray Available
	Bit 4: 0	O = Reserved
	Bit 5: 0/1	0 = No Envelopes; 1 = Auto or Manual Envelope Feature
	Bit 6: 0/1	0 = Auto Media Feed; 1 = Manual Media Feed
	Bit 7: 0	0 = No Computer Output on Microfilm (COM)
	Bit 8: 0	0 = No Carrier Strips (Ignored for Cut Sheet Media)
	Bit 9: 0/1	0 = Not an Inserter Bin; 1 = Inserter Bin
	Bits 10-15:all 0	Reserved

Offset	Range	Meaning
24-25		Input Media ID LENGTH (Note 3)
	X'000C' or	Machine with Single OID byte
	X'000D' or	Machine with Double OID byte
	X'000E' or	Machine with Triple OID byte
	X'000F'	Machine with Quadruple OID byte
26		INPUT MEDIA ID Type
	X'10'	MO:DCA Input Media Type OID
27	X'06'	OID Encoding
28		OID LENGTH
	X'07' or	Machine with Single OID byte
	X'08' or	Machine with Double OID bytes
	X'09' or	Machine with Triple OID bytes
	X'OA'	Machine with Quadruple OID bytes
29-34	X'2B1200 040301'	Input Media ID (Common Part)

Offset	Range	Meaning
35-36		Input Media ID (Media Specific Part)
		Paper
	X'45'	Statement (69)
	X'41'	Executive (65)
	X'8120'	8in. × 10in. (160)
	X'32'	Letter (50)
	X'33'	Letter Colored (51)
	X'34'	Letter Transparent (52)
	X'8111'	Letter Tabstock (9×11) (145)
	No OID Returned	8in. × 13in.
	No OID Returned	8.25in. × 13in.
	X'3F'	8.5in. × 13in. (63)
	X'3C'	Legal (60)
	X'3D'	Legal Colored (61)
	No OID Returned	10in. × 14in.
	No OID Returned	10in. × 15in.
	No OID Returned	11in. × 14in.
	No OID Returned	11in. × 15in.
	X'43'	Ledger (67)

Offset	Range	Meaning
35-36	X'9B'	12in. × 18in. (155)
	No OID Returned	A6
	No OID Returned	B6
	X'14'	A5 (20)
	X'15'	A5 Colored (21)
	No OID Returned	170 × 210mm\
	No OID Returned	182 × 210mm
	No OID Returned	210 × 340mm
	X'2B'	B5 (JIS) (43)
	X'00'	A4 (0)
	X'01'	A4 Colored (1)
	X'02'	A4 Transparent (2)
	X'07'	A4 Tabstock (7)
	X'1E'	B4 (ISO) (30)
	X'1F'	B4 Colored (ISO) (31)
	No OID Returned	8 Kai
	No OID Returned	16 Kai
	X'OA'	A3 (10)
	X'OB'	A3 Colored (11)
	No OID Returned	Custom

Offset	Range	Meaning
37-38	X'0004' - X'0013'	Input Media ID LENGTH (Note 4)
Byte 39		Input Media ID TYPE
	X'00'	User Defined Name
40-end		Input Media ID (Form Name)
	X'4C6574 746572'(i e. Letter)	(1 to 16 Byte Form Name)

- \* 1 Available values vary depending on the installed option.
- In the OPC Acknowledge Reply, the Printable Area SDF repeats for every installed Media Source.
   Therefore, since printers are capable of supporting multiple installed input trays, multiple Printable
   Area SDF's may be returned in a single XOH-OPC Acknowledge Reply.
- The Input Media Source Characteristics (Bit 0), of the Printable Area SDF indicates the duplex ability of a given media source. See "Media Source and Destination Support Matrices", for specific details on media duplex ability.
- Input Media ID type X'06' Media OID is only returned if a particular media has a registered MO:DCA Media Type OID.
- Input Media ID type X'00' User Defined Name is only returned if the user defines a Form, assigns a Form Name to the Form and associates that Form with a given Input Media Source tray.

#### Image and Coded Font Resolution Self-Defining Field

Offset	Range	Meaning
0-1	X'000A'	LENGTH of this Self-Defining Field
2-3	X'0003'	IMAGE and CODED FONT RESOLUTION Self-Defining Field
4	X'00'	UNIT BASE 10 inches
5		FONT RESOLUTIONS
	X'00'	Resolution Acceptance Mode (Only value in bytes 6-9)
	X'FF'	Resolution Independence Mode (Bytes 6-9 specify highest resolution) (240 DPI or 300 DPI or 600 DPI)

Offset	Range	Meaning
6-7		X PIXELS per Unit Base
	X'0960'	2400 pixels/10 inches
	X'OBB8'	3000 pixels/10 inches
	X'1770'	6000 pixels/10 inches
8-9		Y PIXELS per Unit Base
	X'0960'	2400 pixels/10 inches
	X'OBB8'	3000 pixels/10 inches
	X'1770'	6000 pixels/10 inches

- Value for byte 5 is controlled by the [Resolution] setting in the IPDS menu. Byte 5 will indicate
  Resolution Acceptance mode X'00' if the IPDS Resolution setting is 240, 300 or 600 DPI. Byte 5
  will indicate Resolution Independence mode X'FF' if the IPDS Resolution setting is Auto.
- Values for bytes 6-9 are controlled by the setting of byte 5 (Font Resolutions). If byte 5 indicates
  Resolution Acceptance mode X'00', bytes 6-9 reflect the [Resolution] setting in the IPDS menu. If
  byte 5 indicates Resolution Independence mode X'FF', bytes 6-9 reflect the [Print Mode] setting in
  the IPDS menu. Note that the resolutions specified also apply to GOCA image if the image
  resolution specified in the GDD command is X'0000', indicating that no explicit GOCA image
  resolution was specified.
- If the [Print Mode] = STD (Standard 300 DPI), then the [Resolution] setting is ignored. Byte 5 will indicate Resolution Acceptance mode X'00' and bytes 6-9 will reflect the IPDS Print Mode setting (300 DPI).
- For the printer to specify IPDS Resolution support of 240, 600, or AUTO, the IPDS Print Mode must be set to Enhanced (PRINT MODE = ENH on the IPDS Menu). In enhanced print mode, complex (full page) image jobs may not yield optimal print performance due to the increased print fidelity required to accurately render 240 and 600 DPI print objects.

#### Storage Pools Self-Defining Field - Single Byte

Offset	Range	Meaning
0-1	X'0033'	VECTOR LENGTH
2-3	X'0004'	STORAGE POOLS Self-Defining Field
4	X'2F'	LENGTH of each Storage Pool Self-Defining Field

Offset	Range	Meaning
5	X'01'	Triplet ID
6	X'00'	STORAGE POOL ID
7-10	X'nnnnnnn n'	Storage pool varies based on installed memory and features
11-14	X'000000 00'	Reserved
15-16	X'0011'	PAGE GRAPHICS Data
17-18	X'0012'	PAGE IMAGE Data
19-20	X'0013'	PAGE TEXT Data
21-22	X'0014'	PAGE BAR CODE Data
23-24	X'0021'	OVERLAY GRAPHICS Data
25-26	X'0022'	OVERLAY IMAGE Data
27-28	X'0023'	OVERLAY TEXT Data
29-30	X'0024'	OVERLAY BAR CODE Data
31-32	X'0031'	PAGE SEGMENT GRAPHICS Data
33-34	X'0032'	PAGE SEGMENT IMAGE Data
35-36	X'0033'	PAGE SEGMENT TEXT Data
37-38	X'0034'	PAGE SEGMENT BAR CODE Data
39-40	X'0040'	Single-Byte CODED FONT Index Tables
41-42	X'0041'	Single-Byte CODED FONT Descriptors
43-44	X'0042'	Single-Byte CODED FONT Patterns
45-46	X'0050'	CODE PAGES
47-48	X'0060'	FONT CHARACTER SETS
49-50	X'0070'	CODED FONTS

## Storage Pools Self-Defining Field - Double Byte

Offset	Range	Meaning
0-1	X'0039'	VECTOR LENGTH
2-3	X'0004'	STORAGE POOLS Self-Defining Field
4	X'35'	LENGTH of each Storage Pool Self-Defining Field
5	X'01'	Triplet ID
6	X'00'	STORAGE POOL ID
7-10	X'nnnnnnn n'	Storage pool varies based on installed memory and features
11-14	X'000000	Reserved
15-16	X'0011'	PAGE GRAPHICS Data
17-18	X'0012'	PAGE IMAGE Data
19-20	X'0013'	PAGE TEXT Data
21-22	X'0014'	PAGE BAR CODE Data
23-24	X'0021'	OVERLAY GRAPHICS Data
25-26	X'0022'	OVERLAY IMAGE Data
27-28	X'0023'	OVERLAY TEXT Data
29-30	X'0024'	OVERLAY BAR CODE Data
31-32	X'0031'	PAGE SEGMENT GRAPHICS Data
33-34	X'0032'	PAGE SEGMENT IMAGE Data
35-36	X'0033'	PAGE SEGMENT TEXT Data
37-38	X'0034'	PAGE SEGMENT BAR CODE Data
39-40	X'0040'	Single-Byte CODED FONT Index Tables
41-42	X'0041'	Single-Byte CODED FONT Descriptors
43-44	X'0042'	Single-Byte CODED FONT Patterns

Offset	Range	Meaning
45-46	X'0048'	Double-Byte CODED FONT Index Tables
47-48	X'0049'	Double-Byte CODED FONT Descriptors
49-50	X'004A'	Double-Byte CODED FONT Patterns
51-52	X'0050'	CODE PAGES
53-54	X'0060'	FONT CHARACTER SETS
55-56	X'0070'	CODED FONTS

#### **Color Support Self-Defining Field**

Offset	Range	Meaning
0-1	X'0006'	LENGTH of this Self-Defining Field
2-3	X'0005'	COLOR SUPPORT Self-Defining Field
4-5	X'0008'	BLACK

#### **Installed Features Self-Defining Field**

Since printers are capable of supporting multiple features, multiple configuration combinations are possible. All installable features are described below.

Offset	Range	Meaning
0-1	X'000C' or X'000E'	LENGTH of this Self Defining Field
2-3	X'0006'	INSTALLED FEATURES Self Defining Field
4-5	X'0100'	DUPLEX
6-7	X'0300'	CUT SHEET Output
8-9	X'0600'	OFFSET STACKER
10-11	X'0700'	Envelopes
12-13	X'0800'	MICR (If MICR Enabled)

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#### **Available Features Self-Defining Field**

Since printers are capable of supporting multiple features, multiple configuration combinations are possible. All available features are described below.

Offset	Range	Meaning
0-1	X'000C' or X'000E'	LENGTH of this Self Defining Field
2-3	X'0007'	AVAILABLE FEATURES Self Defining Field
4-5	X'0100'	DUPLEX
6-7	X'0300'	CUT SHEET Output
8-9	X'0600'	OFFSET STACKER
10-11	X'0700'	Envelope
12-13	X'0800'	MICR (If MICR Enabled)

#### RRL Resource Type and ID Format Self-Defining Field - Single Byte

Offset	Range	Meaning
0-1	X'0022'	VECTOR LENGTH
2-3	X'000A'	RRL RESOURCE TYPE Self
		RRL query combinations that receive a non-zero Resource Type reply (See page 73 "XOA Request Resource List")
4-5	X'0100'	Single-Byte Coded Fonts as Host Assigned Resource ID
6-7	X'0103'	Single-Byte Coded Fonts as IBM Global Resource ID
8-9	X'0400'	Page Segments as Host Assigned Resource ID
10-11	X'0500'	Overlays as Host Assigned Resource ID
12-13	X'0600'	Device Version Code Pages as Host Assigned Resource ID
14-15	X'0603'	Device Version Code Pages as IBM Global Resource ID
16-17	X'0700'	Font Character Set as Host Assigned Resource ID
18-19	X'0703'	Font Character Set as IBM Global Resource ID

Offset	Range	Meaning
20-21	X'0800'	Single-Byte Coded Font Index as Host Assigned Resource ID
22-23	X'1000'	Coded Fonts as Host Assigned Resource ID
24-25	X'1003'	Coded Fonts as IBM Global Resource ID
26-27	X'1103'	Graphic Character Sets/Subsets as IBM Global Resource ID
28-29	X'1200'	Specific Code Pages as Host Assigned Resource ID
30-31	X'1203'	Specific Code Pages as IBM Global Resource ID
32-33	X'FFOO'	All Resources as Host Assigned Resource ID

## RRL Resource Type and ID Format Self-Defining Field - Double Byte

Offset	Range	Meaning
0-1	X'0034'	VECTOR LENGTH
2-3	X'000A'	RRL RESOURCE TYPE Self
		RRL query combinations that receive a non-zero Resource Type reply (See page 73 "XOA Request Resource List")
4-5	X'0100'	Single-Byte Coded Fonts as Host Assigned Resource ID
6-7	X'0103'	Single-Byte Coded Fonts as IBM Global Resource ID
8-9	X'0200'	Double-Byte Coded LF1 Fonts as Host Assigned Resource ID
10-11	X'0203'	Double-Byte Coded LF1 Fonts as IBM Global Resource ID
12-13	X'0300'	Double-Byte Coded LF1 Font Sect as Host Assigned Resource ID
14-15	X'0400'	Page Segments as Host Assigned Resource ID
16-17	X'0500'	Overlays as Host Assigned Resource ID
18-19	X'0600	Device Version Code Pages as Host Assigned Resource ID
20-21	X'0603'	Device Version Code Pages as IBM Global Resource ID
22-23	X'0700'	Font Character Set as Host Assigned Resource ID
24-25	X'0703'	Font Character Set as IBM Global Resource ID

Offset	Range	Meaning
26-27	X'0800'	Single-Byte Coded Font Index as Host Assigned Resource ID
28-29	X'0900'	Double-Byte Coded Font Sect Index as Host Assigned Resource ID
30-31	X'1000'	Coded Fonts as Host Assigned Resource ID
32-33	X'1003'	Coded Fonts as IBM Global Resource ID
34-35	X'1103'	Graphic Character Sets/Subsets as IBM Global Resource ID
36-37	X'1200'	Specific Code Pages as Host Assigned Resource ID
38-39	X'1203'	Specific Code Pages as IBM Global Resource ID
40-41	X'4000'	Data object resource as Host Assigned Resource ID
42-43	X'4009'	Data object resource with Object-OID Format
44-45	X'4100'	Data-object Font as Host Assigned Resource ID
46-47	X'4200'	Data-object Font Components as Host Assigned Resource ID
48-49	X'4209'	Data-object Font Components with Object- OID Format
50-51	X'FF00'	All Resources as Host Assigned Resource ID

## Activate Resource RT and ID Format Self-Defining Field - Single Byte

Offset	Range	Meaning
0-1	X'0014'	VECTOR LENGTH
2-3	X'000B'	RRL RESOURCE TYPE Self
		RRL query combinations that receive a non-zero Resource Type reply (See page 73 "XOA Request Resource List")
4-5	X'0103'	Single-Byte Coded LF1 Fonts with IBM Global Resource IDs
6-7	X'0106'	Single-Byte Coded LF1 Fonts with MVS Host Unalterable Remote Font Environment
8-9	X'0603'	Code Pages with IBM Global Resource IDs
10-11	X'0703'	Font Character Sets with IBM Global Resource IDs

Offset	Range	Meaning
12-13	X'0803'	Single-Byte Coded LF1 Font Index as IBM Global Resource ID
14-15	X'0806'	Single-Byte Coded LF1 Fonts Index as MVS Host Unalterable
16-17	X'1003'	Single-Byte/Double-Byte Coded Fonts with IBM Global Resource IDs
18-19	X'1007'	Single-Byte/Double-Byte Coded Fonts with Coded Font Format

## Activate Resource RT and ID Format Self-Defining Field - Double Byte

Offset	Range	Meaning
0-1	X'0022'	VECTOR LENGTH
2-3	X'000B'	RRL RESOURCE TYPE Self
		RRL query combinations that receive a non-zero Resource Type reply (See page 73 "XOA Request Resource List")
4-5	X'0103'	Single-Byte Coded LF1 Fonts with IBM Global Resource IDs
6-7	X'0106'	Single-Byte Coded LF1 Fonts with MVS Host Unalterable Remote Font Environment
8-9	X'0303'	Double-Byte Coded LF1 Font Secs with IBM Global Resource IDs
10-11	X'0306'	Double-Byte Coded LF1 Font Secs with MVS Host Unalterable Remote Font Environment
12-13	X'0603'	Code Pages with IBM Global Resource IDs
14-15	X'0703'	Font Character Sets with IBM Global Resource IDs
16-17	X'0803'	Single-Byte Coded LF1 Fonts Index as IBM Global Resource ID
18-19	X'0806'	Single-Byte Coded LF1 Font Index as MVS Host Unalterable
20-21	X'0903'	Double-Byte Coded LF1 Font Secs Index with IBM Global Resource ID
22-23	X'0906'	Double-Byte Coded LF1 Font Secs with MVS Host Unalterable RMTFE
24-25	X'1003'	Single-Byte/Double-Byte Coded Fonts with IBM Global Resource IDs
26-27	X'1007'	Single-Byte/Double-Byte Coded Fonts with Coded Font Format
28-29	X'4009'	Data object resource with Object-OID Format

Offset	Range	Meaning
30-31	X'410A'	Data-object Font with Data-object Font Format
32-33	X'4209'	Data-object Font Components with Object- OID Format

### Bar Code Type Self-Defining Field ID

Offset	Range	Meaning
0-1	X'0013'	VECTOR LENGTH
2-3	X'000E'	BAR CODE TYPE Self Defining Field
4	X'OD'	CODABAR Modifier Byte Options X'01' and X'02'
5	X'11'	CODE 128 Modifier Byte Option X'02'
6	X'18'	POSTNET Modifier Byte Options X'00' - X'03'
7	X'1A'	RM4SCC Modifier Byte Option X'00'
8	X'1B'	Japan Postal Bar code Modifier Byte Options X'00' and '01'
9	X'1C'	Data Matrix 2D Bar Code Modifier Byte Option X'00'
10	X'1D'	MaxiCode 2D Bar Code Modifier Byte Option X'00'
11	X'1E'	PDF417 2D Bar Code Modifier Byte Options X'00' and X'01'
12	X'1F'	Australia Post Bar Code Modifier Byte Options X'01' - X'08'
13	X'9A'	Rm4scc Modifier byte option X'01'
14	X'20'	QR Code 2D Bar Code Modifier Byte Option X'02'
15	X'21'	Code 93 Modifier Byte Option X'00'
16	X'91'	Code 128 Modifier Byte Option X'03'
17	X'98'	POSTNET (PLANET) Modifier Byte Option X'04'
18	X'22'	USPS Four-State Bar Code Modifier Byte Options X'00' through X'03'



• See page 201 "Bar Code Type and Modifier Description and Values" for all Bar Codes supported.

