RICOH

DDP 70e/92
Digital Document Publisher

PostScript Programming Guide

2635-A Park Center Drive
Simi Valley, CA 93065
May, 2005
337943-003 Revision A

The material in this document is for informational purposes and is subject to change without notice. Ricoh Printing Systems America, Inc. assumes no responsibility for errors or omissions in this document. No liability is assumed for any damages resulting from the use of the information it contains.

TRADEMARK

Digital Document Publisher, DDP, DDP 70, DDP 70*e*, DDP 92, and their associated logo marks are trademarks of Ricoh Printing Systems America, Inc. All rights reserved.

All other terms and product names may be trademarks or registered trademarks of their respective owners, and are hereby acknowledged.

NOTICE TO USER

In an effort to meet the demands of a rapidly changing technology, the manufacturer is continually developing new features and functions to meet your changing printing or printer needs. Please be sure to consult all manual updates or addenda when using this product's documentation.

Table of Contents

Chapter 1. PostScript Languange Printer Commands

Chapter 2. I/O Setup

Index

Chapter 1
PostScript Languange Printer Commands

Overview

Printer commands for Adobe PostScript 3 provide a way for you to communicate with the printer to perform certain tasks.

This document provides programming information about Adobe PostScript 3 and contains most of the PostScript commands. It is written for people who are familiar with the command structure of the PostScript language. Most software applications do not require you to enter printer commands. However, if needed, you should refer to your software documentation for information about how to enter printer commands.

This document also describes the particular PostScript interpreter parameters and resources implemented for the printer. The printer has features and capabilities that might not be present in other PostScript printers and that are not documented elsewhere.

The following documents are generally relevant to the operation and programming of PostScript printers.

- *PostScript Language Reference Manual, Third Edition* (Addison-Wesley), (hereafter referred to as the *Reference Manual*), describes the programming language used to tell printers what and how to print. It describes features of the language available in all PostScript interpreters.
- The *PostScript Language Reference Manual Level 3 Version 3010 and 3011 Supplement* (Adobe), (hereafter referred to as the *Supplement*), provides an up-to-date catalog of standard page device, user, system, and device parameters. It includes parameters that have changed since their original description in the *PostScript Language Reference Manual, Third Edition.*
- *PostScript Language Tutorial and Cookbook* (Addison-Wesley) contains explanatory and tutorial material to improve users' understanding of the PostScript page description language. It introduces the PostScript language at a basic level.
- *PostScript Language Program Design* (Addison-Wesley) teaches programming principles unique to the PostScript language with many usable samples. It is for programmers interested in the effective and efficient design of PostScript language programs and printer drivers.
- *PostScript Printer Description File Format Specification* (Adobe) describes the PostScript Printer Description (or PPD) file format which provides information in a machine-readable form about printer-specific features and about the fonts built into the printer.
- *PostScript Printer Description File for the Printer*, available from the Adobe Developers Association, provides a device-independent way of invoking device-dependent features. It is needed by some drivers to offer complete device functionality to the user.

The documentation assumes a knowledge of the following:

- How to reset the interpreter and page device parameters to their factory defaults.
- How to physically connect a printer to a host computer or user system.
- How to use the communications protocols and emulators implemented in the printer.
- How to use the printer's control panel.

Device Setup

The page device parameters represent particular raster output device features or processing options; the values represent the current settings of those features or options. The **setpagedevice** operator is used to set the values of the page device parameters and the current pagedevice operator is used to get the current values of these parameters.

For more information about how the **setpagedevice** operator is used to set up a raster output device, refer to the *Reference Manual.*

Page Device Parameters

Printer

The following page device parameters are present in the printer. The semantics for the parameters appear in the *Reference Manual* and the *Supplement*.

The following table lists all the page device parameters for the **/Printer** device.

Page Device Parameters Table

Key	Type	Default	For More Information
BeginPage			
	procedure	{pop}	See Chapter 6 of the *Reference Manual*.
Collate			
	boolean	true	See Chapter 6 of the *Reference Manual* and print behavior information on page 1-6.
Duplex			
	boolean	false	See Chapter 6 of the *Reference Manual.*
EdgeToEdge			
	boolean	false	*Use:* <</PostRenderingEnhance true /PostRenderingEnhanceDetails <</EdgeToEdge true>> >> setpagedevice *Instead of:* <</EdgeToEdge true >> setpagedevice
EndPage			
	procedure	{exch pop 2 ne}	See Chapter 6 of the *Reference Manual.*
ExitJamRecovery			
	boolean	false	See Chapter 4 of the *Supplement.*
Fold			
	integer	0	See Chapter 2 of the *Supplement.*

Page Device Parameters Table (Continued)

Key	Type	Default	For More Information
FoldDetails			
	dictionary	<</Type 2 /FoldType 0>>	See Chapter 2 of the *Supplement.*
HWResolution			
	array	[600 600]	See Chapter 6 of the *Reference Manual*.
ImagingBBox			
	array or null	null	See Chapter 6 of the *Reference Manual.*
InputAttributes			
	dictionary	See below	See Chapter 6 of the *Reference Manual.*
Install			
	Procedure	See below.	See Chapter 6 of the *Reference Manual.*
Jog			
	integer	0	See Chapter 4 of the *Supplement* and below.
LeadingEdge			
	integer or null	null	See chapter 4 of the *Supplement.*
ManualFeed			
	boolean	false	See Chapter 6 of the *Reference Manual.*
ManualFeedTimeout			
	integer	300	See Chapter 4 of the *Supplement.*
Margins			
	array	[0 0]	See Chapter 4 of the *Supplement.*
MediaType			
	string or null	(plain)	See Chapter 6 of the *Reference Manual.*
MediaWeight			
	number or null	null	See below.
NumCopies			
	integer or null	1	See Chapter 6 of the *Reference Manual* and print behavior information on page 1-6.
= Value is read-only but changes.			

Page Device Parameters Table (Continued)

Key	Type	Default	For More Information
OutputAttributes			
	dictionary	See below	See Chapter 6 of the *Reference Manual*.
OutputDevice			
	name or string	/Printer	See Chapter 4 of the *Supplement.*
OutputFaceUp			
	boolean	false	See Chapter 6 of the *Reference Manual*.
OutputPage			
	boolean	true	See Chapter 4 of the *Supplement.*
OutputType			
	string or null	(Stacker 2)	See Chapter 6 of the *Reference Manual*.
PageDeviceName			
	string or null	null	See Chapter 4 of the *Supplement.*
PageSize			
	array	See below	See Chapter 4 of the *Supplement.*
Policies			
	dictionary	<</HWResolution 0 /PolicyNotFound 1 /LeadingEdge 2 /MediaWeight 2 /OutputDevice 0 /MediaType 2 /PolicyReport{pop} /ProcessColorModel 0 /Separations 0 /PageSize 2>>	See Chapter 6 of the *Reference Manual*. See Chapter 4 of the *Supplement* and below.
ProcessColorModel			
	name or string	/DeviceGray	See Chapter 4 of the *Supplement.*
Staple			
	integer	0	See Chapter 4 of the *Supplement* and below.
StapleDetails			
	dictionary	See below	See Chapter 4 of the *Supplement* and below.
TraySwitch			
	boolean	true	See Chapter 4 of the *Supplement* and below.
Tumble			
	boolean	false	See Chapter 6 of the *Reference Manual.*
= Value is read-only but changes.			

Print Behavior With PJL Environment Variables

The following table summarizes the behavior of the **/NumCopies** and **/Collate** print parameters when used with PJL environment variables QTY and COPIES.

Using PJL Environment Variables

PJL Environment Variable		PostScript Device Parameter		Behavior	
QTY	**COPIES**	**/NumCopies**	**/Collate**	**Collated Copies**	**Uncollated Copies**
-	-	-	-	n/a	n/a
-	-	-	true	n/a	n/a
-	-	-	false	n/a	n/a
a	-	-	-	a	n/a
a	-	-	true	a	n/a
a	-	-	false	a	n/a
-	b	-	-	b	n/a
-	b	-	true	b	n/a
-	b	-	false	n/a	b
-	-	c	-	c	n/a
-	-	c	true	c	n/a
-	-	c	false	n/a	c
a	b	-	-	a*b	n/a
a	b	-	true	a*b	n/a
a	b	-	false	a	b
a	-	c	-	a*c	n/a
a	-	c	true	a*c	n/a
a	-	c	false	a	c
-	b	c	-	c	n/a
-	b	c	true	c	n/a
-	b	c	false	n/a	c
a	b	c	-	a*c	n/a
a	b	c	true	a*c	n/a
a	b	c	false	n/a	c

- Parameter not set.
a Numeric value entered for PJL QTY environment variable.
b Numeric value entered for PJL COPIES environment variable.
c Numeric value entered for PostScript /NumCopies parameter.
n/a Not applicable.