#### Media-Destinations Self-Defining Field ID

Offset	Range	Meaning
0-1	X'001A'	LENGTH of this Self Defining Field
2-3	X'0010'	Media-Destinations self-defining ID
4-5	X'nnnn'	Default media-destination ID (Determined by Configuration)
6-7	X'0001'	First number in a range of available, contiguous media-destination IDs
8-9	X'nnnn'	Last number in a range of available, contiguous media-destination IDs; this ID must be greater than or equal to the value specified in bytes +0-1 for this set

### Supported Group Operations Self-Defining Field ID

Offset	Range	Meaning
0-1	X'0005'	LENGTH of this Self-Defining Field
2-3	X'0012'	SUPPORTED GROUP OPERATIONS Self-Defining Field
4	X'01'	Keep group together as a print unit

### **Product Identifier Self-Defining Field ID**

Offset	Range	Meaning
0-1	X'0053'	LENGTH of this Self Defining Field
2-3	X'0013'	PRODUCT IDENTIFIER Self Defining Field ID
4	X'38'	LENGTH of Self Defining Product ID Parameter
5-6	X'0001'	UNIQUE PRODUCT IDENTIFIER Parameter ID

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Offset	Range	Meaning
7-12		DEVICE TYPE
	X'FOFOF3F OFOF3'	Type 1
	X'FOFOF3F 5FOF3'	Type 2
	X'F0F0F4F 5F0F3'	Type 3
	X'F0F0F5F 5F0F3'	Type 4
	X'F0F0F6F 0F0F3'	Type 5
13-15		DEVICE MODEL
	X'FOFOFO'	Type 1 / Type 2 / Type 3 / Type 4 / Type 5
16-18	X'DCC9C 8' (RIH)	MANUFACTURER
19-20	X'0000'	PLANT
21-32		SEQUENCE NUMBER (Serial number)
	X'FOFOFOF OFOFOF2F 9F6F5F3F 8' (ie. 296538)	(EBCDIC) (12 bytes)
33-34	X'0000'	TAG
35-43		IPDS CODE LEVEL
	X'FOFOFOF OF44BF5F 3FO' (4.530)	(EBCDIC) (9 bytes)

Offset	Range	Meaning
44-59		CONTROLLER CODE LEVEL
	X'FOFOFOF OFOFOFOF OFOFOFOF OF14BF2F 12' (1.21)	(EBCDIC) (16 bytes)
60	X'1 <i>7</i> '	LENGTH of Self Defining Product ID Parameter
61-62	X'0003'	PRINTER NAME Parameter ID
63-82	X'nnnnnnn nnnnnnnnn nnnnnnnnn nnnnnnnn	PRINTER NAME

## Object Container Type Support Self-Defining Field ID

Offset	Range	Meaning
0-1	X'0148'	LENGTH of this Self Defining Field
2-3	X'0014'	Object Container Type Support Self Defining Field
4	X'82'	length of the Type record
5	X'01'	Type - Page or Overlay State
6-21	X'06072b 1200040 1011600 0000000 000000'	Graphics Interchange Format (GIF)
22–37	X'06072b 1200040 1012F00 0000000 000000'	IOCA Tile Resource

Offset	Range	Meaning
38-53	X'06072b 1200040 1011700 0000000 000000'	JPEG File Interchange Format (JFIF)
54-69	X'06072b 1200040 1010E00 0000000 000000'	Tag Image File Format (TIFF)
70-85	X'06072b 1200040 1013C00 0000000 000000'	TIFF without transparency
86-101	X'06072b 1200040 1013D00 0000000 000000'	TIFF multi-image file with transparency
102-11 7	X'06072b 1200040 1013E00 0000000 00000'	TIFF multi-image file without transparency
118-13	X'06072b 1200040 1014200 0000000 00000'	AFPC TIFF
134	X'C2'	length of the Type record
135	X'02'	home state Type

Offset	Range	Meaning
136-15	X'06072b 1200040 1011600 0000000 000000'	Graphics Interchange Format (GIF)
152-16 7	X'06072b 1200040 1012F00 0000000 000000'	IOCA Tile Resource
168-18	X'06072b 1200040 1011700 0000000 000000'	JPEG File Interchange Format (JFIF)
184-19	X'06072b 1200040 1010E00 0000000 000000'	Tag Image File Format (TIFF)
200-21	X'06072b 1200040 1013C00 0000000 000000'	TIFF without transparency
216-23	X'06072b 1200040 1013D00 0000000 000000'	TIFF multi-image file with transparency
232-24	X'06072b 1200040 1013E00 0000000 00000'	TIFF multi-image file without transparency

Offset	Range	Meaning
248-26	X'06072b 1200040 1013500 0000000 000000'	TrueType/OpenType Collection
264-27 9	X'06072b 1200040 1013300 0000000 000000'	TrueType/OpenType Font
280-29	X'06072b 1200040 1013900 0000000 000000'	Color Management Resource
296-31	X'06072b 1200040 1011400 0000000 00000'	Color Mapping Table setup file
312-32 7	X'06072b 1200040 1014200 0000000 000000'	AFPC TIFF

## Device-Appearance Self-Defining Field ID

Offset	Range	Meaning	
0-1	X'0006'	LENGTH of this Self Defining Field	
2-3	X'0022'	Device appearance Self Defining Field	
4-5	X'0001'	Device-default monochrome appearance	

Offset	Range	Meaning	
0-1	X'0008'	LENGTH of this Self Defining Field	
2-3	X'0018'	FINISHING OPERATIONS Self Defining Field	
4	X'01'	Corner Staple	
5	X'12'	Saddle Stitch (In)	
6	X'03'	Edge Stitch	
7	X'OA'	Punch	

#### **PFC Triplets Supported Self Defining Field ID**

Offset	Range	Meaning	
0-1	X'0008'	LENGTH of this Self Defining Field	
2-3	X'0016'	PFC Triplets Supported Self Defining Field	
4	X'75'	Color Fidelity Triple	
5	X'86'	Text Fidelity Triplet	
6	X'88'	Finishing Fidelity Control Triplet	
7	X'96'	CMR Tag Fidelity Triplet	

### **XOH Select Input Media Source**

This order selects the input media source and, indirectly, the input media, for subsequent physical sheets.

The set of valid values differs according to which forms module configuration is installed and selected by the operator. Since printers are capable of supporting multiple installed input bins, multiple configuration combinations are possible. All input media sources are described below.

When the number of installed input bins changes, the printer is POR'd and initial machine settings are established. When the bin configuration changes exception X'0101..00' is reported to the host.

Actual tray capacities are determined by media weight. The capacities indicated in the table are
the maximum allowable.

The machine supports media source tray numbering. Media source values in the SIMS support
tables represent the default settings when the printer is initially installed. For this machine, the
printer's control panel menu mode is provided to allow customers to specify the source tray
numbers to meet requirements of legacy applications.



• For the tray in which "envelope" has been specified as the paper type, the tray values of the tray ID are (in ascending for each respective tray that is installed) as follows: X'8040', X'8041', etc. If a different paper type is specified for the tray, the tray values of the tray ID are (in ascending for each respective tray that is installed) as follows: X'8000', X'8001', etc. In regards to the bypass tray and default tray, even if you specify "envelope" as the paper type, the tray value will not be changed.

Offset	Range	Meaning	Error Code
0-1	X'1500'	SELECT INPUT MEDIA SOURCE	
2		INPUT MEDIA SOURCE	X'02C80 1'
	X'00'	Tray 1	
	X'01'	Tray 2	
	X'02'	Tray 3	
	X'02'	Tray 3 (LCT)	
	X'03'	Tray 4	
		Large capacity tray (LCT)*1	
	X'03'	Tray 1 + Tray 2 + Bypass tray + Tray 3 (LCT) + Large capacity tray (LCT)	
	X'04'	Tray 1 + Tray 2 + Bypass tray + Tray 3 + Tray 4 + Large capacity tray (LCT)	
	X'63'	Bypass tray	
	X'FF'	Default tray	

<sup>\* 1</sup> Available values vary depending on the installed option.

# XOH Set Media Origin

The XOH Set Media Origin (SMO) command specifies the origin of the media.

This order takes effect on the next-received page. The media origin will not change until either another XOH-SMO command is processed or the printer is reinitialized.

Offset	Range	Meaning	Error Code			
0-1	X'1600'	SET MEDIA ORIGIN				
2	MEDIA ORIGIN					
	X'00' Top-left corner					
	X'01'	Top-right corner (Bottom-left corner if back side of duplex sheet)				
	X'02'	Bottom-right corner				
	X'03'	Bottom-left corner				
		(Top-right corner if back side of duplex sheet)				

## **XOH Set Media Size**

This order specifies SIZE of the physical medium.

Offset	Range	Meaning	Error Code
0-1	X'1700'	Set Media Size (SMS) order code	
2		UNIT BASE (Measurement Units)	X'02740
	X'00'	2'	
	X'01'	10 centimeters	
3-4		L-Units per UNIT BASE	X'02700
	X'3840'	14400 L-Units/10 inches	2'
	X'1626'	5670 L-Units/10 centimeters	
	X'0960'	2400 L-Units/10 inches	
	X'03B1'	945 L-Units/10 centimeters	

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Offset	Range	Meaning	Error Code			
5-6	X'0001' - X'7FFF'	Xm EXTENT of MEDIUM  See "Notation Conventions", IPDS Technical Reference 1.				
	X'FFFF'	Printer Default (Printer's control panel setting or Tray sensors)				
7-8	X'0001' - X'7FFF'	Ym EXTENT of MEDIUM See "Notation Conventions", IPDS Technical Reference 1.	X'02730 2'			
	X'FFFF'	Printer Default (Printer's control panel setting or Tray sensors)				

# **XOH Page Counter Control**

The XOH Page Counter Control (PCC) command provides a counter synchronization function that should only be used to recover from an exception or after a XOA Discard Buffer Data command.

Offset	Range	Meaning	Error Code
0-1	X'F500'	OPC Order Code	
2	X'00'	Do Nothing (default)	
	X'01'	Synchronize Counters	

# **XOH Define Group Boundary**

This order initiates or terminates a grouping of pages. When a grouping of pages is initiated the page that next increments the received page counter is the first sheet in the designated group.

Offset	Range	Meaning	Error Code
0-1	X'0400'	Define Group Boundary	X'018F 00'
			X'02770
			X'02780 1'
			X'027A 01'
			X'027B 01'
2	X'00'	Initiate Group	
	X'01'	Terminate Group	
3	X'00' - X'FF'	Group Level	
4-end of	See	X'00' Group ID triplet	
comman d	specific triplet description	X'6E' Group information triplet	X'027C 01'
		X'85' Finishing Operation triplet	X'027C 02'

# **Group ID Triplet**

The Group ID triplet specifies host specific print-data formats for print job identification. The printer utilizes this information to provide IPDS print job identification on the printer console display.

Offset	Range	Meaning	Error Code
0	X'02'-X'FF'	LENGTH	X'027A 01' X'027B 02'
1	X'01'	Group ID Triplet	

Offset	Range	Meaning	Error Code
2		HOST FORMAT	
	X'01'	MVS and VSE print-data	
	X'02'	VM print-data	
	X'03'	OS/400 print-data (4 char spool file #)	
	X'06'	AIX and NT print-data	
	X'13'	OS/400 print-data (6 char spool file #)	
4-11		MVS and VSE ID DATA	
	X'C2E4C4 C7C5E3F OF1' (i.e. BUDGET0 1)	Job Name (EBCDIC) (8 bytes)	
4-11		VM ID DATA	
	X'C2E4C4 C7C5E3F OF1' (i.e. BUDGETO 1)	Filename (EBCDIC) (8 bytes)	
23-32		OS/400 ID DATA	
	X'C2E4C4 C7C5E3F 2F0F0F1'(i .e. BUDGET2 000)	Filename (EBCDIC) (10 bytes)	

Offset	Range	Meaning	Error Code
3-End		AIX and NT ID DATA	
	X'444550 5442554 4474554 3230303 O' (i.e. DEPTBUD GET2000)	Name (ASCII) (1-251 bytes)	

## **Group Information Triplet**

The Group Information is accepted, although no specific processing will occur.

## **Finishing Operation Triplet**

The Finishing Operation triplet specifies a specific finishing operation to be applied to a collection of sheets.

Offset	Range	Meaning	Error Code
0	X'09'	LENGTH	X'027A 01' X'027B 01'
1	X'85'	Finishing Triplet ID	
2		OPERATION TYPE	X'027C
	X'01'	Corner Staple	03' X'027C
	X'03'	Edge Stitch	09'
	X'OA'	Punch	
	X'12'	Saddle Stitch In	
3-4	X'0000'	Reserved	

Offset	Range	Meaning	Error Code			
5		REFERENCE CORNER	X'027C			
	X'01'	Top-right corner (SEF only)	04'			
	X'02'	Top-left corner				
	X'03'	Bottom-left corner				
	X'FF'	Device default corner (top left corner) REFERENCE EDGE				
	X'02'					
	X'03'	Left edge (LEF only)				
	X'FF'	Device default edge (top edge-SEF, left edge-LEF)				
6		FINISHING OPERATION COUNT	X'027C			
	X'00'	Device Default Number, Default Position	05' X'027C			
	X'02'	Punch 2 Holes, Default Position	07'			
		or				
		Edge Stitch 2 Staples, Default Position				
	X'03'	Punch 3 Holes, Default Position				
	X'04'	Punch 4 Holes, Default Position				
7-8		FINISHING OPERATION AXIS OFFSET	X'027C			
	X'FFFF'	Device Default Axis Offset	06'			

#### Paper Finishing (Staple, Punch, and Booklet) Support:

A = Internal Finisher SR3130, Capacity: 500

C = Finisher SR3140, Capacity: 250 (Finisher upper tray) / 1000 (Finisher shift tray)

D = Booklet Finisher SR3150, Capacity: 250 (Finisher upper tray) / 1000 (Finisher shift tray) / 125 (Finisher booklet tray)

E = Finisher SR3160, Capacity: 250 (Finisher upper tray) / 3000 (Finisher shift tray)

F = Booklet Finisher SR3170, Capacity: 250 (Finisher upper tray) / 2000 (Finisher shift tray) / 150 (Finisher booklet tray)

S = Staple

P = Punch

B = Booklet

Y = Yes / N = No

	,	4	(	0		D			E		F	
	S	Р	S	Р	S	В	Р	S	Р	S	В	Р
A3 (297 × 420mm) SEF	Y	Y	Υ	Υ	Y	Υ	Y	Υ	Υ	Y	Υ	Υ
A4 (210 × 297mm) SEF	Υ	γ*1	Y	γ*1	Y	Y	Y*1	Y	Y*1	Y	Y	γ*1
A4 (210 × 297mm) LEF	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Z	Υ
A5 (210 × 148mm) SEF	N	N	N	Y*1	N	N	γ*1	N	Y*1	N	N	γ*1
A5 (210 × 148mm) LEF	N	N	N	Y*1	N	N	Y*1	N	Y*1	N	N	γ*1
A6 (105 × 148mm) SEF	N	N	N	N	Z	N	Z	N	N	N	N	Ν

	,	4	(	0		D			E		F	
	S	Р	S	Р	S	В	Р	S	Р	S	В	Р
B4 (257 × 364 mm) SEF	Y	Y*4	Y	Y	Y	Y	Y	Υ	Y	Y	Y	Υ
B5 (182 × 257mm) SEF /	Y	Y*4	Y	γ*1	Y	Y	γ*1	Y	γ*1	Y	Y	γ*1
B5 (182 × 257mm) LEF	Y	Y*4	Y	Y	Y	Z	Y	Υ	Y	Y	N	Υ
B6 (128 × 182mm) SEF	N	N	N	N	N	N	N	N	N	N	N	N
DLT (11 × 17 in.) SEF	Y	Y	Υ	Y	Y	Y	Y	Y	Y	Υ	Y	Y
Legal (8.5 × 14in.) SEF	Y	Y*1	Y	Y*1	Y	Y	Y*1	Υ	Y*1	Y	Y	Y*1
Foolsca p (8.5 × 13in.) SEF	Υ	γ*1	Y	Υ*1	Y	Z	Υ*1	Y	Y*1	Y	N	Y*1

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	,	4	(			D		I	Ε		F	
	S	Р	S	Р	S	В	Р	S	Р	S	В	Р
Letter (8.5 × 11in.) SEF	Υ	γ*1	Υ	γ*1	Y	Υ	Y*1	Υ	Y*1	Υ	Y	Y*1
Letter (8.5 × 11in.) LEF	Y	Y	Y	Υ	Y	N	Y	Y	Y	Y	N	Υ
Govern mentLG (8.25 × 14 in.) SEF	Υ	N	Υ	γ*1	Y	Z	Y*1	Υ	Y*1	Υ	Y	Y*1
Folio (8.25 × 13in.) SEF	Y	N	Υ	γ*1	Y	N	Y*1	Y	Y*1	Y	Y	γ*1
F/GL (8 × 13in.) SEF	N	N	Y	γ*1	Y	Z	γ*1	Y	γ*1	Y	N	γ*1
Eng Quatro (8 × 10 in.) SEF	N	N	Y	Y*1	Y	Z	Y*1	Y	Y*1	Y	N	γ*1
Executiv e (7.25 × 10.5in.) SEF	Y	Y*1	Y	Y*1	Υ	Z	Y*1	Y	Y*1	Υ	Z	Y*1

	P	4	С			D			E		F	
	S	Р	S	Р	S	В	Р	S	Р	S	В	Р
Executiv e (7.25 × 10.5in.) LEF	Υ	N	Υ	Υ	Υ	Z	Υ	Υ	Υ	Υ	N	Y
HalfLette r (5.5 × 8.5in.) SEF	N	N	N	Υ*1	N	Z	Y*1	N	Y*1	Z	N	γ*1
Com10 (4.125 × 9.5in.) SEF	N	N	N	N	Z	Z	N	N	N	Z	N	N
Com10 (4.125 × 9.5in.) LEF	N	N	Z	N	Z	Z	N	N	N	Z	Z	N
Monarc h (3.875 × 7.5in.) SEF	Z	Z	Z	Z	Z	Z	N	N	Z	Z	Z	Ν
Monarc h (3.875 × 7.5in.) LEF	N	N	N	N	Z	Z	N	N	N	Z	N	Z

П

	A	4	(			D		ſ	Ξ		F	
	S	Р	S	Р	S	В	Р	S	Р	S	В	Р
C5 (162 × 229mm) SEF	N	N	Z	N	N	N	N	N	N	Z	Z	N
C5 (162 × 229mm) LEF	N	N	Z	Z	N	Z	Z	N	Z	Z	Z	Ν
C6 (114 × 162mm) SEF	N	N	Z	N	N	Z	N	N	N	Z	Z	Ν
C6 (114 × 162mm) LEF	N	N	Z	N	N	N	Z	N	Z	Z	Z	Ν
DL Env (110 × 220mm) SEF	N	N	N	N	N	N	N	N	N	N	N	Z
DL Env (110 × 220mm) LEF	N	N	Z	N	N	N	N	N	N	N	Z	Ν
8kai (267 × 390 mm) SEF	Υ	Y*2	Υ	Υ	Υ	Z	Υ	Υ	Υ	Υ	Z	Υ

	,	4	(	C		D			E		F	
	S	Р	S	Р	S	В	Р	S	Р	S	В	Р
16kai (195 × 267mm) SEF	Υ	Y*2	Υ	γ*1	Y	N	γ*1	Y	Y*1	Y	N	Y*1
16kai (195 × 267mm) LEF	Y	Y*2	Y	Y	Y	N	Y	Y	Y	Y	N	Y
12 × 18 in. SEF	N	N	Y	N	Y	Y	N	N	N	Z	Y	Z
11 × 15 in. SEF	N	N	Υ	Y	Y	N	Y	Y	Y	Y	Y	Y
10 × 14 in. SEF	N	N	Υ	γ*3	Y	N	Υ*3	Y	Υ*3	Y	Y	γ*3
SRA3 (320 × 450 mm) SEF	Z	N	Z	N	N	N	N	N	N	N	N	N
SRA4 (225 × 320 mm) SEF	N	N	Z	Ν	Ζ	Ν	N	N	Ν	Ν	N	Z

	A	4	(	2		D		Е				
	S	Р	S	Р	S	В	Р	S	Р	S	В	Р
SRA4 (225 × 320 mm) LEF	N	N	N	N	N	N	N	N	N	N	N	Z

- \* 1 Not supported on 3 hole punch (Region B model) or 4 hole punch (Region A model) except for Northren Europe type finisher.
- \*2 Supported on 2 hole punch (Region A model) only.
- \*3 Not supported on 4 hole punch (Region A model) except for Northren Europe type finisher.
- \*4 Supported on 2 hole punch (Region A model) and 4 hole punch for Northen Europe type finisher only.