Location Numbers and Corresponding Staple Location

Finisher Option		
Location	**Staple Location**	**Physical Staple Position (LEF/SEF)**
0	invalid	
1*	<Saddle Stitch>	
2	<Center>	
3	<Front Corner>	
4	<Rear Corner>	
5	invalid	
10	<Top Left>	Top/Bottom
11	<Top Center>	Center
12	<Top Right>	Bottom + 180° rotation/Top
13	<Center Right>	Center + 180° rotation
14	<Bottom Right>	Top + 180° /Bottom + 180° rotation
15	<Bottom Center>	Center + 180° rotation
16	<Bottom Left>	Bottom + 180° rotation
17	<Center Left>	Center
* Booklet Finisher and Publishing Finisher only.		

TraySwitch

This boolean controls whether other trays of the same paper size and media type are used when the current tray empties. The MBT is not used for this switching. If this parameter is true, then, when a tray empties the printer searches for a tray containing the same paper size and media type starting with Tray 1 and searches in order through HCF, except MBT and Inserter Trays. The value of Priority is not used to determine the tray switching order.

FoldType

Value	Folding Type
0	No folding
2	Center folding

Output Type

OutputType	Meaning
(Stacker 0)*	Sample Tray
(Stacker 1)	Standard Tray
(Stacker 2)	Elevator Tray
(Stacker 3)	Upper Tray
(Stacker 4)	Booklet Tray
(Stacker 5)*	Stacker 5
(Stacker 6)*	Stacker 6
(Stacker 7)*	Stacker 7
(Stacker 8)*	Stacker 8
(Auto)*	Autocascade

*: Container Stacker only

If this parameter is (Auto), the printer searches available output tray starting from Stacker 5 through Stacker 8 in order to switch output tray after tray full condition.

In case of followings, printer skips these output trays and switches next higher priority output tray.

- Print out long paper size to output tray with short basket.
- Any paper in output tray.
- Masked any output trays by /outputTrayMask command.

OutputTrayMask

This operator masks individual output tray (Stacker) for Autocascade.

Example: [x] statusdict / outputTrayMask get exec

x means integer of Stacker number.

Establishing Breaks Within a Job

A Set Break occurs when one or more of the following processing options changes within a job.

Processing Options		
Collate	ManualFeedTimeout	OutputType
Duplex	Margins Left	PageSize
ExitJamRecovery	Margins Top	paper feed method
HWResolution	MediaWeight	paper tray selection
Jog	NumCopies	Staple
ManualFeed	OutputFaceUp	StapleDetails

The following sample shows the syntax required to change the **/Staple** parameter, causing a Set Break to occur.

Changing the /Staple Parameter

```
%!PS
/ston {                                  ←Staple On
<</Staple 1>> setpagedevice
clippath stroke showpage
} def
/stoff {                                 ←Staple Off
<</Staple 0>> setpagedevice
clippath stroke showpage
} def

ston ston stoff ston ston
%%EOF
```

The table below describes a five-page job that changes the **/Staple** twice within the job.

Job Request	Result
Page 1 Staple: yes	
Page 2 Staple: yes	Page 1 and Page 2 are stapled.
Page 3 Staple: no	Page 3 is not stapled.
Page 4 Staple: yes	Page 4 and Page 5 are stapled.
Page 5 Staple: yes	

Interpreter Parameters

The semantics for interpreter parameters appear in the *Reference Manual.* For more recent parameters and their semantics, see the *Supplement.*

User Parameters

User parameters can be altered, within reasonable limits, by any PostScript language program without requiring a password. The user parameters establish temporary policies on matters such as whether to insert new items into caches.

The **setuserparams** and **currentuserparams** operators are used to set and get the current values of the user parameters. The initial value of user parameters at the time the printer is turned on for the first time is product dependent. Unless otherwise specified, all user parameters are subject to **save** and **restore**.

Listed below are the user parameters present in the printer.

Key	Type	Default	For More Information
AccurateScreens	boolean	false	See Section 3.1 of the *Supplement.*
JobName	string	( )	See Section 3.1 of the *Supplement.*
JobTimeout	integer	0	See Section 3.1 of the *Supplement.*
MaxDictStack	integer	530	See Section 3.1 of the *Reference Manual.*
MaxExecStack	integer	10015	See Section 3.1 of the *Reference Manual.*
MaxFontItem	integer	12500	See Section 3.1 of the *Reference Manual.*
MaxFormItem	integer	100000	See Section 3.1 of the *Reference Manual.*
MaxLocalVM *	integer	80% of RamSize	See Section 3.1 of the *Reference Manual.*
MaxOpStack	integer	100000	See Section 3.1 of the *Reference Manual.*
MaxPatternItem	integer	20000	See Section 3.1 of he *Reference Manual.*
MaxScreenItem	integer	48000	See Section 3.1 of the *Reference Manual.*
MaxUPathItem	integer	5000	See Section 3.1 of the *Reference Manual.*
MinFontCompress	integer	1250	See Section 3.1 of the *Reference Manual.*
VMReclaim	integer	0	See Section 3.1 of the *Reference Manual.*
VMThreshold	integer	40000	See Section 3.1 of the *Reference Manual.*
WaitTimeout	integer	40	See Section 3.1 of the *Supplement.*
* Value is a read-only constant.			

MaxFontItem

The key **MaxFontItem** indicates the maximum number of bytes occupied by the pixel array of a single character in the font cache.

System Parameters

System parameters, in many cases, permanently alter the overall configuration of a product. They are set using the operator **setsystemparams** and read using the operator **currentsystemparams**. In general, setting system parameters requires a password. System parameters are not subject to **save** and **restore**. Their values persist across jobs. Listed below are the system parameters present in the printer.

System Parameters

Key	Type	Default	For More Information
BuildTime*			
	integer	Time dependent	See Section 3.2 of the *Supplement.*
ByteOrder*			
	boolean	false	See Section 3.2 of the *Reference Manual.*
CurDisplayList**			
	integer	0	See Section 3.2 of the *Reference Manual.*
CurFontCache**			
	integer	0	See Section 3.2 of the *Reference Manual.*
CurFormCache**			
	integer	0	See Section 3.2 of the *Reference Manual.*
CurInputDevice**			
	string	( )	See Section 3.2 of the *Supplement.*
CurOutlineCache**			
	integer	0	See Section 3.2 of the *Reference Manual.*
CurOutputDevice**			
	string	( )	See Section 3.2 of the *Supplement.*
CurPatternCache**			
	integer	0	See Section 3.2 of the *Reference Manual.*
CurScreenStorage**			
	integer	0	See Section 3.2 of the *Reference Manual.*
CurSourceList**			
	integer	0	See Section 3.2 of the *Supplement.*
CurUPathCache**			
	integer	0	See Section 3.2 of the *Reference Manual.*
DoPrintErrors§			
	boolean	true	See Section 3.2 of the *Supplement.*
DoStartPage			
	boolean	false	See Section 3.2 of the *Supplement.*
FactoryDefaults§			
	boolean	false	See Section 3.2 of the *Supplement.*
FatalErrorAddress§			
	integer	0	See Section 3.2 of the *Supplement.*
FontResourceDir			
	string	(fonts/)	See Section 3.2 of the *Supplement.*