- The punch units 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. For details about the region of your machine, see "Model-Specific
  Information", Getting Started.
- The paper finishing functions are not supported on custom size paper.
- The printer must know about the finishing operation before the first page of a group is received. The printer will ignore finishing operation triplets on the XOH DGB command that terminates the group.
- The media jog and staple functions are mutually exclusive. If both are specified the staple request takes precedence.
- A single sheet cannot be stapled or stitched. If a job specifies only one sheet for stapling or stitching, it will not occur and a X'027C..02' Nack is reported to the host. Web Image Monitor menu parameter is provided to allow provided to allow customers to inhibit the report of this Nack to meet requirements of legacy applications.
- The capacity of the finishers are determined by the physical finisher installed. If a job specifies
  more sheets for stapling or stitching than the installed finisher can accommodate, a X'027C..
   O2' Nack is reported to the host. Web Image Monitor parameter is provided to allow
  customers to inhibit the report of this Nack to meet requirements of legacy applications.
- Stapled or stitched job groups may contain mixed media sizes in the following combinations only: Letter-SEF, Legal-SEF, Folio-SEF
- Mixing of simplex and duplex groups in the finisher accumulator is supported. Therefore, it is
  possible to staple or stitch mixed simplex/duplex groups in a print job.

# **XOH Specify Group Operation**

This order indicates to an attached printer, pre-processor, or post-processor that the specified processing option is to be performed upon subsequent boundary groups of the group level identified in this command.

Offset	Range	Meaning	Error Code
0-1	X'0300'	Define Group Boundary	
2	X'00'-X'FF'	Operation Identifier	
	X'01'	Keep group together as a print unit	
	X'04'	Finish	
3	X'00'-X'FF'	Group Level	



• For SGO Identifier (Byte 2), X'01' and X'04' are the only supported operations. All other identifiers are accepted, although no specific processing will occur.

# 2. Presentation Text Command Set

# **Presentation Text Commands**

Name	Command	Sub-command	Where to Look
Load Equivalence	X'D61D'		page 129 "Load Equivalence"
Write Text	X'D62D'		page 129 "Write Text"

## Load Equivalence

This command permits text-suppression values imbedded in text data stored within the printer to be referenced externally using different values. For example, the Internal Suppression value of X'02' may be referenced externally on a Load Copy Control as a X'06' provided that an appropriate Load Equivalence command was previously received.

If more than 127 LE entries are specified, exception X'0202..02' is reported.

Offset	Range	Meaning	Error Code
0-1		MAPPING TYPE	X'02C60
	X'0100'	Suppression Mapping	2'
2-3	X'0001' - X'00FF'	INTERNAL VALUE from BSES Pair	X'02C10 2'
			X'02C80 2'
4-5	X'0001' - X'007F'	EXTERNAL VALUE from LCC	X'02C80 2'
6-509		Zero or more additional entries analogous to Bytes 2-5	

#### Write Text

In this Write Text description, references made to pages also apply to overlays and page segments.

The print data is a string of 1-byte code points. To determine the character raster pattern, the printer uses the code point to identify the character metrics obtained from:

- Load Font Index (See page 230 "Load Font Index")
- Load Font Control (See page 225 "Load Font Control")
- Font Local ID (See page 45 "Load Font Equivalence")
- Resident Font Data

When the printer processes a Begin Page, it uses the values from the existing Logical Page Descriptor (See page 49 "Logical Page Descriptor") or Initialization Default (See "IPDS Initialization Defaults", IPDS Technical Reference 1) until it processes one of the following text control sequences:

- Draw B-Axis Rule
- Draw I-Axis Rule
- Set Baseline Increment
- Set Coded Font Local
- Set Extended Text Color
- Set Inline Margin
- Set Intercharacter Adjustment
- Set Text Color
- Set Text Orientation
- Set Variable Space Character Increment
- Temporary Baseline Move

The text control sequence value supersedes the Logical Page Descriptor or Initialization Default value and it remains in effect until it is changed by another text control sequence, or End Page is received.

For a complete description of the following text control sequences see the Presentation Text Object Content Architecture Reference and the Intelligent Printer Data Stream Reference.

#### **Absolute Move Baseline**

Absolute Move Baseline Control Sequence moves the baseline coordinate relative to the I-axis of the Presentation Text Space.

Offset	Range	Meaning	Error Code
0-1	X'2BD3'	TEXT CONTROL Sequence	
2	X'04'	LENGTH	X'021E 01'

Offset	Range	Meaning	Error Code
3		ABSOLUTE MOVE BASELINE	
	X'D2'	Unchained	
	X'D3'	Chained	
4-5	X'0000' - X'7FFF'	DISPLACEMENT (Bc) See "Notation Conventions", IPDS Technical Reference 1.	X'02130 1'

#### **Absolute Move Inline**

Absolute Move Inline Control Sequence moves an inline coordinate position relative to the B-axis of the Presentation Text Space.

Offset	Range	Meaning	Error Code
0-1	X'2BD3'	TEXT CONTROL Escape Sequence	
2	X'04'	LENGTH	X'021E 01'
3		ABSOLUTE MOVE INLINE	
	X'C6'	Unchained	
	X'C7'	Chained	
4-5	X'0000' - X'7FFF'	DISPLACEMENT (Ic) See "Notation Conventions", IPDS Technical Reference 1.	X'02140 1'

# **Begin Line**

Begin Line Control Sequence begins a new line.

Offset	Range	Meaning	Error Code
0-1	X'2BD3'	TEXT CONTROL Escape Sequence	
2	X'02'	LENGTH	X'021E 01'

Offset	Range	Meaning	Error Code
3		BEGIN LINE	
	X'D8'	Unchained	
	X'D9'	Chained	

# **Begin Suppression**

Begin Suppression Control Sequence marks the beginning of a string of presentation text that may be suppressed from the visible output.

Offset	Range	Meaning	Error Code
0-1	X'2BD3'	TEXT CONTROL Escape Sequence	
2	X'03'	LENGTH	X'021E 01'
3		BEGIN SUPPRESSION	
	X'F2'	Unchained	
	X'F3'	Chained	
4	X'01' - X'FF'	SUPPRESSION ID	X'02980 1'

### **Draw B-Axis Rule**

Draw B-axis Rule Control Sequence draws a rule in the b-direction.

Offset	Range	Meaning	Error Code
0-1	X'2BD3'	TEXT CONTROL Escape Sequence	
2	X'04' or X'07'	LENGTH	X'021E 01'
3		DRAW B-AXIS RULE	
	X'E6'	Unchained	
	X'E7'	Chained	

Offset	Range	Meaning	Error Code
4-5	X'8000' - X'7FFF'	LENGTH (BI) See "Notation Conventions", IPDS Technical Reference 1.	
6-7		WIDTH (Bw)	
	X'8000' - X'7FFF'	Printer Default 24/1440 inch	
	X'FFFF'		
8		IGNORED	

## **Draw I-Axis Rule**

Draw I-axis Rule Control Sequence draws a rule in the i-direction.

Table 70. Draw I-Axis Rule

Offset	Range	Meaning	Error Code
0-1	X'2BD3'	TEXT CONTROL Escape Sequence	
2	X'04' or X'07'	LENGTH	X'021E 01'
3		DRAW I-AXIS RULE	
	X'E4'	Unchained	
	X'E5'	Chained	
4-5	X'8000' - X'7FFF'	LENGTH (II) See "Notation Conventions", IPDS Technical Reference 1.	
6-7		WIDTH (Iw)	
	X'8000' - X'7FFF'	Printer Default 24/1440 inch	
	X'FFFF'		
8		IGNORED	

# **End Suppression**

End Suppression Control Sequence marks the end of a string of presentation text that may be suppressed from the visible output.

Offset	Range	Meaning	Error Code
0-1	X'2BD3'	TEXT CONTROL Escape Sequence	
2	X'03'	LENGTH	X'021E 01'
3		END SUPPRESSION	
	X'F4'	Unchained	
	X'F5'	Chained	
4	X'01' - X'FF'	SUPPRESSION ID	X'02020 1'
			X'02040 1'
			X'02980 1'

## No Operation

No Operation Control Sequence has no effect on presentation.

Offset	Range	Meaning	Error Code
0-1	X'2BD3'	TEXT CONTROL Escape Sequence	
2	X'02' - X'FF'	LENGTH	X'021E 01'
3		NO OPERATION	
	X'F8'	Unchained	
	X'F9'	Chained	
4-255		DATA (Ignored)	

## Overstrike

The Overstrike control identifies text that is to be overstruck with a specified character.

Offset	Range	Meaning	Error Code
0-1	X'2BD3'	TEXT CONTROL Escape Sequence	
2	X'05'	LENGTH	X'021E 01'
3		OVERSTRIKE	
	X'72'	Unchained	
	X'73'	Chained	
4		BYPASS IDENTIFIERS	
	Bits O-3	Reserved	
	Bit 4: 0	Overstrike white space from RMI	
	Bit 4: 1	Bypass white space from RMI	
	Bit 5: 0	Overstrike white space from AMI	
	Bit 5: 1	Bypass white space from AMI	
	Bit 6: 0	Overstrike white space from Space or Variable Space Character	
	Bit 6: 1	Bypass white space from Space or Variable Space Character	
	Bit 7: 0	BYPASS Treat Bits 0-6 according to their set values	
	Bit 7: 1	NO BYPASS Treat Bits 0-6 as if their values are set to zero	
5		IGNORED	
6	X'00' - X'FF'	OVERSTRIKE CHARACTER	

#### Relative Move Baseline

Relative Move Baseline Control Sequence moves a baseline coordinate relative to the current baseline coordinate position.

Offset	Range	Meaning	Error Code
0-1	X'2BD3'	TEXT CONTROL Escape Sequence	
2	X'04'	LENGTH	X'021E 01'
3		RELATIVE MOVE BASELINE	
	X'D4'	Unchained	
	X'D5'	Chained	
4-5	X'8000' - X'7FFF'	INCREMENT (Br) See "Notation Conventions", IPDS Technical Reference 1.	

#### **Relative Move Inline**

Relative Move Inline Control Sequence moves the inline coordinate of the presentation position relative to the current inline position.

Offset	Range	Meaning	Error Code
0-1	X'2BD3'	TEXT CONTROL Sequence	
2	X'04'	LENGTH	X'021E 01'
3		RELATIVE MOVE INLINE	
	X'C8'	Unchained	
	X'C9'	Chained	
4-5	X'8000' - X'7FFF'	INCREMENT (Ir) See "Notation Conventions", IPDS Technical Reference 1.	

## **Repeat String**

Repeat String Control Sequence contains a string of coded graphic characters that is repeated on the current line.

Offset	Range	Meaning	Error Code
0-1	X'2BD3'	TEXT CONTROL Sequence	

Offset	Range	Meaning	Error Code
2	X'O4' - X'FF'	LENGTH	X'021E 01'
3		REPEAT STRING	
	X'EE'	Unchained	
	X'EF'	Chained	
4-5	X'0000' - X'7FFF'	REPEAT LENGTH (RL)	X021901
6-n		REPEAT DATA	X021F 01'

#### **Set Baseline Increment**

Set Baseline Increment Control Sequence specifies the distance to be added to the current baseline coordinate when a Begin Line control sequence is executed.

Offset	Range	Meaning	Error Code
0-1	X'2BD3'	TEXT CONTROL Sequence	
2	X'04'	LENGTH	X'021E 01'
3		SET BASELINE INCREMENT	
	X'DO'	Unchained	
	X'D1'	Chained	
4-5	X'8000' - X'7FFF'	INCREMENT (Bi)	
		See "Notation Conventions", IPDS Technical Reference 1.	
	X'FFFF'	Use LPD value. If no LPD is received, use printer default	

#### **Set Coded Font Local**

Set Coded Font Local Control Sequence specifies the character attributes to be used and invokes a coded font.

Offset	Range	Meaning	Error Code
0-1	X'2BD3'	TEXT CONTROL Sequence	
2	X'03'	LENGTH	X'021E 01'
3		SET CODED FONT LOCAL	
	X'FO'	Unchained	
	X'F1'	Chained	
4		LOCAL FONT ID	
	X'01' - X'FE'	Use LPD value. If no LPD is received, use printer default	X'02180 2'
	X'FF'		X'023F 02'

#### Set Extended Text Color

The Set Extended Text Color control specifies the color value and defines the color space and encoding for that value. The specified color value is applied to foreground areas of the presentation text space. Foreground areas consist of the following:

- The stroked and filled areas of solid text characters, including overstrike characters. With hollow characters, only the stroked portion of the character is considered foreground.
- The stroked area of a rule.
- The stroked area of an underscore.

Offset	Range	Meaning	Error Code
0-1	X'2BD3'	TEXT CONTROL Sequence	
2	X'14' - X'16'	LENGTH	X'021E 01'
3		SET EXTENDED TEXT COLOR	
	X'80'	Unchained	
	X'81'	Chained	
4	X'00'	RESERVED	_

Offset	Range	Meaning	Error Code
5		COLOR SPACE	X'020E
	X'01'	RGB - Limited Simulated Color Support	02'
	X'04'	CMYK - Limited Simulated Color Support	
	X'06'	HCS - Limited Simulated Color Support	
	X'08'	CIELAB - Limited Simulated Color Support	
	X'40'	Standard OCA - Limited Simulated Color Support	
6-9	X'000000	RESERVED	
10		1 ST COLOR COMPONENT BITS	X'020E
	X'01' - X'08'	(RGB, CMYK, CIELAB)	05'
	X'10'	(Standard OCA, Highlight)	
11		2ND COLOR COMPONENT BITS	X'020E
	X'00' - X'08'	(RGB, CMYK, Highlight, CIELAB)	06'
12		3RD COLOR COMPONENT BITS	X'020E
	X'00' - X'08'	(RGB, CMYK, CIELAB)	07'
13		4TH COLOR COMPONENT BITS	X'020E
	X'00' - X'08'	(CMYK)	08'

Offset	Range	Meaning	Error Code
14-17		COLOR VALUE	X'020E 03' X'020E
		RGB Color Space	
	X'nn'	Red Intensity	04'
	X'nn'	Green Intensity	
	X'nn'	Blue Intensity	
		CMYK Color Space	
	X'nn'	Cyan Intensity	
	X'nn'	Magenta Intensity	
	X'nn'	Yellow Intensity	
	X'nn'	Black Intensity	
		Highlight Color Space	
	X'nnnn'	Highlight Color Number	
	X'nn'	Percent Coverage	
	X'nn'	Percent Shading	
		CIELAB Color Space	-
	X'nn'	Luminance (L)	
	X'nn'	Chrominance Difference (a)	
	X'nn'	Chrominance Difference (b)	

Offset	Range	Meaning	Error Code
14-17		Standard OCA Color Space	
	X'0000' or X'FF00'	Printer Default (Black)	
	X'0001' or X'FF01'	Blue	
	X'0002' or X'FF02	Red	
	X'0003' or X'FF03'	Pink	
	X'0004' or X'FF04'	Green	
	X'0005' or X'FF05'	Turquoise	
	X'0006' or X'FF06'	Yellow	
	X'0007'	White - Color of Medium (Reset)	
	X'0008'	Black	
	X'0010'	Brown	
	X'FF07'	Printer Default (Black)	
	X'FF08'	Color of Medium (Reset)	

# Set Inline Margin

Set Inline Margin Control Sequence specifies position of an inline margin.

Offset	Range	Meaning	Error Code
0-1	X'2BD3'	TEXT CONTROL Sequence	
2	X'04'	LENGTH	X'021E 01'

Offset	Range	Meaning	Error Code
3		SET INLINE MARGIN	
	X'C0'	Unchained	
	X'C1'	Chained	
4-5	X'0000' - X'7FFF'	DISPLACEMENT (Ia) See "Notation Conventions", IPDS Technical Reference 1.	X'02100 1'
	X'FFFF'	Use LPD value. If no LPD is received, use printer default	

# Set Intercharacter Adjustment

Set Intercharacter Adjustment Control Sequence specifies additional increment or decrement between graphic characters.

Offset	Range	Meaning	Error Code
0-1	X'2BD3'	TEXT CONTROL Sequence	
2	X'04' or X'05'	LENGTH	X'021E 01'
3		SET INTERCHARACTER ADJUSTMENT	
	X'C2'	Unchained	
	X'C3'	Chained	
4-5	X'0000' - X'7FFF'	ADJUSTMENT (ica) See "Notation Conventions", IPDS Technical Reference 1.	X'02120 1'
	X'FFFF'	Use LPD value. If no LPD is received, use printer default	
6		DIRECTION	X'02120
	X'00'	Increment Direction	1'
	X'01'	Decrement Direction	
	X'FF'	Same as X'00'	

# **Set Text Color**

The Set Text Color control specifies the foreground color attribute that selects the color for subsequent text characters.

Offset	Range	Meaning	Error Code
0-1	X'2BD3'	TEXT CONTROL Sequence	
2	X'04' or X'05'	LENGTH	X'021E 01'
3		SET TEXT COLOR	
	X'74'	Unchained	
	X'75'	Chained	

Offset	Range	Meaning	Error Code
4-5		COLOR	X'02580 3'
	X'0000' or X'FF00'	Printer Default (Black)	
	X'0001' or X'FF01'	Blue - Limited Simulated Color Support	
	X'0002' or X'FF02'	Red - Limited Simulated Color Support	
	X'0003' or X'FF03'	Pink - Limited Simulated Color Support	
	X'0004' or X'FF04'	Green - Limited Simulated Color Support	
	X'0005' or X'FF05'	Turquoise - Limited Simulated Color Support	
	X'0006' or X'FF06'	Yellow - Limited Simulated Color Support	
	X'0007'	White - Color of Medium (Reset)	
	X'0008'	Black	
	X'0010'	Brown - Limited Simulated Color Support	
	X'FFO7'	Printer Default (Black)	
	X'FFO8'	Color of Medium (Reset)	
	X'FFFF'	Use LPD color value	
		For details about color simulation and product support specifics, see "Color Simulation", IPDS Technical Reference 1.	
6	X'00' - X'01'	PRECISION	X'02580 3'
	X'FF'	Same as X'00'	

#### **Set Text Orientation**

Set Text Orientation Control Sequence establishes i-direction and b-direction for the following presentation text.

Offset	Range	Meaning	Error Code
0-1	X'2BD3'	TEXT CONTROL Sequence	
2	X'06'	LENGTH	X'021E 01'
3		SET TEXT ORIENTATION	
	X'F6'	Unchained	
	X'F7'	Chained	
4-5		I-AXIS ORIENTATION	X'020F
	X'0000'	0 degrees (+X direction)	01'
	X'2D00'	90 degrees (+Y direction)	
	X'5A00'	180 degrees (-X direction)	
	X'8700'	270 degrees (-Y direction)	
	X'FFFF'	Use LPD value. If no LPD is received, use printer default	
6		B-AXIS ORIENTATION	X'020F
	X'0000'	0 degrees (+X direction)	01'
	X'2D00'	90 degrees (+Y direction)	
	X'5A00'	180 degrees (-X direction)	
	X'8700'	270 degrees (-Y direction)	
	X'FFFF''	Use LPD value. If no LPD is received, use printer default	

The permitted combinations are those where the difference between the I-axis orientation and the B-axis orientation are 90 degrees.