GenericResourceDir			
	string	(Resource/)	See Section 3.2 of the *Supplement.*
GenericResourcePathSep			
	string	(/)	See Section 3.2 of the *Supplement.*
JobTimeout §			
	integer	0	See Section 3.2 of the *Supplement.*
LicenseID			
	string	See below	See Section 3.2 of the *Supplement.*
MaxDisplayList			
	integer	see formula	See Section 3.2 of the *Reference Manual.*
MaxFontCache			
	integer	see formula	See Section 3.2 of the *Reference Manual.*
MaxFormCache			
	integer	100000	See Section 3.2 of the *Reference Manual.*
MaxImageBuffer			
	integer	65536	See Section 3.2 of the *Supplement.*
MaxOutlineCache			
	integer	65536	See Section 3.2 of the *Reference Manual.*
MaxPatternCache			
	integer	100000	See Section 3.2 of the *Reference Manual.*
MaxPermanentVM§			
	integer	See below	See Section 3.2 of the *Supplement.*
MaxRasterMemory§			
	integer	See below.	See Section 3.2 of the *Supplement.*
MaxScreenStorage§			
	integer	120000	See Section 3.2 of the *Reference Manual.*
MaxSourceList§			
	integer	See formula	See Section 3.2 of the *Supplement.*
MaxUPathCache			
	integer	300000	See Section 3.2 of the *Reference Manual.*
PageCount**§			
	integer	0	See Section 3.2 of the *Supplement*.
PrinterName §			
	string	See below	See Section 3.2 of the *Supplement*.
RamSize**§			
	integer	see formula	See Section 3.2 of the *Supplement*.
RealFormat*			
	string	(IEEE)	See Section 3.2 of the *Reference Manual.*
Revision*			
	integer	0	See Section 3.2 of the *Supplement*.
StartJobPassword §&			
	string	( )	Value is stored on the HDD. See Section 3.2 of the *Supplement*.

StartupMode §			
	integer	1	See Section 3.2 of the *Supplement*.
SystemParamsPassword §&			
	string or null	null	Value is stored on the HDD. See Section 3.2 of the *Supplement*.
WaitTimeout §			
	integer	300	See Section 3.2 of the *Supplement*.
* Value is a read-only constant. ** Value read-only but changes. § Value is persistent across power cycles. & Value is write-only.			

MaxDisplayList

The default value for this parameter is memory dependent.

MaxFontCache

The default value of **MaxFontCache** is memory dependent.

MaxPermanentVM

The default value for this parameter is the largest positive integer**.**

MaxRasterMemory

The default value of **MaxRasterMemory** is memory and print mode (simplex/duplex) dependent.

MaxSourceList

The default value for this parameter is memory dependent.

RamSize

The value of **RamSize** is the actual size of installed memory. It ranges from 41943040 for 40 megabyte systems to 134217728 for a 128 megabyte system.

Product Strings

The systemdict operators **languagelevel, product, revision, serialnumber**, and **version** have the following values in the printer.

String Name	Type	Value
languagelevel	integer	3
revision*	integer	1+
serialnumber	integer	randomly determined at startup
version	string	3011.106
* Also defined in statusdict.		

Model Strings

The systemdict operators **LicenseID** and **PrinterName** have the following values.

String Name	Type	Value
LicenseID	integer	70 ppm: (LN-091-002) *Roman Font* (LN-091-003) *Morisawa 2 Font* (LN-091-001) *Morisawa 5 Font* *92 ppm:* (LN-091-004) *Roman Font* (LN-091-005) *Morisawa 2 Font* (LN-091-006) *Morisawa 5 Font*
PrinterName	string	(Enter the name of the printer here, depending on the model.)
product*	string	(Enter the name of the product here.)
* Also defined in statusdict.		

Device Parameters

Device parameters are set using the operator **setdevparams** and read using the operator **currentdevparams**. Device parameters are similar to system parameters in that they require a password, are global to the PostScript environment, and have similar persistence characteristics. As with system parameters, some of these parameters can be stored in non-volatile memory.

One property that distinguishes device parameters from both system and user parameters is that device parameters may be interdependent: the legality of a value for a given parameter might depend on the value of another parameter.

NOTE:
Even if two products have the same device parameters set name, the parameters in the set might differ; for example, because the hardware support for that device differs.

Device Parameters of Type /FileSystem

File system access from PostScript programs is described in Sections 3.8.2 and 3.8.3 of the *Reference Manual* and Section 3.3 of the *Supplement.*

Parameters for Disk

The factory default values for the **%disk%** device parameters are shown below.

%disk% Device Parameters

Key	Type	Default	For More Information
BlockSize *			
	integer	1024	See Section 3.3 of the *Supplement.*
Bus*			
	name	%scsi%	See Section 3.3 of the *Supplement.*
Free** §			
	integer	disk-dependent	See Section 3.3 of the *Supplement.*
HasNames*			
	boolean	true	See Section 3.3 of the *Supplement.*
InitializeAction			
	integer	0	See Section 3.3 of the *Supplement.*
Interleave*			
	integer	5	See Section 3.3 of the *Supplement.*
LogicalSize§ **			
	integer	disk-dependent	See Section 3.3 of the *Supplement.*
Mounted			
	boolean	true	See Section 3.3 of the *Supplement.*
PhysicalSize** §			
	integer	disk-dependent	See Section 3.3 of the *Supplement.*
PrepareAction			
	integer	0	See Section 3.3 of the *Supplement.*
Removable*			
	boolean	false	See Section 3.3 of the *Supplement.*
Searchable			
	boolean	true	See Section 3.3 of the *Supplement.*
SearchOrder			
	integer	0	See Section 3.3 of the *Supplement.*
Type*			
	name	/FileSystem	See Section 3.3 of the *Supplement.*
Writable			
	boolean	true	See Section 3.3 of the *Supplement.*
§ Value is derived from the disk media. * Value is a read-only constant. ** Value is read-only but changes. Device %disk0% is on the %scsi% bus.			

Parameters for ROM

The factory default values for the **%rom%** device parameters in the printer are shown below.

%rom% Device Parameters

Key	Type	Default	For More Information
BlockSize*			
	integer	1	See Section 3.3 of the *Supplement.*
CartridgeID *			
	integer	9110	See Section 3.3 of the *Supplement.*
CartridgeType *			
	integer	4	See Section 3.3 of the *Supplement.*
Free*			
	integer	0	See Section 3.3 of the *Supplement.*
HasNames*			
	boolean	true	See Section 3.3 of the *Supplement.*
InitializeAction			
	integer	0	See Section 3.3 of the *Supplement.*
LogicalSize *			
	integer	449104	See Section 3.3 of the *Supplement.*
Mounted			
	boolean	true	See Section 3.3 of the *Supplement.*
PhysicalSize *			
	integer	449104	See Section 3.3 of the *Supplement.*
Removable*			
	boolean	false	See Section 3.3 of the *Supplement.*
Searchable			
	boolean	true	See Section 3.3 of the *Supplement.*
SearchOrder			
	integer	11	See Section 3.3 of the *Supplement.*
Type*			
	name	/FileSystem	See Section 3.3 of the *Supplement.*
Writable*			
	boolean	false	See Section 3.3 of the *Supplement.*
* Value is a read-only constant.			

Parameters for Fontset

The following table lists the factory default values for the **%fontset%** device parameters in the printer.

%fontset% Device Parameters

Key	Type	Default	For More Information
HasNames=			
	boolean	true	See Section 3.3 of the *Supplement*.
Mounted=			
	boolean	true	See Section 3.3 of the *Supplement*.
Removable=			
	boolean	false	See Section 3.3 of the *Supplement*.
Searchable=			
	boolean	true	See Section 3.3 of the *Supplement*.
SearchOrder=			
	integer	10	See Section 3.3 of the *Supplement*.
Type=			
	name	/FileSystem	See Section 3.3 of the *Supplement*.
Writable=			
	boolean	false	See Section 3.3 of the *Supplement*.
= Value is a read-only constant.			

Parameters for Scsi

The following table lists the factory default values for the **%scsi%** device parameters in the printer.

%scsi% Device Parameters

Key	Type	Default	For More Information
BootDelay=			
	integer	0	See Section 3.3 of the *Supplement*.
CheckParity=			
	boolean	false	See Section 3.3 of the *Supplement*.
InitiaturId=			
	integer	6	See Section 3.3 of the *Supplement*.
Poll=			
	integer	61	See Section 3.3 of the *Supplement*.
TargetId=			
	integer	1	See Section 3.3 of the *Supplement*.
Type=			
	name	/Parameters	See Section 3.3 of the *Supplement*.
= Value is a read-only constant.			

Categories and Resource Instances

The following tables list the factory-installed categories and resource instances in the printer. New resources of the regular resource categories are installed by the customer. For example, font and pattern resources can be added. The categories of implicit resources represent built-in capabilities of the interpreter. For example, the FormType category indicates that the interpreter understands Type 1 only. There are also categories used to define new categories.