INLINE-DIRECTION BASELINE-DIRECTION

0 deg. rotation 90 deg. rotation

0 deg. rotation 270 deg. rotation

90 deg. rotation 180 deg. rotation

90 deg. rotation 0 deg. rotation

180 deg. rotation 270 deg. rotation

180 deg. rotation 90 deg. rotation

270 deg. rotation 180 deg. rotation

270 deg. rotation 0 deg. rotation

## **Set Variable Space Character Increment**

Set Variable Space Character Increment Control Sequence specifies the increment of a Variable Space Character.

Offset	Range	Meaning	Error Code
0-1	X'2BD3'	TEXT CONTROL Sequence	
2	X'04'	LENGTH	X'021E 01'
3		SET VARIABLE SPACE CHARACTER INCREMENT	
	X'C4'	Unchained	
	X'C5'	Chained	
4-5	X'0000' - X'7FFF'	INCREMENT (vsi) See "Notation Conventions", IPDS Technical Reference 1.	X'02170 1'
	X'FFFF'	Default Variable Space Increment for Current Font	

## **Temporary Baseline Move**

The Temporary Baseline Move Control Sequence is used to change the position of the sequential baseline without change to the established baseline.

Offset	Range	Meaning	Error Code
0-1	X'2BD3'	TEXT CONTROL Sequence	
2	X'03' or X'06'	LENGTH	X'021E 01'

Offset	Range	Meaning	Error Code
3		TEMPORARY MOVE BASELINE	
	X'78'	Unchained	
	X'79'	Chained	
4		DIRECTION	X'02980
	X'00'	Baseline is Unchanged	3'
	X'01'	Return to Established Baseline	
	X'02'	Shift Baseline away from I-axis (Subscript)	
	X'03'	Shift Baseline toward I-axis (Superscript)	
	X'FF'	Same as X'00'	
5		PRECISION	X'02980 3
	X'00'	Accurate placement and character representation is required using the current font.	
	X'01'	A substitute font with characteristics identical to the current font may be used to simulate baseline shift (superscript/ subscript). The printer accepts this value but treats it as X'00'.	
	X'FF'	Same as X'00'	
6-7	X'0000' - X'7FFF'	TEMPORARY BASELINE INCREMENT See "Notation Conventions", IPDS Technical Reference 1.	X'02980 3'
	X'FFFF'	Half the current baseline increment	

## **Transparent Data**

Transparent Data Control Sequence contains a sequence of coded characters that are presented without a scan for embedded control sequences.

Offset	Range	Meaning	Error Code
0-1	X'2BD3'	TEXT CONTROL Sequence	
2	X'02' - X'FF'	LENGTH	X'021E 01'

Offset	Range	Meaning	Error Code
3		TRANSPARENT DATA	
	X'DA'	Unchained	
	X'DB'	Chained	
4-255		CHARACTER STRING	

### Underscore

The Underscore control sequence identifies text that is to be underscored.

Offset	Range	Meaning	Error Code
0-1	X'2BD3'	TEXT CONTROL Sequence	
2	X'03'	LENGTH	X'021E 01'
3		UNDERSCORE	
	X'76'	Unchained	
	X'77'	Chained	

Offset	Range	Meaning	Error Code
4		BYPASS IDENTIFIERS	
	Bits O-3	Reserved	
	Bit 4: 0	Underscore white space from Relative Move Inline	
	Bit 4: 1	Bypass white space from Relative Move Inline	
	Bit 5: 0	Underscore white space from Absolute Move Inline	
	Bit 5: 1	Bypass white space from Absolute Move Inline	
	Bit 6: 0	Underscore white space from Space or Variable Space Character	
	Bit 6: 1	Bypass white space from Space or Variable Space Character	
	Bit 7: 0	BYPASS Treat Bits 0-6 according to their set values	
	Bit 7: 1	NO BYPASS Treat Bits 0-6 as if their values are set to zero	
	X'FF'	NO BYPASS in EFFECT	

#### 3

# 3. IM Image Command Set

# **IM Image Commands**

Name	Command	Sub-command	Where to Look
Write Image Control	X'D63D'		page 152 "Write Image Control"
Write Image	X'D64D'		page 156 "Write Image"

# Write Image Control

The Write Image Control command is the first command in the sequence to send raster image data to the printer. The command contains fields to define the input, scale, and image placement parameters. Several Write Image Control commands may be required to a complete raster image.

Offset	Range	Meaning	Error Code
0-1	X'0001' - X'7FFF'	Pixels per scan line in the output image	X'02420
			X'02430 1'
2-3	X'0001' - X'7FFF'	Number of scan lines in the output Image	X'02440
			X'02450 1'
4-5	X'0001' - X'7FFF'	Pixels per scan line in the input image	X'02420
			X'02430 1'
6-7	X'0001' - X'7FFF'	Number of scan lines in the input image	X'02440
			X'02450
8	X'00'	Uncompressed input image	X'02460
9	X'00'	One bit per pixel in the input image format	X'02460
10		PIXEL MAGNIFICATION FACTOR	X'02470
	X'01'	No Magnification Factor	1'
	X'02'	Magnification Factor of 2	
11		SCAN LINE MAGNIFICATION FACTOR	X'02470
	X'01'	No Magnification Factor	1'
	X'02'	Magnification Factor of 2	

Offset	Range	Meaning	Error Code
12-13		SCAN LINE DIRECTION	X'02480
	X'0000'	0 degrees	1'
	X'2D00'	90 degrees	
	X'5A00	180 degrees	
	X'8700'	270 degrees	
14-15		SCAN LINE SEQUENCE DIRECTION	X'02490
	X'0000'	0 degrees	1'
	X'2D00'	90 degrees	
	X'5A00'	180 degrees	
	X'8700'	270 degrees	
16		REFERENCE COORDINATE SYSTEM	X'024A
	X'00'	Absolute I, Absolute B	01'
	X'20'	Absolute I, Relative B	
	X'40'	Relative I, Absolute B	
	X'60'	Relative I, Relative B	
	X'A0'	Xp, Yp	
17-19	X'FF8000'	Xp, I or I offset coordinate of the IM image block origin	X'024A
	- X'007FFF'		01'
20	X'00'	Reserved	
21-23	X'FF8000' - X'007FFF'	Yp, B or B offset coordinate of the IM image block origin	X'024A 01'

Offset	Range	Meaning	Error Code
24-25		IMAGE COLOR (Named Color)	X'02530
	X'0000' or X'FF00'	Printer Default (Black)	1'
	X'0001' or X'FF01'	Blue - Limited Simulated Color Support	
	X'0002' or X'FF02'	Red - Limited Simulated Color Support	
	X'0003' or X'FF03'	Pink - Limited Simulated Color Support	
	X'0004' or X'FF04'	Green - Limited Simulated Color Support	
	X'0005' or X'FF05'	Turquoise - Limited Simulated Color Support	
	X'0006' or X'FF06'	Yellow - Limited Simulated Color Support	
	X'0007'	White - Color of Medium (Reset)	
	X'0008'	Black	
	X'0009'	Dark Blue - Limited Simulated Color Support	
	X'000A'	Orange - Limited Simulated Color Support	
	X'000B'	Purple - Limited Simulated Color Support	
	X'000C'	Dark Green - Limited Simulated Color Support	
	X'000D'	Dark Turquoise - Limited Simulated Color Support	
	X'000E'	Mustard - Limited Simulated Color Support	

Offset	Range	Meaning	Error Code
24-25	X'OOOF'	Gray - Limited Simulated Color Support	
	X'0010'	X'0010' Brown - Limited Simulated Color Support	
	X'FF07'	Printer Default (Black)	
	X'FF08'	Color of Medium (Reset)	
		For details about color simulation and product support specifics, see "Color Simulation", IPDS Technical Reference 1.	

# Write Image

The data is a binary representation of the raster image. In the binary data, a 1-bit represents a colored pixel and a 0-bit represents a pixel left unchanged in the page map. In other words, if a pixel is set black by another block on the page (for example, text), it will not be reset to white if it is written with a 0-bit in the image block. Several Write Image commands may be required to a complete raster image.

An error occurs if the host program sends the End command and the total number of bytes of image data is a different number than specified in the image control record.

Offset	Range	Meaning	Error Code
0-End		Binary RASTER IMAGE	X'026A 01'
			X'026B 01'
			X'02640 1'

# 4. IO Image Command Set

# **IO Image Commands**

Name	Command	Sub-command	Where to Look
Write Image Control 2	X'D63E'		page 158 "Write Image Control 2"
Image Area Position		X'AC6B'	page 158 "Image Area Position"
Image Output Control		X'A66B'	page 159 "Image Output Control"
Image Data Descriptor		X'A6FB'	page 161 "Image Data Descriptor"
Write Image 2	X'D64E'		page 164 "Write Image 2"
Begin Segment		X'70'	page 164 "Begin Segment"
Begin Image Content		X'91'	page 164 "Begin Image Content"
Image Size Parameter		X'94'	page 164 "Image Size Parameter"
Image Encoding Parameter		X'95'	page 165 "Image Encoding Parameter"
Image Data Element Size Parameter		X'96'	page 166 "Image Data Element Size Parameter"
Image Look -up Table ID Parameter		X'97'	page 167 "Image Look-up Table ID Parameter"
Image Data		X'FE92'	page 167 "Image Data"

Name	Command	Sub-command	Where to Look
End Image Content		X'93'	page 168 "End Image Content"
End Segment		X'71'	page 168 "End Segment"

# Write Image Control 2

The Write Image Control 2 data consists of three consecutive structured fields:

- Image Area Position Control (IAP)
- Image Output Control (IOC)
- Image Data Descriptor (IDD)

The Write Image Control 2 command and the command sequence that follows defines the image presentation block area on the current page. The parameters of this command define the size, placement and orientation of the image block and establish the parameters required to interpret the image segments.

Positive acknowledgement of image commands in Overlay State or Page Segment State means that the command or command sequence has been accepted for processing, but does not imply that its parameters have been checked in any way.

#### **Image Area Position**

This data structured field specifies the position and orientation of the image output area relative to a reference coordinate system. It is a REQUIRED data field in the Write Image Control 2 command.

Offset	Range	Meaning	Error Code
0-1	X'000B' - X'xxxx'	LENGTH of Image Area Position	X'02020 5'
2-3	X'AC6B'	STRUCTURED FIELD ID	X'020B 05'
4-5	X'8000' - X'7FFF'	Image Object Area Origin Xp, I, or loffset Coordinate Position See "Notation Conventions", IPDS Technical Reference 1.	
6-7	X'8000 - X'7FFF'	Image Object Area Origin Yp, B, or B-offset Coordinate Position See "Notation Conventions", IPDS Technical Reference 1.	

Offset	Range	Meaning	Error Code
8-9		ORIENTATION OF IMAGE BLOCK	X'02030
	X'0000'	0 degrees	5'
	X'2D00'	90 degrees	
	X'5A00'	180 degrees	
	X'8700'	270 degrees	
10		COORDINATE REFERENCE SYSTEM	X'02040
	X'00'	Absolute I, absolute B	5'
	X'20'	Absolute I, relative B	
	X'40'	Relative I, absolute B	
	X'60'	Relative I, relative B	
	X'AO'	Page Xp, Yp	
11-n		Ignored	

# Image Output Control

This data structured field specifies the mapping option for the image object. It is an ELECTIVE data field in the Write Image Control 2 command. If this field is omitted, the printer will use the following default values:

Mapping option = X'30' (Position and Trim)

X, Y Offset = 0.

X, Y Extent = Image Presentation Space extent defined by the Image Data Descriptor structured field.

Offset	Range	Meaning	Error Code
0-1	X'0010' - X'xxxx'	LENGTH of Image Output Control	X'02020 5'
2-3	X'A66B'	Structured Field ID	X'020B 05'

Offset	Range	Meaning	Error Code
4		UNIT BASE (Measurement Units)	X'02050
	X'00'	10 Inches	5'
	X'01'	10 Centimeters	
5-6	X'0001'- X'7FFF'	L-units per UNIT BASE	X'02060 5'
7-8	X'0001'- X'7FFF'	X extent of IO image block in L-units for Page, Overlay and Page Segment See "Notation Conventions", IPDS Technical Reference 1.	X'02070 5'
	X'FFFF'	Use Load Page Descriptor Value	
9-10	X'0001'- X'7FFF'	Y extent of IO image block in L-units for Page, Overlay and Page	X'02070 5'
		See "Notation Conventions", IPDS Technical Reference 1.	
	X'FFFF'	Use Load Page Descriptor Value	
11		MAPPING CONTROL OPTION	X'02080
	X'10'	Scale to fit	5'
	X'20'	Center and trim	
	X'30'	Position and trim	
	X'41'	Point to pixel	
	X'42'	Point to pixel with double dot	
	X'50'	Replicate and Trim	
12-13	X'8000'- X'7FFF'	X OFFSET L-units See "Notation Conventions", IPDS Technical Reference 1.	X'02090 5'
14-15	X'8000'- X'7FFF'	Y OFFSET L-units See "Notation Conventions", IPDS Technical Reference 1.	X'02090 5'

Offset	Range	Meaning	Error Code
16-n		Ocolor Specification Triplet. This optional triplet can be placed at the end of the IOC command to specify the foreground color of the object area, before any object data is placed on the object area. Any number of IOC triplets can be received, they are processed in the order received and the resulting color of the object area depends on the last instance of the triplet received. For details, see "Color Specification", IPDS Technical Reference 1.	
		<ul> <li>Presentation Space Reset Mixing Triplet. This optional triplet can be placed at the end of the IOC command to specify whether or not an object area is reset to the color of medium before any object data is placed on the object area. Any number of IOC triplets can be received, they are processed in the order received and the resulting color of the object area depends on the last instance of the triplet received. For details, see "Presentation Space Reset Mixing", IPDS Technical Reference 1.</li> </ul>	



• The Replicate and Trim Mapping Control option is supported only when the IPDS Menu PRINT MODE item is set to ENH (Enhanced 600 dpi).

# **Image Data Descriptor**

This is a REQUIRED data structured field in the Write Image Control 2 command. It specifies parameters that define the image presentation space size and resolution.

Offset	Range	Meaning	Error Code
0-1	X'000F' - X'xxxx'	LENGTH of Image Data Descriptor	X'02020 5'
2-3	X'A6FB'	STRUCTURED FIELD ID	X'020B 05'
4-5	X'0000'	Reserved	

Offset	Range	Meaning	Error Code
6		UNIT BASE (Measurement Units)	X'02050
	X'00'	10 Inches	5'
	X'01'	10 Centimeters	
7-8	X'0001'- X'7FFF'	X image points per unit base	X'02060 5'
9-10	X'0001'- X'7FFF'	Y image points per unit base	X'02060 5'
11-12	X'0001'- X'7FFF'	X EXTENT of image presentation space (in image points)  See "Notation Conventions", IPDS Technical Reference 1.	X'02070 5'
13-14	X'0001'- X'7FFF'	Y EXTENT of image presentation space (in image points)  See "Notation Conventions", IPDS Technical Reference 1.	X'02070 5'
15-end of IDD		IOCA SDFs	
0	X'F4'	Set Extended Bilevel Image Color SDF	
	X'F6'	Set Bilevel Image Color SDF *1	
1	X'04'	LENGTH	
2	X'00'	AREA	
3	X'00'	Reserved	

Offset	Range	Meaning	Error Code
4-5		Named Color	
	X'0000' or X'FF00'	Printer Default (Black)	
	X'0001' or X'FF01'	Blue - Limited Simulated Color Support	
	X'0002' or X'FF02'	Red - Limited Simulated Color Support	
	X'0003' or X'FF03'	Pink - Limited Simulated Color Support	
	X'0004' or X'FF04'	Green - Limited Simulated Color Support	
	X'0005' or X'FF05'	Turquoise - Limited Simulated Color Support	
	X'0006' or X'FF06'	Yellow - Limited Simulated Color Support	
	X'0007'	White - Color of Medium (Reset)	
	X'0008'	Black	
	X'0009'	Dark Blue - Limited Simulated Color Support	
	X'000A'	Orange - Limited Simulated Color Support	
	X'000B'	Purple - Limited Simulated Color Support	
4-5	X'000C'	Dark Green - Limited Simulated Color Support	
	X'000D'	Dark Turquoise - Limited Simulated Color Support	
	X'000E'	Mustard - Limited Simulated Color Support	
	X'000F'	Gray - Limited Simulated Color Support	
	X'0010'	Brown - Limited Simulated Color Support	
	X'FFO7'	Printer Default (Black)	
	X'FF08'	Color of Medium (Reset)	

\* 1 Refer to the Intelligent Printer Data Stream Reference and the Image Object Content Architecture Reference for specifics on the Set Bilevel Image Color SDF format.

## Write Image 2

The image segment is processed as it is received by the printer and is not retained or stored as a named image segment.

Write Image 2 command carries the IO image data within a hierarchical sequence of self-defining fields. See the Intelligent Printer Data Stream Reference and the Image Object Content Architecture Reference.

#### **Begin Segment**

Offset	Range	Meaning	Error Code
0	X'70'	Begin Segment	X'05700 F'
1	X'00'-X'FF'	Length	

#### **Begin Image Content**

Offset	Range	Meaning	Error Code
0	X'91'	Begin Image Content	X'05910 F'
1	X'O1'-X'FF'	Length	X'05000 3'
2	X'FF'	Format Specification	X'05000 4'

#### **Image Size Parameter**

The Image Size Parameter specifies the size of the image defined within the image segment. Mapping of the image into the image presentation space (See page 161 "Image Data Descriptor") is on a 1 image point to 1 image point basis (one image point of an IO-Image segment is mapped to one image point of the image presentation space).

Offset	Range	Meaning	Error Code
0	X'94'	IMAGE SIZE	X'05940 F'
1	X'09'-X'FF'	LENGTH of the following bytes	X'05000 3'
2		UNIT BASE (Measurement Units)	
	X'00'	10 Inches	
	X'01'	10 Centimeters	
	X'02'	Logical (resolution ratio)	
3-4	X'0000' - X'7FFF'	X image points per unit base	
5-6	X'0000' - X'7FFF'	Y image points per unit base	
7-8	X'0000'- X'7FFF'	X extent of the image in image points	X'05000 4' X'05941 1' X'05951 1' X'05A90 2'
9-10	X'0000'- X'7FFF'	Y extent of the image in image points	X'05000 4' X'05A90 2'

# **Image Encoding Parameter**

Offset	Range	Meaning	Error Code
0	X'95'	IMAGE ENCODING	X'05950 F'

Offset	Range	Meaning	Error Code
1	X'02'-X'FF'	LENGTH of the following bytes	X'05000 3'
2		COMPRESSION ALGORITHM	X'05951
	X'01'	IBM MMR compression	0' X'05951
	X'03'	No compression	1'
	X'06'	RL4 compression	
	X'08'	ABIC (Bilevel Q-Coder)	
	X'80'	G3 MH (CCITT T.4 facsimile 1-D)	
	X'81'	G3 MR (CCITT T.4 G3 facsimile 2-D)	
	X'82'	G4 MMR (CCITT T.6 G4 facsimile 2-D)	
3		RECORDING ALGORITHM	X'05951
	X'01'	RIDIC (Recording Image Data Inline Code) Unpadded RIDIC	0'
4		BIT ORDER within each image data byte	
	X'00'	Left-to-Right	
	X'01'	Right-to-Left	

# Image Data Element Size Parameter

Offset	Range	Meaning	Error Code
0	X'96'	IMAGE DATA ELEMENT SIZE	X'05960 F'
1	X'O1'-X'FF'	LENGTH of the following bytes	X'05000 3'

Offset	Range	Meaning	Error Code
2		NUMBER of BITS per PIXEL	X'05961
	X'01'	1 bit per pixel	0' X'05000
	X'08'	8 bits per pixel	4'
			X'05961 1'

If 1 is specified, the image is binary, with 1-bit representing black pixels and 0- bit representing pixels unchanged in the page map. If the image is uncompressed, each raster scan in the image data must be padded so that it is an integral number of bytes.

If 8 is specified, the image is gray scale. Each image byte is considered to be a value 0 to 255, where 0 is maximum black, 255 is no black at all, and the values in between are shades of gray.

The printer implements 8 bit per pixel images by halftoning. Halftoning significantly degrades image detail. For that reason, resolutions of gray scale data greater than 120 pixels per inch are not recommended except for draft printing purposes.

If 8 is specified, the Image Compression, if specified with the Image Encoding command, must be uncompressed. This error is detected when the first Image Data command is received.

#### Image Look-up Table ID Parameter

Offset	Range	Meaning	Error Code
0	X'97'	Image Look-up Table ID Parameter	X'05970 F'
1	X'O1'-X'FF'	LENGTH of the following bytes	X'05000 3'
2	X'00'	Look up table ID	X'05971 O'

#### **Image Data**

Offset	Range	Meaning	Error Code
0-1	X'FE92'	Image Data	X'05920 F'

Offset	Range	Meaning	Error Code
2-3	X'0001'- X'FFFF'	Length	X'05000 3"
			X'05940 1'
4-end	X'xx'	Image Data	X'05971 O'

# **End Image Content**

Offset	Range	Meaning	Error Code
0	X'93'	End Image Content	X'05930 F'
1	X'00'-X'FF'	Length	

# **End Segment**

Offset	Range	Meaning	Error Code
0	X'71'	End Segment	X'05710 F'
1	X'00'-X'FF'	Length	

# 5. Graphics Command Set

# **Graphics Commands**

The base reference for graphic drawing orders is the Graphics Object Content Architecture Reference.

Name	Command	Sub-command	Where to Look
Write Graphics Control	X'D684'		page 169 "Write Graphics Control"
Graphics Area Position		X'AC6B'	page 169 "Graphics Area Position"
Graphics Output Control		X'A66B'	page 170 "Graphics Output Control"
Graphics Data Descriptor		X'A6BB'	page 172 "Graphics Data Descriptor"
Write Graphics	X'D685'		page 177 "Write Graphics"
Begin Segment Introducer		X'70'	page 178 "Begin Segment Introducer"

# Write Graphics Control

### **Graphics Area Position**

Offset	Range	Meaning	Error Code
0-1	X'000B'- X'xxxx'	LENGTH of Graphics Area Position	X'02020 5'
2-3	X'AC6B'	Structured Field ID.	X'020B 05'
4-5	X'8000'- X'7FFF'	GRAPHICS BLOCK ORIGIN Xp, I, or I-offset Coordinate Position. See "Notation Conventions", IPDS Technical Reference 1.	

Offset	Range	Meaning	Error Code
6-7	X'8000'- X'7FFF'	GRAPHICS BLOCK ORIGIN Yp, B, or B-offset Coordinate Position.	
		See "Notation Conventions", IPDS Technical Reference 1.	
8-9		ORIENTATION of Graphic Block	X'02030
	X'0000'	0 degrees	5'
	X'2D00'	90 degrees	
	X'5A00'	180 degrees	
	X'8700'	270 degrees	
10		COORDINATE REFERENCE SYSTEM	X'02040
	X'00'	Absolute I, Absolute B	5'
	X'20'	Absolute I, Relative B	
	X'40'	Relative I, Absolute B	
	X'60'	Relative I, Relative B	
	X'AO'	Page Xp, Yp	
11-n		Ignored	

# **Graphics Output Control**

Offset	Range	Meaning	Error Code
0-1	X'0010'- X'xxxx'	LENGTH of Graphics Output Control (GOC)	X'02020 5'
2-3	X'A66B'	STRUCTURED FIELD ID	X'020B 05'
4		UNIT BASE (Measurement Units)	X'02050
	X'00'	10 Inches	5'
	X'01'	10 Centimeters	

Offset	Range	Meaning	Error Code
5-6	X'0001' - X'7FFF'	L-Units per UNIT BASE	X'02060 5'
7-8	X'0001' - X'7FFF'	X EXTENT of GRAPHICS BLOCK in L-units  See "Notation Conventions", IPDS Technical Reference 1.	X'02070 5'
	X'FFFF'	Use Load Page Descriptor Value	
9-10	X'0001' - X'7FFF'	Y EXTENT of GRAPHICS BLOCK in L-units  See "Notation Conventions", IPDS Technical Reference 1.	X'02070 5'
	X'FFFF'	Use Load Page Descriptor Value	
11		MAPPING Control Option	X'02080
	X'10'	Scale to Fit	5'
	X'20'	Center and Trim	
	X'30'	Position and Trim	
12-13	X'8000' - X'7FFF'	X OFFSET L-units.  See "Notation Conventions", IPDS Technical Reference 1.	X'02090 5'
14-15	X'8000' - X'7FFF'	Y OFFSET L-units. See "Notation Conventions", IPDS Technical Reference 1.	X'02090 5'

Offset	Range	Meaning	Error Code
16-n	Color Specification Triplet. This optional triplet can be placed at the end of the GOC command to specify the foreground color of the object area, before any object data is placed on the object area. Any number of GOC triplets can be received, they are processed in the order received and the resulting color of the object area depends on the last instance of the triplet received. For details, see "Color Specification", IPDS Technical Reference.		
		<ul> <li>Presentation Space Reset Mixing Triplet. This optional triplet can be placed at the end of the GOC command to specify whether or not an object area is reset to the color of medium before any object data is placed on the object area. Any number of GOC triplets can be received, they are processed in the order received and the resulting color of the object area depends on the last instance of the triplet received. For details, see "Presentation Space Reset Mixing", IPDS Technical Reference 1.</li> </ul>	



- The Graphics Output Control Self Defining Field is optional and may be omitted from the WGC command. If the GOC is omitted, the printer uses the following:
  - Mapping Control Option X'30' (Position and Trim)
  - X Offset = 0
  - Y Offset = 0
  - Graphics Block size equals the Graphics Presentation Space Window size which is defined in the Graphics Data Descriptor (GDD) Self Defining Field (See page 172 "Graphics Data Descriptor").

#### **Graphics Data Descriptor**

Offset	Range	Meaning	Error Code
0-1	X'001C'- X'xxxx'	LENGTH of Graphics Data Descriptor (GDD)	X'02020 5'

Offset	Range	Meaning	Error Code
2-3	X'A6BB'	STRUCTURED FIELD ID	X'020B 05'
4		UNIT BASE (Measurement Units)	X'02050 5'
	X'00'	10 Inches	
	X'01'	10 Centimeters	
5	X'00'	Reserved	
6-7	X'0001' - X'7FFF'	Xg UNITS per UNIT BASE	X'02060 5'
8-9	X'0001' - X'7FFF'	Yg UNITS per UNIT BASE Yg = Xg	X'02060 5'
10-13	X'000000	Reserved	
14-15	X'8000'- X'7FFF'	Xg LEFT LIMIT of Graphic Presentation Space Window. See "Notation Conventions", IPDS Technical Reference 1.	
16-17	X'8000'- X'7FFF'	Xg RIGHT LIMIT of Graphic Presentation Space Window. See "Notation Conventions", IPDS Technical Reference 1.	
18-19	X'8000'- X'7FFF'	Yg TOP LIMIT of Graphic Presentation Space Window. See "Notation Conventions", IPDS Technical Reference 1.	
20-21	X'8000'- X'7FFF'	Yg BOTTOM LIMIT of Graphic Presentation Space Window. See "Notation Conventions", IPDS Technical Reference 1.	
22-27	X'00000'	Reserved	
28-n		INITIAL GRAPHICS DEFAULTS. See "GDD Initial Graphics Defaults Self Describing Instructions"	

If the image resolution specified in the GDD is X'0000' (indicating that no explicit resolution is specified), then the resolution used is the resolution specified in the OPC's Image and Coded Font Resolution Self-Defining Field.

### **GDD Initial Graphics Defaults Self Describing Instructions**

Offset	Range	Meaning	Error Code
0	X'21'	SET CURRENT DEFAULTS	X'03002
1	X'O4'-X'FF'	LENGTH of Data	X'03000
2		SET Byte	X'03000
	X'00'	Drawing Attributes	2'
	X'01'	Line Attributes	
	X'02'	Character Attributes	
	X'03'	Marker Attributes	
	X'04'	Pattern Attributes	
	X'OB'	Arc Parameters	
3-4		MASK Bytes. See "Graphics Drawing Order Defaults and Masks"	X'03000
5		DEFAULT Byte	X'03000
	X'OF'	Use Standard Default	2' X'03000
	X'8F'	Use the following Data Bytes	3'
6-n		Data bytes	X'03002 1'



• See page 178 "Begin Segment Introducer" (Drawing Orders) for valid drawing order defaults.

# **Graphics Drawing Order Defaults and Masks**

Set Byte	Mask Bit	Meaning
X'00'		DRAWING ATTRIBUTES
	0	Color (Named Color)
	1	Foreground Mix
	2	Background Mix
	3-15	Reserved
X'01'		LINE ATTRIBUTES
	0	Line Type
	1	Line Width
	2-15	Reserved
X'02'		CHARACTER ATTRIBUTES
	0	Angle X, Y
	1	Character Cell Size CW, CH
	2	Direction
	3	Precision
	4	Character Set
	5	Shear X, Y
	6-15	Reserved
X'03'		MARKER ATTRIBUTES
	0-2	Reserved
	3	Precision
	4	Marker Set
	5-6	Reserved
	7	Marker Symbol
	8-15	Reserved

Set Byte	Mask Bit	Meaning
X'04'		PATTERN ATTRIBUTES
	0-6	Reserved
	7	Pattern Symbol
	8-15	Reserved
X'OB'		ARC PARAMETERS
	0	P Value
	1	R Value
	2	Q Value
	3	S Value
	4-15	Reserved

#### 5

# **Write Graphics**

# Write Graphics Defaults

The following defaults will be used if not previously defined by page 172 "Graphics Data Descriptor" (Graphics Drawing Order Defaults and Masks). The current value of an attribute is taken into account when the drawing order is received.

Meaning	Range
Color	Black
Line Type	Solid
Line Width	Normal (4 pixel)
Character Cell	10 CPI
Character Set	Courier 10
Character Angle	No Rotation
Character Direction	Left to Right
Marker Symbol	Cross
Pattern Symbol	Solid Shading
Current Position	X,Y = 0,0
Arc Parameters	P=Q=1; R=S=0
Foreground Mix	Overpaint
Background Mix	Leave Alone
Character Precision	Character Precision
Marker Precision	Character Precision
Marker Symbol Set	Resident Set in Printer

## **Begin Segment Introducer**

Offset	Range	Meaning	Error Code
0	X'70'	BEGIN SEGMENT code	
1	X'0C'	LENGTH of the following parameters	X'0370C
2-5		SEGMENT ID (Ignored)	
6	X'00'	Reserved	
7		FLAGS	X'03700
	Bits 0-2:	Reserved	1' X'03708 2'
	Bit 3: 0/1	No Prolog (0); Prolog (1)	
	Bit 4: 0	Reserved	
	Bits 5-6: 00/11	New Segment (reinitialize graphics defaults)/Append Segment (do not reinitialize defaults)	
	Bit 7: 0	Reserved	
8-9	X'0000'- X'FFFF'	Length of this segment (SEGLEN)	
10-13	X'000000	Reserved	
14-n		See page 178 "Begin Segment Introducer" (Drawing Orders).	

## **Drawing Orders**

The machine supports all DR2 Drawing Orders and valid data values as defined in the Intelligent Printer Data Stream Reference. The following are those Drawing Orders which define specific data values.

### Set Background Mix:

Offset	Range	Meaning	Error Code
0	X'OD'	Order code	

Offset	Range	Meaning	Error Code
1		BACKGROUND MIX ATTRIBUTE	X'03000
	X'00'	Drawing default	4' X'03000
	X'05'	Leave Alone	E'

#### **Set Character Angle:**

Offset	Range	Meaning	Error Code
0	X'34'	Order code	
1	X'04'	Length	X'03000
2-3	X'8000' - X'7FFF'	Xg COORDINATE	X'03340 0'
4-5	X'8000' - X'7FFF'	Yg COORDINATE	X'03340 0'

- If Xg = 0 and Yg = 0 then the character angle is 0 degrees (default)
- If Xg > 0 and Yg = 0 then the character angle is 0 degrees
- If Xg = 0 and Yg > 0 then the character angle is 90 degrees
- If Xg < 0 and Yg = 0 then the character angle is 180 degrees
- If Xg = 0 and Yg < 0 then the character angle is 270 degrees



• Exception X'0334..00' applies when both Xg and Yg are non-zero values.

#### **Set Character Precision:**

Offset	Range	Meaning	Error Code
0	X'39'	Order code	

Offset	Range	Meaning	Error Code
1		PRECISION TYPE	X'03000
	X'00'	Current default	4' X'03000
	X'01'	String Precision	E'
	X'02'	Character Precision	

#### **Set Character Set:**

Offset	Range	Meaning	Error Code
0	X'38'	Order code	
1		LOCAL CHARACTER SET ID	X'03C30
	X'00'	Current default	0'
	X'01' - X'FE'	Local ID for Character Set	
	X'FF'	Printer Default	

### Set Color:

Offset	Range	Meaning	Error Code
0	X'OA'	Order code	

Offset	Range	Meaning	Error Code
1		COLOR	X'03000
	X'00'	Printer Default (Black)	4'
	X'01'	Blue - Limited Simulated Color Support	
	X'02'	Red - Limited Simulated Color Support	
	X'03'	Pink - Limited Simulated Color Support	
	X'04'	Green - Limited Simulated Color Support	
	X'05'	Turquoise - Limited Simulated Color Support	
	X'06'	Yellow - Limited Simulated Color Support	
	X'07'	Black	
	X'08'	Color of Medium (Reset)	
		For details about color simulation and product support specifics, see "Color Simulation" IPDS Technical Reference 1.	

#### **Set Extended Color:**

Offset	Range	Meaning	Error Code
0	X'26'	Order code	
1	X'02'	Length	X'03000

Offset	Range	Meaning	Error Code
2-3		EXTENDED COLOR	X'03000
	X'0000' or X'FF00'	Printer Default (Black)	4'
	X'0001' or X'FF01'	Blue - Limited Simulated Color Support	
	X'0002' or X'FF02'	Red - Limited Simulated Color Support	
	X'0003' or X'FF03'	Pink - Limited Simulated Color Support	
	X'0004' or X'FF04'	Green - Limited Simulated Color Support	
	X'0005' or X'FF05'	Turquoise - Limited Simulated Color Support	
	X'0006' or X'FF06'	Yellow - Limited Simulated Color Support	
	X'0007'	White - Color of Medium (Reset)	
	X'0008'	Black	
	X'0009'	Dark Blue - Limited Simulated Color Support\	
	X'000A'	Orange - Limited Simulated Color Support	
	X'000B'	Purple - Limited Simulated Color Support	
	X'000C'	Dark Green - Limited Simulated Color Support	

Offset	Range	Meaning	Error Code
2-3	X'000D'	Dark Turquoise - Limited Simulated Color Support	
	X'000E'	Mustard - Limited Simulated Color Support	
	X'000F'	Gray - Limited Simulated Color Support	
	X'0010'	Brown - Limited Simulated Color Support	
	X'FF07'	Printer Default (Black)	
	X'FF08'	Color of Medium (Reset)	
		For details about color simulation and product support specifics, see "Color Simulation" IPDS Technical Reference 1.	

# Set Line Type:

Offset	Range	Meaning	Error Code
0	X'18'	Order code	
1		LINE TYPE	X'03000
	X'00'	Current default	4' X'03000
	X'01'	Dotted Line	E'
	X'02'	Short Dashed Line	
	X'03'	Dashed and Dotted Line	
	X'04'	Double Dotted Line	
	X'05'	Long Dashed Line	
	X'06'	Dashed Double Dotted Line	
	X'07'	Solid Line	
	X'08'	Invisible Line	

# Set Fractional Line Width (4028 Emulation Mode):

Offset	Range	Meaning	Error Code
0	X'11'	Order code	
1	X'02'	Length	X'03000
2-3		FRACTIONAL LINE WIDTH	X'03000
	X'0000'	Current default	4' X'03000 E'
	X'0001' - X'00FF'	2 Pixels Wide	
	X'0100' - X'017F'	4 Pixels Wide	
	X'0180' - X'01FF'	6 Pixels Wide	
	X'0200' - X'0F7F'	G8-60 Pixels Wide	
	X'OF80' - X'FFFF'	62 Pixels Wide	

## Set Fractional Line Width (Native Mode):

Offset	Range	Meaning	Error Code
0	X'11'	Order code	
1	X'02'	Length	X'03000

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Offset	Range	Meaning	Error Code
2-3		FRACTIONAL LINE WIDTH	X'03000 4' X'03000 E'
	X'0000'	Current default	
	X'0001' - X'007F'	1 Pixel Wide	
	X'0080' - X'00BF'	2 Pixels Wide	
	X'00C0' - X'00FF'	3 Pixels Wide	
	X'0100' - X'013F'	4 Pixels Wide	
	X'013F' - X'017F'	5 Pixels Wide	
	X'0180' - X'01BF'	6 Pixels Wide	
	X'01C0' - X'01FF'	7 Pixels Wide	
	X'0200' - X'0F7F'	8-60 Pixels Wide	
	X'0F80' - X'FFFF'	62 Pixels Wide	

#### Set Line Width:

Offset	Range	Meaning	Error Code
0	X'19'	Order code	

Offset	Range	Meaning	Error Code
1		LINE WIDTH	X'03000
	X'00'	Current default	4' X'03000
	X'01' - X'0F'	2-58 Pixels Wide (4 pixels increments)	E'
	X'10' - X'FF'	62 Pixels Wide	

#### Set Marker Precision:

Offset	Range	Meaning	Error Code
0	X'3B'	Order code	
1		MARKER PRECISION	X'03000
	X'00'	Drawing default	4' X'03000
	X'01'	Character Precision	E'
	X'02'	Stroke Precision	

#### Set Mix:

Offset	Range	Meaning	Error Code
0	X'0C'	Order code	
1		MIX ATTRIBUTE	X'03000
	X'00'	Drawing default	4' X'03000
	X'02'	Overpaint	E'

#### **Set Pattern Set:**

Offset	Range	Meaning	Error Code
0	X'08'	Order code	

Offset	Range	Meaning	Error Code
1	X'00'	PATTERN SET ID	X'03680 3'

#### Set Pattern Symbol:

Offset	Range	Meaning	Error Code
0	X'28'	Order code	
1		PATTERN SYMBOL ID	X'03680
	X'00'	Use Current default	4'
	X'01' - X'08'	Decreasing Density	
	X'09'	Vertical Lines	
	X'OA'	Horizontal Lines	
	X'OB'	Diagonal Lines 1 (Bot L/Top R)	
	X'OC'	Diagonal Lines 2 (Bot L/Top R)	
	X'OD'	Diagonal Lines 1 (Top L/Bot R)	
	X'0E'	Diagonal Lines 2 (Top L/Bot R)	
	X'OF'	No Shading	
	X'10'	Solid Shading	
	X'40'	Blank	

#### Set Process Color

The Set Process Color control specifies a process color, highlights color or named color that sets the following color attributes to the same value:

- Character color
- Image color
- Line color

- Marker color
- Pattern color

Offset	Range	Meaning	Error Code
0	X'B2'	Order Code	
1	X'12' - X'14'	LENGTH	X'03000
2	X'00'	RESERVED	
3		COLOR SPACE	X'020E
	X'01'	RGB - Limited Simulated Color Support	02'
	X'04'	CMYK - Limited Simulated Color Support	
	X'06'	HCS - Limited Simulated Color Support	
	X'08'	CIELAB - Limited Simulated Color Support	
	X'40'	Standard OCA - Limited Simulated Color Support	
4-7	X'000000	RESERVED	
8		1ST COLOR COMPONENT BITS	X'020E 05'
	X'01' - X'08'	(RGB, CMYK, CIELAB)	
	X'10'	Standard OCA Color Space	
9		2ND COLOR COMPONENT BITS	X'020E
	X'00' - X'08'	(RGB, CMYK, Highlight, CIELAB)	05'
10		3RD COLOR COMPONENT BITS	X'020E
	X'00' - X'08'	(RGB, CMYK, CIELAB)	05'
11		4TH COLOR COMPONENT BITS	X'020E
	X'00' -	(CMYK)	05'

Offset	Range	Meaning	Error Code
12-15		COLOR VALUE	X'020E
		RGB Color Space	03' X'020E
	X'nn'	Red Intensity	04'
	X'nn'	Green Intensity	
	X'nn'	Blue Intensity	
		CMYK Color Space	
	X'nn'	Cyan Intensity	
	X'nn'	Magenta Intensity	
	X'nn'	Yellow Intensity	
	X'nn'	Black Intensity	-
		Highlight Color Space	
	X'nnnn'	Highlight Color Number	
	X'nn'	Percent Coverage	
	X'nn'	Percent Shading	-
		CIELAB Color Space	
	X'nn'	Luminance (L)	
	X'nn'	Chrominance Difference (a)	
	X'nn'	Chrominance Difference (b)	_
		Standard OCA Color Space	

Offset	Range	Meaning	Error Code
12-15	X'0000' or X'FF00'	Printer Default (Black)	
	X'0001' or X'FF01'	Blue	
	X'0002' or X'FF02'	Red	
	X'0003' or X'FF03'	Pink	
	X'0004' or X'FF04'	Green	
	X'0005' or X'FF05'	Turquoise	
	X'0006' or X'FF06'	Yellow	
	X'0007'	White - Color of Medium (Reset)	
	X'0008'	Black	
	X'0010'	Brown	
	X'FF07'	Printer Default (Black)	
	X'FFO8'	Color of Medium (Reset)	

#### **Drawing Order Summary**

Zero or more drawing orders follow each Begin Segment Introducer. These drawing orders either specify graphics to be printed or assign drawing attributes.

Given below is a list of the supported drawing orders. Please refer to the AFP GOCA Reference, \$544-5498, for complete descriptions of all GOCA drawing orders.

Code	Drawing Order
X'68'	Begin Area
X'D1'	Begin Image

Code	Drawing Order
X'91'	Begin Image at Current Position
X'C0'	Вох
X'80'	Box at Current Position
X'C3'	Character String
X'83'	Character String at Current Position
X'01'	Comment
X'60'	End Area
X'93'	End Image
X'3E'	End Prolog
X'71'	End Segment (treated like a No Operation command)
X'C5'	Fillet
X'85'	Fillet at Current Position
X'C7'	Full Arc
X'87'	Full Arc at Current Position
X'92'	Image Data
X'C1'	Line
X'81'	Line at Current Position
X'C2'	Marker
X'82'	Marker at Current Position
X'00'	No Operation
X'E1'	Relative Line
X'E3'	Partial Arc
X'A3'	Partial Arc at Current Position
X'A1'	Relative Line at Current Position
X'04'	Segment Characteristics (treated like a No Operation command)

Code	Drawing Order
X'22'	Set Arc Parameters
X'OD'	Set Background Mix
X'34'	Set Character Angle
X'33'	Set Character Cell
X'3A'	Set Character Direction
X'39'	Set Character Precision
X'38'	Set Character Set
X'35'	Set Character Shear
X'OA'	Set Color
X'21'	Set Current Position
X'26'	Set Extended Color
X'11'	Set Fractional Line Width
X'18'	Set Line Type
X'19'	Set Line Width
X'37'	Set Marker Cell
X'3B'	Set Marker Precision
X'3C'	Set Marker Set
X'29'	Set Marker Symbol
X'OC'	Set Mix
X'08'	Set Pattern Set
X'28'	Set Pattern Symbol
X'43'	Set Pick Identifier (treated like a No Operation command)
X'B2'	Set Process Color

# 6. Bar Code Command Set

The base reference for Bar Code commands is the Bar Code Object Content Architecture Reference.

### **Bar Code Commands**

Name	Command	Sub-command	Where to Look
Write Bar Code Control	X'D680'		page 194 "Write Bar Code Control"
Bar Code Area Position		X'AC6B'	page 194 "Bar Code Area Position"
Bar Code Output Control		X'A66B'	page 195 "Bar Code Output Control"
Bar Code Data Descriptor		X'A6EB'	page 196 "Bar Code Data Descriptor"
Write Bar Code	X'D681'		page 210 "Write Bar Code"

## Write Bar Code Control

#### **Bar Code Area Position**

Offset	Range	Meaning	Error Code
0-1	X'000B'- X'xxxx'	LENGTH of Bar Code Area Position (BCAP)	X'02020 5'
2-3	X'AC6B'	STRUCTURED FIELD ID	X'020B 05'
4-5	X'8000'- X'7FFF'	Bar Code BLOCK ORIGIN Xp, I, or IOFFSET coordinate position (in 1440ths)	X'04110 0'
6-7	X'8000'- X'7FFF'	Bar Code BLOCK ORIGIN Yp, B, or B-OFFSET coordinate position (in 1440ths)	X'04110 0'
8-9		ORIENTATION OF Bar Code BLOCK	X'02030
	X'0000'	0 degrees	5'
	X'2D00'	90 degrees	
	X'5A00'	180 degrees	
	X'8700'	270 degrees	
10		COORDINATE REFERENCE SYSTEM	X'02040
	X'00'	Absolute I, Absolute B	5'
	X'20'	Absolute I, Relative B	
	X'40'	Relative I, Absolute B	
	X'60'	Relative I, Relative B	
	X'AO'	Page Xp, Yp	
11-n :c		Ignored	

### Bar Code Output Control

Offset	Range	Meaning	Error Code
0-1	X'0010'- X'xxxx'	LENGTH of Bar Code Output Control (BCOC)	X'02020 5'
2-3	X'A66B'	STRUCTURED FIELD ID	X'020B 05'
4		UNIT BASE (Measurement Units)	X'02050
	X'00'	10 Inches	5'
	X'01'	10 Centimeters	
5-6	X'0001' - X'7FFF'	L-Units per UNIT BASE	X'02060 5'
7-8	X'0001' - X'7FFF'	X EXTENT of Bar Code BLOCK in L-units See "Notation Conventions", IPDS Technical Reference 1.	X'02070 5'
	X'FFFF'	Use Load Page Descriptor Value	
9-10	X'0001' - X'7FFF'	Y EXTENT of Bar Code BLOCK in L-units  See "Notation Conventions", IPDS Technical Reference 1.	X'02070 5'
	X'FFFF'	Use Load Page Descriptor Value	
11	X'30'	MAPPING CONTROL OPTION (Position)	X'02080 5'
12-13	X'8000' - X'7FFF'	'- X OFFSET L-units See See "Notation Conventions", IPDS Technical Reference 1.	
14-15	X'8000' - X'7FFF'	Y OFFSET L-units See "Notation Conventions", IPDS Technical Reference 1.	X'02090 5'

Offset	Range	Meaning	Error Code
16-n		<ul> <li>Color Specification Triplet. This optional triplet can be placed at the end of the BCOC command to specify the foreground color of the object area, before any object data is placed on the object area. Any number of BCOC triplets can be received, they are processed in the order received and the resulting color of the object area depends on the last instance of the triplet received. For details, see "Color Specification", IPDS Technical Reference.</li> <li>Presentation Space Reset Mixing Triplet. This optional triplet can be placed at the end of the BCOC command to specify whether or not an object area is reset to the color of medium before any object data is placed on the object area. Any number of BCOC triplets can be received, they are processed in the order received and the resulting color of the object area depends on the last instance of the triplet received. For details, see "Presentation Space Reset Mixing", IPDS Technical</li> </ul>	
		Reference 1.	

### Bar Code Data Descriptor

Offset	Range	Meaning	Error Code
0-1	X'001B'- X'xxxx'	LENGTH of Bar Code Data Descriptor (BCDD)	X'02020 5'
2-3	X'A6EB'	STRUCTURED FIELD ID	X'020B 05'
4		UNIT BASE (Measurement Units)	X'02050
	X'00'	10 Inches	5'
	X'01'	10 Centimeters	
5	X'00'	Reserved	
6-7	X'0001' - X'7FFF'	Xbc Units per UNIT BASE	X'02060 5'

Offset	Range	Meaning	Error Code
8-9	X'0001' - X'7FFF'	Ybc Units per UNIT BASE	X'02060 5'
10-11	X'0001' - X'7FFF'	X EXTENT of Bar Code Presentation Space in L-units.  See "Notation Conventions", IPDS Technical Reference 1.	X'02070 5'
	X'FFFF'	Use BCOC X EXTENT	
12-13	X'0001' - X'7FFF'	Y EXTENT of Bar Code Presentation Space in L-units.  See "Notation Conventions", IPDS Technical Reference 1.	X'02070 5'
	X'FFFF'	Use BCOC Y EXTENT	
14-15	X'0000'	Reserved	
16		BAR CODE TYPE  See page 201 "Bar Code Type and Modifier Description and Values"	X'04030 O'
17		BAR CODE MODIFIER  See page 201 "Bar Code Type and Modifier Description and Values"	X'040B 00'
18	X'01' - X'FE'	FONT LOCAL ID	X'04040 O'
	X'FF'	Default Font Local ID (Note 1)	

Offset	Range	Meaning	Error Code
19-20		COLOR (Named Color)	X'04050
	X'0000' or X'FF00'	Printer Default (Black)	0'
	X'0001' or X'FF01'	Blue - Limited Simulated Color Support	
	X'0002' or X'FF02'	Red - Limited Simulated Color Support	
	X'0003' or X'FF03'	Pink - Limited Simulated Color Support	
	X'0004' or X'FF04'	Green - Limited Simulated Color Support	
	X'0005' or X'FF05'	Turquoise - Limited Simulated Color Support	
	X'0006' or X'FF06'	Yellow - Limited Simulated Color Support	
	X'0007'	White - Color of Medium (Reset) Black	
	X'0008'	Dark Blue - Limited Simulated Color Support	
	X'0009'	Orange - Limited Simulated Color Support	

Offset	Range	Meaning	Error Code
19-20	20 X'000A' Purple - Limited Simulated Color Support		
	X'OOOB'	Dark Green - Limited Simulated Color Support	
	X'000C'	Dark Turquoise - Limited Simulated Color Support	
	X'000D'	Mustard - Limited Simulated Color Support	
	X'000E'	Gray - Limited Simulated Color Support	
	X'000F'	Brown - Limited Simulated Color Support	
	X'0010'	Printer Default (Black)	
	X'FF07'	Color of Medium (Reset)	
	X'FF08'	Printer Default (Black)	
	X'FFFF'		
21		UNIT MODULE WIDTH	X'04060
	X'07' - X'36'	Printer Default	0'
	X'FF'	Range and Printer Default are specified by Bar Code Type in Byte 16 (especially 2D bar codes)	
22-23	X'0001' -	ELEMENT HEIGHT in L-units	X'04070
	X'7FFF'	See "Notation Conventions", IPDS Technical Reference 1.	0'
	X'FFFF'	Printer Default as specified by Bar Code Type in Byte 16	
24	X'O1'-X'FF'	Height multiplier	X'04080 0'

Offset	Range	Meaning	Error Code
25-26		WIDE-TO-NARROW RATIO (WE NE)	X'04090
	X'0000'	Not Applicable Note 2	0'
	X'0002'	2: 1	
	X'0003'	3: 1	
	X'0014' to X'001E'	2.0: 1 - 3.0: 1	
	X'00C8' to X'012C'	2.00: 1 - 3.00: 1	
	X'FFFF'	Printer Default as specified by Bar Code Type (Byte 16)	
27-end		Ignored	

 The Font Local ID specified in BCDD Byte 18 should be OCR-A, OCR-B or Code 128 dependent on the Bar Code Type specified in BCDD Byte 16. The default Font Local ID and Bar Code Type relationships are as follows:

OCR-A	OCR-B
Code 128	UPC-A
Code 3 of 9	UPC-E
MSI	UPC 2-Digit Add-on
2 of 5 Industrial	UPC 5-Digit Add-on
2 of 5 Matrix	EAN-8
2 of 5	EAN-13
Interleaved	EAN 2-Digit Add-on
Codabar	EAN 5-Digit Add-on

- Wide-to-Narrow Ratio (BCDD Bytes 25-26) is only valid for the following Bar Code Types:
  - X'01' 3 of 9
  - X'02' MSI
  - X'OA' 2 of 5 Industrial
  - X'0B' 2 of 5 Matrix
  - X'OC' Interleaved 2 of 5
  - X'OD' Codabar

• Default wide-to-narrow ratio for Codabar, Code 3 of 9, and the 2 of 5 types is dictated by the lowest unit module width that results in a readable bar code. The default wide-to-narrow ratio for MSI is 2:1 unless it can't be printed with the selected unit module width.

#### Bar Code Type and Modifier Description and Values

Bar Code Type (Byte 16)	Bar Code Description	Unit Module Width Default (mils)	Unit Module Width Range (mils)	Element Height Default (mils)	Element Height Range (mils)	Wide-to- Narrow Ratio
X'01'	3 of 9 Code AIM USS-39	14	7-54	234	234-14000	7.3
X'02'	MSI	14	7-54	300	300-14000	
X,03,	UPC/ CGPC Version A	14	7-54	1020	250-14000	
X'05'	UPC/ CGPC Version E	14	7-54	1020	250-14000	
X'06'	UPC 2 Character Supplement al (Periodicals)	14	7-54	1020	250-14000	
X'07'	UPC 5 Character Supplement al (Paperbacks	14	7-54	1020	250-14000	
X'08'	EAN-8 (JAN Short)	14	7-54	840	250-14000	
X'09'	EAN-13 (JAN Standard)	14	7-54	1020	250-14000	

Bar Code Type (Byte 16)	Bar Code Description	Unit Module Width Default (mils)	Unit Module Width Range (mils)	Element Height Default (mils)	Element Height Range (mils)	Wide-to- Narrow Ratio
X'OA'	Industrial 2 of 5	14	7-54	234	234-14000	8:02
X'OB'	Matrix 2 of 5	14	7-54	234	234-14000	4:02
X'0C'	Interleaved 2 of 5 AIM USS-I 2/5	14	7-54	234	234-14000	3:02
X'OD'	Codabar 2 of 7 Code AIM USSCodab ar	14	7-54	234	234-14000	4:02
X'11'	Code 128 AIM USS-128	14	7-54	250	250-14000	
X'16'	EAN 2 Digit Add-on	14	7-54	1020	250-14000	
X'17'	EAN 5 Digit Add-on	14	7-54	1020	250-14000	
X'18'	POSTNET (Include PLANET)	14	7-54	1000	250-14000	
X'1A'	RM4SCC Royal Mail (Inc. Dutch KIX)	14	7-54	1000	250-14000	
X'1B'	Japan Postal	14	7-54	1000	250-14000	
X'1C'	Data Matrix 2D	21	12-254	21	12-254	

Bar Code Type (Byte 16)	Bar Code Description	Unit Module Width Default (mils)	Unit Module Width Range (mils)	Element Height Default (mils)	Element Height Range (mils)	Wide-to- Narrow Ratio
X'1D'	MaxiCode 2D					
X'1E'	PDF417 2D	14	7-254	15% of width or 0.2 in.	4*width - 524287	
X'1F'	Australia Post	14	7-54	1000	250-14000	
X'20'	QR Code 2D	14	7-254	21	12-254	
X'21'	Code 93	14	7-54	234	234-14000	7:03
X'22'	USPS Four- State	14	7-54	1000	250-14000	

#### Bar Code Type and Modifier Description and Values

Byte 16 Value	Bar Code Type	Byte 1 <i>7</i> Value	Meaning
X'01'	X'01' 3 of 9 Code, AIM	X'01'	Print Bar Code with no Printer-Generated Check Character.
	USS-39		Generate Check Character and Print with Bar Code.

Byte 16 Value	Bar Code Type	Byte 17 Value	Meaning
X'02'	MSI	X'01'	Print Bar Code with no Printer-Generated Check Character.
		X'02'	Print Bar Code with IBM Modulus 10 Check Digit Generated by Printer and Put at End of Data.
		X'03'	First check digit IBM Modulus 10.
		X'04'	First check digit NCR Modulus 11. Check digit equals remainder. Check digit of 10 equals error.
		X'05'	First check digit IBM Modulus 11. Check digit equals remainder. Check digit of 10 equals error.
		X'06'	First check digit NCR Modulus 11. Check digit equals 11 minus remainder. Check digit of 10 equals zero.
		X'07'	First check digit IBM Modulus 11. Check digit equals 11 minus remainder. Check digit of 10 equals error.
		X'08'	First check digit NCR Modulus 11. Check digit equals 11 minus remainder. Check digit of 10 equals error.
		X'09'	First check digit IBM Modulus 11. Check digit equals 11 minus remainder. Check digit of 10 equals error.
X'03'	UPC/CGPC Version A	X'00'	Generate check digit and Print standard symbol.
X'05'	UPC/CGPC Version E	X'00'	Print bar code. Six digits are encoded.
X'06'	UPC 2- Character Supplemental (Periodicals)	X'00'	Print the 2 supplemental digits (bar/space pattern and HRI).

Byte 16 Value	Bar Code Type	Byte 17 Value	Meaning
X'07'	UPC 5- Character Supplemental (Paperbacks)	X'00'	Print the 5 supplemental digits (bar/space pattern and HRI).
X'08'	EAN-8 (JAN Short)	X'00'	Print bar code symbol. Input variable data is 7 digits (2 flag and 5 article ID digits).
X'09'	EAN-13 (JAN Standard)	X'00'	Print bar code symbol. Input variable data is 12 digits (2 flag and 10 article ID digits).
X'OA'	2 of 5 Industrial	X'01'	Print bar code with no printer-generated check character.
		X'02'	Generate check character and print with bar code.
X'OB'	2 of 5 Matrix	X'01'	Print bar code with no printer-generated check character.
		X'02'	Generate check character and print with bar code.
X'0C'	Interleaved 2 of 5, AIM USS-I	X'01'	Print bar code with no printer-generated check character.
	2/5	X'02'	Generate check character and print with bar code.
X'OD'	Codabar, 2 of 7 Code, AIM USS-	X'01'	Print bar code with no printer-generated check character.
	Codabar	X'02'	Generate check character and print with bar code (Check character appears in HRI).
X'11'	Code 128, AIM	X'02'	Generate check character and print with bar code.
	USS-128	X'03'	Generate check character and print with bar code that supports UCC/EAN 128.
X'16	EAN 2 Digit Add-on	X'00'	Print the 2 digit add-on (bar/space pattern and HRI).
X'17'	EAN 5 Digit Add-on	X'00'	Print the 5 digit add-on (bar/space pattern and HRI).

Byte 16 Value	Bar Code Type	Byte 17 Value	Meaning
X'18'	POSTNET		USPS Specification
		X'00'	Print 5 digit POSTNET 'Zip Code' bar code with leading frame bar and trailing correction digit and frame.
		X'01'	Print 9 digit POSTNET 'Zip + 4' bar code with leading frame bar and trailing correction digit and frame.
		X'02'	Print 11 digit POSTNET 'ABC' bar code with leading frame bar and trailing correction digit and frame.
		X'03'	Print variable length data POSTNET bar code with leading frame bar and trailing correction digit and frame. Data length checking is not performed with modifier X'03'.
		X'04'	Print PLANET bar code symbology.
X'1A'	RM4SCC (Royal Mail 4 State Customer Code)	X'00'	Variable Length Data. Printer will generate Start bit, Checksum Character and Stop bit. Checksum algorithm is performed on the data characters only. User is responsible for 2 mm quiet zone (all around) and proper sequencing of the Postal Code data (including International Prefix, Outward Code, Inward Code and Delivery Point Suffix).
X'1A'	RM4SCC (Dutch KIX Postal Bar Code)	X'01'	Present a RM4SCC bar code symbol with NO Start bit, NO Checksum Character and NO Stop bit. Checksum algorithm is performed on the data characters only. User is responsible for 2 mm quiet zone (all around) and proper sequencing of the Postal Code data (including International Prefix, Outward Code, Inward Code and Delivery Point Suffix).

Byte 16 Value	Bar Code Type	Byte 17 Value	Meaning
X'1B'	Japan Postal Bar Code	X'00'	Present a Japan Postal Bar Code symbol with a generated start character, checksum character and stop character.
		X'01'	Present a Japan Postal Bar Code symbol directly from the bar code data.
X'1C'	Data Matrix 2D	X'00'	Present a Data Matrix Bar Code symbol.
X'1D'	MaxiCode 2D	X'00'	Present a MaxiCode Bar Code symbol.
X'1E'	PDF417 2D	X'00'	Present a "full" PDF417 Bar Code symbol.
		X'01'	Present a "truncated" PDF417 Bar Code symbol.

Byte 16 Value	Bar Code Type	Byte 1 <i>7</i> Value	Meaning	
X'1F'	Australia Post	X'01'	Standard Customer Bar Code (Format Code 11) - An 8 digit number representing the Sorting Code.	
		X'02'	Customer Bar Code 2 using Table N (Format Code 59) An 8 digit number representing the Sorting Code, followed by up to 8 numeric digits representing the Customer Information.	
		X'03'	Customer Bar Code 2 using Table C (Format Code 59) An 8 digit number representing the Sorting Code, followed by up to 5 characters (A-Z, az, 0-9, space, #) representing the Customer Information.	
		X'04'	Customer Bar Code 2 using proprietary encoding (Format Code 59) - An 8 digit number representing the Sorting Code, followed by up to 16 numeric digits (0-3) representing the Customer Information. Each of the 16 digits specify one of the 4 types of bar code.	
		X'05'	Customer Bar Code 3 using Table N (Format Code 62) An 8 digit number representing the Sorting Code, followed by up to 15 numeric digits representing the Customer Information.	
			X'06'	Customer Bar Code 3 using Table C (Format Code 62) An 8 digit number representing the Sorting Code, followed by up to 10 characters (A-Z, a-z, 0-9, space, #) representing the Customer Information.
		X'07'	Customer Bar Code 3 using proprietary encoding (Format Code 62) - An 8 digit number representing the Sorting Code, followed by up to 31 numeric digits (0-3) representing the Customer Information. Each of the 31 digits specify one of the 4 types of bar code.	
		X'08'	Reply Paid Bar Code (Format Code 45) - An 8 digit number representing the Sorting Code.	

Byte 16 Value	Bar Code Type	Byte 17 Value	Meaning
X'20'	QR Code 2D	X'02'	Present a model 2 QR Code bar code symbol.
X'21'	Code 93	X'02'	Present a Code 93 bar code symbol.
X'22'	USPS Four State		USPS Specification
		X'00'	Present a USPS Four-State bar code symbol with no Routing ZIP Code. The input data for this bar code symbol must be 20 numeric digits.
		X'01'	Present a USPS Four-State bar code symbol with a 5-digit Routing ZIP Code. The input data for this bar code symbol must be 25 numeric digits. The valid values for the Routing Zip Code are 00000-99999.
		X'02'	Present a USPS Four-State bar code symbol with a 9-digit Routing ZIP Code. The input data for this bar code symbol must be 29 numeric digits. The valid values for the Routing Zip Code are 000000000-999999999.
		X'03'	Present a USPS Four-State bar code symbol with an 11 digit Routing ZIP Code. The input data for this bar code symbol must be 31 numeric digits. The valid values for the Routing Zip Code are 000000000000-9999999999999999999999999

## Write Bar Code

Offset	Range	Meaning	Error Code
0		FLAGS	
	Bit O	HRI PRINTING (Not supported for postal bar code types)	
	0	Print HRI	X'04100 0'
	1	No HRI	
	Bits 1-2	HRI LOCATION	
	00	Printer Default (Below symbol)	
	01	Below symbol (Except UPC/EAN with 2 or 5 digit add-on)	
	10	Above symbol (UPC/EAN with 2 or 5 digit add-on only)	
	Bit 3	START/STOP HRI for 3 of 9 Code (Asterisk)	
	0	Do not print HRI for 3 of 9 Start/Stop pattern	
	1	Print HRI for 3 of 9 Start/Stop pattern	
	Bit 4	CODE PAGE TYPE (Ignore)	
	Bit 5	BAR CODE SUPPRESSION	
	0	Present the bar code symbol	
	1	Suppress presentation of the bar code symbol	
	Bit 6		
	Bit 7		
1-2	X'0001' - X'7FFF'	X COORDINATE of the symbol ORIGIN  See "Notation Conventions", IPDS Technical Reference 1.	X'040A 00'
3-4	X'0001' - X'7FFF'	Y COORDINATE of the symbol ORIGIN  See "Notation Conventions", IPDS Technical Reference 1.	X'040A 00'

b

Offset	Range	Meaning	Error Code
5-End		DATA to be bar encoded	X'040C 00'

# 7. Overlay Command Set

# **Overlay Function Set Commands**

Name	Command	Sub-command	Where to Look
Begin Overlay	X'D6DF'		Intelligent Printer Data Stream Reference
Deactivate Overlay	X'D6EF'		Intelligent Printer Data Stream Reference
Include Overlay	X'D67D'		Intelligent Printer Data Stream Reference

# 8. Page Segment Command Set

# Page Segment Function Set Commands

Name	Command	Sub-command	Where to Look
Begin Page Segment	X'D65F'		Intelligent Printer Data Stream Reference
Deactivate Page Segment	X'D66F'		Intelligent Printer Data Stream Reference
Include Page Segment	X'D67F'		Intelligent Printer Data Stream Reference

# 9. Object Container Command Set

## **Object Container Function Set Commands**

Name	Command	Sub-command	Where to Look
Write Object Container Control	X'D63C'		Intelligent Printer Data Stream Reference
Write Object Container	X'D64C'		Intelligent Printer Data Stream Reference
Deactivate Data- Object-Font	X'D65B'		Intelligent Printer Data Stream Reference
Deactivate Data- Object-Resource	X'D65C'		Intelligent Printer Data Stream Reference
Data-Object-Resource Equivalence	X'D66C'		Intelligent Printer Data Stream Reference
Include Data-Object	X'D67C'		Intelligent Printer Data Stream Reference



• For specific details on the Object Container Command Set, see the Intelligent Printer Data Stream Reference, S544-3417.

### 10. Loaded Font Command Set

#### **Loaded Font Function Set Commands**

Name	Command	Sub-command	Where to Look
Load Code Page	X'D61B'		page 219 "Load Code Page"
Load Code Page Control	X'D61A'		page 220 "Load Code Page Control"
Load Font	X'D62F'		page 222 "Load Font"
Load Font Character Set Control	X'D619'		page 224 "Load Font Character Set Control"
Load Font Control	X'D61F'		page 225 "Load Font Control"
Load Font Index	X'D60F'		page 230 "Load Font Index"

#### **Load Code Page**

This command assigns each code point of a code page to a specific Graphic Character Global ID (GCGID). One or more Load Code Page (LCP) commands follow the Load Code Page Control command.

A sequence of LCP commands are used to transmit the entire code page. This sequence is initiated by the first LCP command that contains data and terminates with an End command. Entries may be split across LCP commands on any byte boundary and are restricted in size by the standard IPDS 32767 byte command length limit.

Offset	Range	Meaning	Error Code
0-7	(8 Bytes)	GRAPHIC CHARACTER GLOBAL ID	

#### **Load Code Page Control**

This command describes a code page resource which will be used to carry code page data. The Load Code Page Control (LCPC) command is followed by one or more Load Code Page (LCP) commands that specify the code page data.

The LCPC command is valid only in Home State and causes a transition to Code Page State. Code Page State ends when the printer receives the End command following receipt of at least one LCP command.

Offset	Range	Meaning	Error Code
0-1	X'0001' - X'7EFF'	CODE PAGE HOST ASSIGNED ID	X'02B00 O' X'02B00 1'
2-3		ENCODING SCHEME	X'02B00
	Bits 0-3: 0000	Reserved	2'
		Number of Bytes	
	Bits 4-7: 0001	Fixed Single-byte	
	Bits 4-7: 0010	Fixed Double-byte	
	Bits 8-15: 0000000 0	Reserved	

Offset	Range	Meaning	Error Code
4-7	X'000000 OA'- X'FFFFFFFF	BYTE COUNT for subsequent LCP commands	X'02B00 4' X'02B00 5'
8-9	X'0000'	Reserved	
10-n		VARIABLE SPACE CODE POINT	
	X'nn'	SBCS	
	X'nnnn'	DBCS	
n+1 to n		GCSGID	
+2	X'0000'	No Value Supplied	
	X'0001' - X'FFFE'	Specific GCSGID	
	X'FFFF'	Use Default	
n+3 to n	X'0001' -	CPGID	
+4	X'FFFE'	Specific CPGID	
n+5 to n		GCGID	
+12	X'nnnnnnn nnnnnnnnn	Default GCGID	



- If the code point specified in VARIABLE SPACE CODE POINT is not contained in the associated
  font character set, the printer will use a character increment of 333 relative units for typographic
  and proportionally spaced fonts and 600 relative units for fixed pitch, uniform character increment
  fonts.
- GCSGID/CPGID will be used for CMAP matching (DBCS), in all other instances they will be ignored.

#### **Load Font**

#### **LF1 Format**

When downloading a fully described font (LF1 format), the Load Font (LF) carries a series of character raster pattern bit strings. Consecutive Load Font commands are supported for downloading the LF1 font character patterns.

Offset	Range	Meaning	Error Code
O-n	Any Value in conforman ce with LFC Font Byte Count	FONT DATA in LF1 FORMAT (Character Patterns)	X'022E 02' X'02320 2'

#### **LF3 Format**

When downloading a font character set (LF3 format), the LF consists of a character ID map followed by zero or more (technology specific) Adobe Type-1 PFB objects. Consecutive LF commands are supported for downloading the LF3 font data.

#### Character ID Map

Offset	Range	Meaning	Error Code
0	X'02'	IBM CHARACTER ID FORMAT (IBM Registered EBCDIC GCGID)	
1	X'03' X'04'	TECHNOLOGY SPECIFIC CHARACTER ID FORMAT Font- specific ASCII Character name used with Type-1 PFB fonts ASCII numeric Glyph ID (used with Adobe Composite fonts) ASCII numeric Glyph ID (used with Adobe Composite fonts)	
Zero of m	ore entries in	the following format	
+0-7		IBM CHARACTER ID (GCGID)	X'02B10 4'
+8-11		OFFSET into the following list of Adobe Type-1 Character ID entries (each GCGID maps to exactly one Adobe Type-1 Character ID)	
Zero or m	ore Adobe T	ype-1 Character ID entries in the following	
++0	X'02'- X'80'	LENGTH of Adobe Type-1 Character ID entry (including this field)	X'02B10 3'
+1-n		ADOBE Type-1 CHARACTER ID	

#### **Technology Specific Font Objects**

The technology specific LF3 font object supported is a form of Adobe Type-1 PFB file. Each PFB object contains the following information.

Offset	Range	Meaning	Error Code
0-3	X'000000 OA' - X'FFFFFF F'	LENGTH of Adobe Type-1 PFB file (including this field)	X'02B10 8'
4-7		CHECKSUM	X'02B10 9'
8-9	X'0002' - X'FFFF'	LENGTH of Adobe PFB object NAME	X'02B10 A
10-n		Adobe PFB Object NAME	
(n+1)-z		OBJECT DATA for Adobe Type-1 PFB fonts (PFB file)	

#### Load Font Character Set Control

Range

X'00'

This command provides control information for each font character set that the host downloads to the printer. The command is only used for LF-3 type coded fonts. The LFCSC command is followed by one or more Load Font commands that contain the actual font character set information. This command is valid only in home state and causes a transition to font state. Font state ends when the printer receives the End command following receipt of at least one LF command.

Meaning

Error Code

0-1	X'0001' - X'7EFF'	FONT CHARACTER SET HAID	X'02B00 A' X'02B00 B'
2-3	X'0000'	Reserved	
4		PATTERN TECHNOLOGY ID	
	X'1F'	Type 1 PFB	

Adobe PFB Object NAME

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Offset

Offset	Range	Meaning	Error Code
6		INTENDED USE FLAGS	X'02B20
	Bit 0: 0/1	Not intended for MICR printing/Intended for MICR printing (If MICR Installed)	4' X'02B20
	Bit 1: 0/1	This is NOT a FCS extension/This IS a FCS extension	X'02B20
	Bits 2-7: 000000	Reserved	2'
7-10	X'000000 02' - X'FFFFFFFF'	NUMBER of BYTES in the LOAD FONT COMMANDS	X'022E 02' X'02320 2' X'02B00 E'
11-14	X'000000 02' - X'FFFFFFF'	NUMBER of BYTES in the CHARACTER ID MAP	X'02BO0F
15-16	X'nnnn'	NUMBER of GCGIDs in the CHARACTER ID MAP	
1 <i>7</i> -18		GCSGID	
	X'0000'	No Value Supplied	
	X'0001' - X'FFFE'	Specific GCSGID	
	X'FFFF'	Use Default	
19-20		FGID	
	X'0001' - X'FFFE'	Specific FGID	

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#### **Load Font Control**

This command is  $40 + (8 \times n)$  bytes long, where n (4090 max) is the number of font characters that have associated raster patterns. The command contains font id, overall font characteristics, and the

information needed to parse the font raster patterns. There is only one Load Font Control command for each font or font section. This command can only be issued in Home State and causes a transition to Font State.

Offset	Range	Meaning	Error Code
0-1	X'0001'- X'7EFF'	FONT HOST ASSIGNED ID	X'02180 2' X'02390 2'
2		SECTION ID	X'02430
	X'00'	Single-byte fonts	2'
	X'41'-X'FE'	Double-byte font sections	
3	X'00'	Reserved (Font-index Format)	X'02210 2'
4	X'05'	Pattern Data Format (bounded box)	X'02220 2'
5		FONT TYPE BITS	X'02230 2'
	Bits O-1:	Reserved	
	Bits 2-3: 01/10	FONT TYPE: Single-byte/Double-byte	
	Bits 4-5:	Reserved	
	Bit 6: 1/0	CHARACTER BOX SIZE: Uniform size (see bytes 6-7)/ Individual size (see bytes 40-End)	
	Bit 7: 0	Reserved	
6-7	X'0001' - X'7FFF'	UNIFORM or MAXIMUM CHARACTER BOX X SIZE	X'02260 2'
8-9	X'0001' - X'7FFF'	UNIFORM or MAXIMUM CHARACTER BOX Y SIZE	X'02270 2'

Offset	Range	Meaning	Error Code
10		UNIT BASE for L-units	X'021B
	X'00'	Ten in. (fixed metric technology)	02'
	X'02'	Relative units (relative metric technology)	
11	X'00'	Reserved	
12-13		L-units per UNIT BASE in the X direction  Byte 10 = X'02'	X'022A 02'
	X'03E8'	1000 Byte 10 = X'00'	
	X'0960'	2400 (240 DPI)	
	X'OBB8'	3000 (300 DPI)	
	X'1770'	6000 (600 DPI)	
14-15		L-units per UNIT BASE in the Y direction  Byte 10 = X'02'	X'022B 02'
	X'03E8'	1000	
		Byte 10 = X'00'	
	X'0960'	2400 (240 DPI)	
	X'OBB8'	3000 (300 DPI)	
	X'1770'	6000 (600 DPI)	
16-17	X'0000'	Reserved	
18-20	X'000001' - X'7FFFFF'	FONT BYTE COUNT	X'021C 02'
21		CHARACTER DATA ALIGNMENT	X'022D
	X'01'	Starting address 1 byte aligned	02'
	X'04'	Starting address 4 byte aligned	
	X'08'	Starting address 8 byte aligned	
22-23	X'nnnn'	GCSGID (ignored)	

Offset	Range	Meaning	Error Code
24-25	X'nnnn'	CPGID (ignored)	
26	X'00'	UNIT BASE for PIXEL-Units Ten in.	X'02870 2'
27	X'00'	Reserved	
28-29		PIXEL-Units per UNIT BASE in the X direction (only applicable if byte $10 = x'02'$ )	X'02880 2'
	X'0960'	2400 Units per 10 in. (240 dpi)	
	X'OBB8'	3000 Units per 10 in. (300 dpi)	
	X'1770'	6000 Units per 10 in. (600 dpi)	
30-31		PIXEL-Units per UNIT BASE in the Y direction (only applicable if byte $10 = x'02'$ )	X'02890 2'
	X'0960'	2400 Units per 10 in. (240 dpi)	
	X'OBB8'	3000 Units per 10 in. (300 dpi)	
	X'1770'	6000 Units per 10 in. (600 dpi)	
32-33	X'0001' - X'7FFF'	RELATIVE METRIC MULTIPLYING FACTOR	X'028A 02'
34-35	X'nnnn'	FGID (ignored)	
36		STAGEABILITY	X'02200 2'
	X'01'	Font is not stageable (retired)	
37	Bit 0: 0/1	INTENDED USE FLAGS: Not intended for MICR printing/ Intended for MICR printing (If MICR Installed)	
	Bits 1-7:	Reserved	
38-39	X'nnnn'	Font width (ignored)	
40-n		Zero or more CHARACTER PATTERN DESCRIPTORS in the following format	

Offset	Range	Meaning	Error Code
+ 0-1	X'0000' -	CHARACTER BOX X SIZE	X'02260
bytes	X'7FFF'		2'
+ 2-3	X'0000' -	CHARACTER BOX Y SIZE	X'02270
bytes	X'7FFF'		2'
+ 4-7 bytes	X'000000 00' - X'007FFFF E'	CHARACTER PATTERN ADDRESS	X'023E 02'

## **Load Font Index**

This command is  $32 + (256 \times 16)$  (the  $(256 \times 16)$  byte field is not always required) bytes long. It contains general information needed to print the patterns and a description of the characteristics of each of the 256 possible code points. Each font can have from one to four associated font indices.

Each index is loaded by a separate Load Font Index command. This command can only be issued in Home State.

Offset	Range	Meaning	Error Code
0-1	X'0001'- X'7EFF'	FONT HOST ASSIGNED ID (HAID)	X'02180 2'
2		SECTION ID	X'02430
	X'00'	Single byte	2'
	X'41'-X'FE'	Double-byte section	
3		FLAGS	
	Bit 0: 0/1	VARIABLE SPACE: Disabled/Enabled	
	Bits 1-7: 0000000	Reserved	
4-5		FONT INLINE SEQUENCE	X'02400
	X'0000'	0 degrees	2' X'02460
	X'2D00'	90 degrees	2'
	X'5A00'	180 degrees	
	X'8700'	270 degrees	
6-7	X'0000'	Reserved	
8-9	X'8000' - X'7FFF'	UNIFORM or MAXIMUM BASELINE OFFSET	X'023C 02'
10-11	X'8000' - X'7FFF'	UNIFORM or MAXIMUM CHARACTER INCREMENT	X'023C 02'
12-13	X'0000'	Reserved	

Offset	Range	Meaning	Error Code
14-15	X'0000' - X'7FFF'	MAXIMUM BASELINE EXTENT	
16		ORIENTATION FLAGS	
	Bits 0-4: 00000	Reserved	
	Bit 5: 1/0	UNIFORM A-SPACE: Bytes 18, 19 specify uniform value/ Bytes 18, 19 specify minimum value A-space for each character is in the character index entry	
	Bit 6: 1/0	UNIFORM BASELINE OFFSET: Bytes 8, 9 specify uniform baseline offset/Bytes 8, 9 specify minimum baseline offset (Baseline offset for each character is in the character index entry)	
	Bit 7: 1/0	UNIFORM CHARACTER INCREMENT: Bytes 10, 11 specify uniform character increment/Bytes 10, 11 specify minimum character increment (Character increment for each character is in the character index entry)	
17	X'00'	Reserved	
18-19	X'8000' - X'7FFF'	UNIFORM or MINIMUM A-SPACE	X'023C 02'
20-21	X'0000' - X'FFFF'		
22-23	X'8000' - X'7FFF'		
24-25	X'0000'	RECOMMENDED UNDERSCORE WIDTH	X'023C
	X'0001' - X'7FFF'	No recommendation Underscore width in L-units	02'
26-27	X'8000' - X'7FFF'	RECOMMENDED UNDERSCORE POSITION (L-units)	
28-31	X'000000	Reserved	

Offset	Range	Meaning	Error Code
32-412 7			
+ 0-1 bytes		CHARACTER FLAGS	
	X'0000'	Defined, printing, incrementing	
	X'2000'	Defined, printing, non-incrementing	
	X'4000'	Defined, non-printing, incrementing	
	X'6000'	Defined, non-printing, non-incrementing	
	X'8000'	Undefined, printing, incrementing	
	X'A000'	Undefined, printing, non-incrementing	
	X'C000'	Undefined, non-printing, incrementing	X'023C 02'
	X'E000'	Undefined, non-printing, non-incrementing	X'023C 02'
+ 2-3 bytes	X'0000' - X'xxxx'	PATTERN INDEX	
+ 4-5 bytes	X'8000' - X'7FFF'	CHARACTER INCREMENT	
+ 6-7 bytes	X'8000' - X'7FFF'	A-SPACE	X'023C 02'
+ 8-13 bytes	X'000000 000000'	Reserved	
+ 14-15 bytes	X'8000' - X'7FFF'	BASELINE OFFSET	

# 11. Appendix

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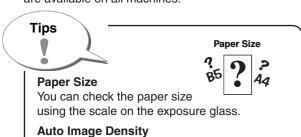
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## **Quick Reference Copy Guide**

# ⇒Please put this guide above your machine <>

\*The shape of the machine, screen displays procedures, and titles in references vary depending on the machine you are using. Also, not all functions are available on all machines.



Dark texture originals will be copied so that background will not be reproduced.

#### **Auto Paper Select**

Selects a suitable size of paper automatically.



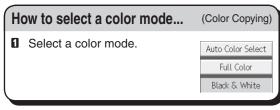
- 1 Press the [Home] key on the top left of the control panel, and press the [Copier] icon on the [Home] screen.
- 2 Press the [Reset] kev.
- Place the originals.
  - Exposure Glass (Face down)

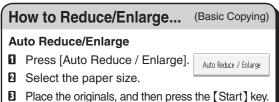


 Auto Document Feeder (Face up)



- Make desired settings.
- **5** Enter the number of copies.
- 6 Press the [Start] key.





#### **Preset Reduce/Enlarge**

1 Press [Reduce / Enlarge].

Reduce / Enlarge 2 Select a ratio, and then press [OK].

 Place the originals, and then press the [Start] key. (Paper size is selected automatically.)

#### 1. [Home] key

Press to display the [Home] screen.

#### 2. Function keys

No functions are registered to the function keys as a factory default. You can register often used functions, programs, and Web pages.

- 3. Display panel
- 4. [Reset] key

Press to clear the current settings.

How to save paper...

#### 5. [Program] key

Press to register frequently used settings, or to recall registered settings.

(Basic Copying)

- 6. [Interrupt] key
- 7. Main power indicator

- or sending.
- 8. [Energy Saver] key 9. [Login/Logout] key
- 10. [User Tools/Counter] key
- 11. [Simple Screen] key 12. [#] key (Enter key)
- 13. [Start] key

Press to start copying, printing, scanning,

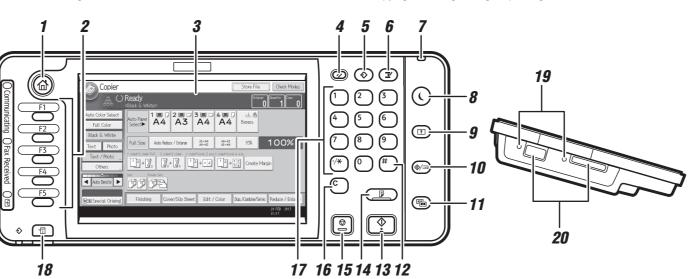
- 14. [Sample Copy] key
- 15. [Stop] key

Press to stop a job in progress, such as copying, scanning, faxing, or printing.

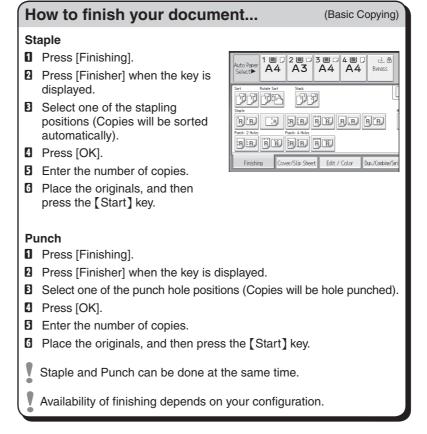
16. [Clear] key

Press to delete a number entered.

- 17. Number keys
- 18. [Check Status] key
- 19. Media access lamp
- 20. Media slots



#### See if original is 1-sided or 2-sided (duplex) Dup./Combine/Series 2 Press [Dup./Combine/Series]. **B** Select the original and copy types and/or the orientation. Place the originals, and then press the [Start] key. Duplex 1-Sided -> 2-Sided 2-Sided -> 2-Sided Copies two 1-sided pages Copies one 2-sided page on on one 2-sided page one 2-sided page $\Rightarrow$ Combine 1-sided Combine Copies multiple 1-sided or Copies multiple 1-sided Copies multiple 2-sided 2-sided originals on one side originals on two sides of originals on two sides of of copy paper. copy paper For more functions on Combine, see "Basic Copying", Copy/ Document Server.



#### **Document Server** (Basic Copying Why use it... To store often used documents centrally and print on demand. To reduce network load. How to use in copy mode... 1 Press [Store File]. Store File 2 Enter a user name, file name, or password User Name File Name Password if necessary. 12 When [Target Folder to Store] is displayed, specify a folder in which to store the document if necessary. 4 Press [OK].

5 Place the originals.

6 Make the scanning settings for the original.

7 Press the [Start] key.

The machine stores scanned originals in memory and makes one set of copies.

To find your document, press the [Home] key on the top left of the control panel, and press the [Document Server] icon on the [Home] screen.



For more functions on Document

Server, see "Document Server", Copy/ Document Server.

### Simple Screen

When you press the [Simple Screen] key, the screen changes to the simple screen. Letters and keys are displayed at a larger size, making operations easier.

Only the main functions can be used.

#### Reduce/Enlarge

Zoom: You can specify the reproduction ratio in increments of 1%.

Advanced features

Magnification: You can specify the horizontal and vertical reproduction ratios. individually.

#### **Series Copies**

 Separately copies the front and back of a 2-sided original onto two sheets.

#### Booklet/Magazine

Copies two or more originals in page order.

#### Edit/Stamp

• Image Repeat/Double Copies: The original image is copied repeatedly.

(Basic Copying, Advanced Copying)

- Centering: Moves image to the center.
- Erase: Erases the center and/or all four sides of the original image.
- Stamps: Copies with the date, page numbers, etc.

#### Cover/Slip Sheet

- · Covers: Create cover sheets.
- Designate: Copies certain pages of the original onto designation sheets.



### Quick Reference Fax Guide

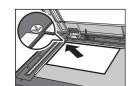
# ⇒Please put this guide above your machine

\*The shape of the machine, screen displays, procedures, and titles in references vary depending on the machine you are using. Also, not all functions are available on all machines.

#### How to send a fax...

#### (Transmission)

- 1 Press the [Home] key on the top left of the control panel, and press the [Facsimile] icon on the [Home] screen.
- 2 Specify a transmission mode:
  - · Memory Transmission, or
  - Immediate Transmission (selected by pressing [Immed. TX])
- Place the original.
- Exposure glass (face down)



 Auto Document Feeder (face up)



- Make the scan settings you require.
- **5** Specify a destination.
- 6 Press the [Start] key.

If you select Memory Transmission, you can send to more destinations at once. To do this, after step 5, specify destinations and press the [Start] key.

To send to an Internet Fax, e-mail, or folder destination, press [Internet Fax], [E-mail], or [Folder] to switch the



# transmission type.

How to fax to Document Server... (Storing a

- 1 Press [Store File].
- 2 Select [Send & Store].
- **B** Set the user name, file name, and password as necessary, and then press [OK].
- Specify a destination, and then press the [Start] key.

#### To send a fax from Document Server:

- Press [Select Stored File].
- 2 Select the documents to be sent, and then press [OK].
- B Specify a destination, and then press the [Start] key.

#### 1. [Home] key

Press to display the [Home] screen.

#### 2. Function keys

No functions are registered to the function keys as a factory default. You can register often used 7. [Energy Saver] key functions, programs, and Web pages.

#### 3. Display panel

#### 4. [Reset] key

Press to clear the current settings.

#### 5. [Program] key

Press to register frequently used settings, or to recall registered settings.

- 6. Main power indicator
- 8. [Login/Logout] key
- 9. [User Tools/Counter] key 10. [Simple Screen] key
- 11. [#] key (Enter key)

#### 12. [Start] key

Press to start copying, printing, scanning, or sending

#### 13. [Stop] key

Press to stop a job in progress, such as copying, scanning, faxing, or printing. 14. [Clear] key

- Press to delete a number entered.
- 15. Number keys

- 16. [Check Status] key
- 17. Data In indicator
- 18. Confidential File indicator
- 19. Fax Received indicator
- 20. Communicating indicator 21. Media access lamp
- Memory + Immediate 22. Media slots Before the original is scanned = before pressing the [Start] key:
  - Press the [Reset] key.

While the original is being scanned

Press the [Stop] key.

2 Press [Cancel Scanning] or [Cancel TX].

How to cancel a transmission...

After the original is scanned

- 1 Press the [Stop] kev.
- 2 Press [Standby File List].
- **B** Select the file you want to cancel.
- Press [Stop Transmission], and then press [OK].
- Press [Exit].

#### How to print the Journal...

(Changing/Confirming

The Journal is printed automatically after every 50 communications. You can also request a Journal at any time, by following the procedure below.

Press [TX/RX Status / Print].



Print per File No.

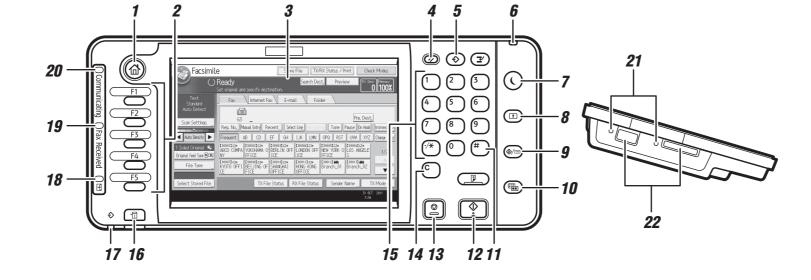
- Press [Print Journal]
- **B** Select the printing method:
- [Print per File No.]
- [Print per User]
- 4 Press the [Start] key.
- B Press [Exit] twice.



## **Advanced Fax Features**

#### Please see Fax Operating Instructions:

- SUB/SEP Codes (Other Transmission Features) Privacy can be protected when faxing with a SUB/SEP Code, since only people who know the SUB/SEP Code can receive or print the fax document.
- Printed reports (Changing/Confirming Communication Information) Inform you if a fax has been saved, sent, or failed to be transmitted.
- LAN-Fax features Sending a fax from a computer. (Fax via Computer)



#### How to program a Destination key...

(Registering Addresses and Users, Connecting the Machine/ System Settings)

- 1 Press the [User Tools/Counter] key.
- 2 Press [Address Book Mangmnt].
- D Check that [Program / Change] is selected.
- Select the name whose fax destination you want to register. Press the name key, or enter the registered number using the number
- Press [Fax Dest.].
- d Press [Change] under Fax Destination, enter the fax number using the number keys and press [OK].
- Press [OK].
- Press [Exit].
- Press the [User Tools/Counter] key.

## How to send at a specific time (Send Later)

Using this function, you can instruct the machine to send the fax at a later time via Memory Transmission.

Advantage: you can take advantage of off-peak telephone charges, without being at the machine.

- 1 Place the original, and then select the scan settings you require.
- Press [TX Mode].
- Press [Send Later].
- Enter the time using the number keys. and then press [#].



Press [OK] twice.



### Quick Reference Scanner Guide

# ⇒Please put this guide above your machine <>

\*The shape of the machine, screen displays, procedures, and titles in references vary depending on the machine you are using. Also, not all functions are available on all machines.

> To use the scanner functions, several settings must be made beforehand. For details about these settings, see "Accessing User Tools", **Connecting the Machine/ System** Settings on the supplied CD-ROM.

#### How to scan...

Available scan functions:

- Scan to E-mail
- 2 Scan to Folder (SMB/FTP/NCP)
- Scan Using WSD (Web Services on Devices)
- Store to Hard Disk
- 5 Save to Memory Storage Device
- 6 Scan to Delivery Server
- Scan via TWAIN Driver
- For details about **3**, **5**, **6**, and **7**, see Scan on the supplied CD-ROM.

#### 1. [Home] key

Press to display the [Home] screen.

#### 2. Function keys

No functions are registered to the function keys as a factory default. You can register often used functions, programs, and Web pages.

- 3. Display panel
- 4. [Reset] key

Press to clear the current settings.

#### 5. [Program] key

Press to register frequently used settings, or to recall registered settings.

- 6. Main power indicator
- 7. [Energy Saver] key
- 8. [Login/Logout] key
- 9. [User Tools/Counter] key 10. [Simple Screen] key

#### 11. [#] key (Enter key) 12. [Start] key

Press to start copying, printing, scanning,

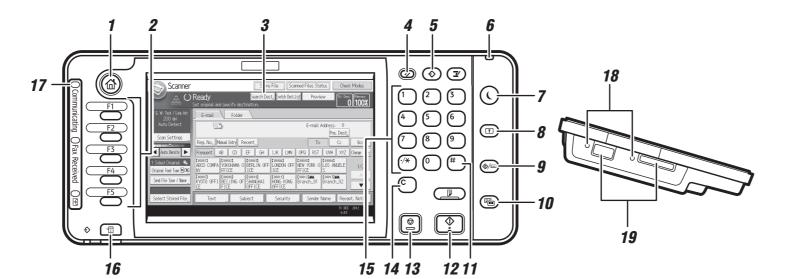
#### 13. [Stop] kev

Press to stop a job in progress, such as copying, scanning, faxing, or printing.

#### 14. [Clear] key

Press to delete a number entered.

- 15. Number keys
- 16. [Check Status] key
- 17. Communicating indicator
- 18. Media access lamp
- 19. Media slots





#### How to use Scan to E-mail/ (Sending Scanned Documents Scan to Folder... to a Client Computer)

- 1 Press the [Home] key on the top left of the control panel, and press the [Scanner] icon on the [Home] screen.
- Press the [Reset] key.
- Press the [E-mail] or [Folder] tab.
- Place originals.
- **5** If necessary, specify the scan settings according to the original to be scanned.

#### If necessary, press [Send File Type / Name] to specify settings such as file name and file format.

2 Specify the destination(s). You can specify multiple destinations.

#### For scan to e-mail:

- Before you select destination(s), make sure you have selected [To]. If necessary, press [Cc] or [Bcc], and then select destination(s).
- For scan to e-mail only
  - Specify the e-mail sender.
- Depending on the security settings, the logged-in user may
- be specified as [Sender Name].

- To specify the e-mail sender, press [Sender Name].
- · Select a sender.
- Press [OK].
- For reception confirmation e-mail, press [Recept. Notice].

#### D For scan to e-mail only

Enter a subject line if necessary.

- · Press [Subject].
- · Enter the subject.
- Press [OK].
- Press the [Start] key.

#### How to save to the machine's hard disk...

(Storing and Saving the Scanned Documents)

- 1 Press the [Home] key on the top left of the control panel, and press the [Scanner] icon on the [Home] screen.
- 2 Press the [Reset] key.
- Place originals.
- 4 Press [Store File].
- D Press [Store to HDD].
- **1** If necessary, specify file information, such as [User Name], [File Name], [Password], and [Select Folder].
- Press [OK].
- If necessary, press [Scan Settings] to specify scanner settings such as resolution and scan size.
- Press the [Start] key.

For details about saving to memory storage device, see "Storing the Scanned Documents to a USB Flash Memory Device or SD Card", Scan on the supplied CD-ROM.

To store scanned files in the hard disk of the machine for later (shared) use. (See Scan.)

#### Displaying a list of files stored (Storing and Saving the on the machine's hard disk

Scanned Documents)

- 1 Press the [Home] key on the top left of the control panel, and press the [Scanner] icon on the [Home] screen.
- Press [Select Stored File].
- **B** Specify the folder where the file is stored when the list of folders is displayed.
- The list of stored files is displayed.

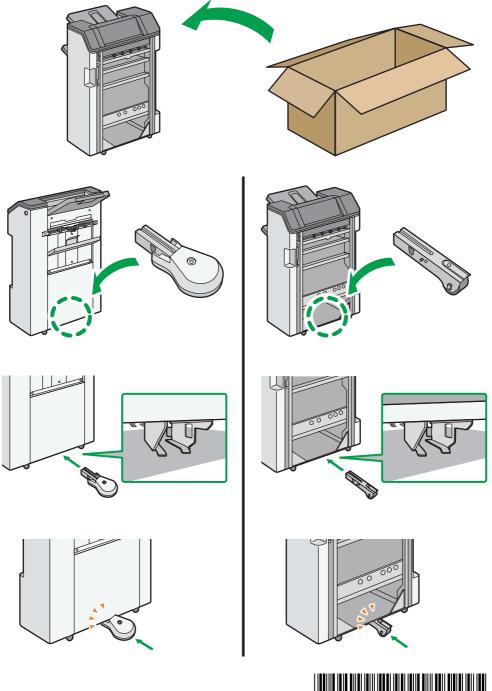
#### Registering an E-mail destination...

(Registering Addresses and Users Connecting the Machine/ System

- 1 Press the [User Tools/Counter] key.
- 2 Press [Address Book Mangmnt].
- B Check that [Program / Change] is selected.
- Select the name whose e-mail address you want to register. Press the name key, or enter the registered number using the number kevs.
- Press [E-mail].
- G Press [Change] under "E-mail Address".
- 2 Enter the e-mail address.
- Press [OK].

For details about registering folders, see "Registering Addresses and Users", Connecting the Machine/ System





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