Regular Resources

Most of the instances listed in the tables are described in the *Reference Manual* and the *Supplement.* The information about instances that are listed in the Regular Resource Category table is specific to this printer.

Regular Resources

Category Name	Instances		
CIDFont	No instances defined.		
CMap	No instances defined.		
ColorRendering	DefaultColorRendering, DefaultColorRendering600		
ColorSpace	Default CMYK, Default Gray, Default RGB		
ControlLanguage	PostScript		
Encoding	ISOLatin1Encoding, StandardEncoding		
Font	AlbertusMT AlbertusMT-Italic AlbertusMT-Light AntiqueOlive-Bold AntiqueOlive-Compact AntiqueOlive-Italic AntiqueOlive-Roman Apple-Chancery Arial-BoldItalicMT Arial-BoldMT Arial-ItalicMT ArialMT AvantGarde-Book AvantGarde-BookOblique AvantGarde-Demi AvantGarde-DemiOblique Bodoni Bodoni-Bold Bodoni-BoldItalic Bodoni-Italic Bodoni-Poster Bodoni-PosterCompressed Bookman-Demi Bookman-DemiItalic Bookman-Light Bookman-LightItalic Carta Chicago Clarendon Clarendon-Bold Clarendon-Light CooperBlack CooperBlack-Italic Copperplate-ThirtyThreeBC Copperplate-ThirtyTwoBC Coronet-Regular Courier Courier-Bold Courier-BoldOblique Courier-Oblique Eurostile Eurostile-Bold Eurostile-BoldExtendedTwo Eurostile-ExtendedTwo Geneva GillSans	GillSans-Bold GillSans-BoldCondensed GillSans-BoldItalic GillSans-Condensed GillSans-ExtraBold GillSans-Italic GillSans-Light GillSans-LightItalic Goudy Goudy-Bold Goudy-BoldItalic Goudy-ExtraBold Goudy-Italic Helvetica Helvetica-Bold Helvetica-BoldOblique Helvetica-Condensed Helvetica-Condensed-Bold Helvetica-Condensed-BoldObl Helvetica-Condensed-Oblique Helvetica-Narrow Helvetica-Narrow-Bold Helvetica-Narrow-BoldOblique Helvetica-Narrow-Oblique Helvetica-Oblique HoeflerText-Black HoeflerText-BlackItalic HoeflerText-Italic HoeflerText-Ornaments HoeflerText-Regular JoannaMT JoannaMT-Bold JoannaMT-BoldItalic JoannaMT-Italic LetterGothic LetterGothic-Bold LetterGothic-BoldSlanted LetterGothic-Slanted LubalinGraph-Book LubalinGraph-BookOblique LubalinGraph-Demi LubalinGraph-DemiOblique Marigold MonaLisa-Recut Monaco NewCenturySchlbk-Bold	NewCenturySchlbk-BoldItalic NewCenturySchlbk-Italic NewCenturySchlbk-Roman NewYork Optima Optima-Bold Optima-BoldItalic Optima-Italic Oxford Palatino-Bold Palatino-BoldItalic Palatino-Italic Palatino-Roman StempelGaramond-Bold StempelGaramond-BoldItalic StempelGaramond-Italic StempelGaramond-Roman Symbol Tekton Times-Bold Times-BoldItalic Times-Italic Times-Roman TimesNewRomanPS-BoldItalicMT TimesNewRomanPS-BoldMT TimesNewRomanPS-ItalicMT TimesNewRomanPSMT Univers Univers-Bold Univers-BoldExt Univers-BoldExtObl Univers-BoldOblique Univers-Condensed Univers-CondensedBold Univers-CondensedBoldOblique Univers-CondensedOblique Univers-Extended Univers-ExtendedObl Univers-Light Univers-LightOblique Univers-Oblique Wingdings-Regular ZapfChancery-MediumItalic ZapfDingbats
FontSet	No instances defined.		
Form	No instances defined.		
Halftone	DefaultHalftone, DefaultHalftone600		
OutputDevice	Default		
Pattern	No instances defined.		
PDL	PostScript		
ProcSet	BitmapFontInit CIDInit	CIDnitN ColorRendering	FontSetInit QAPrologue

OutputDevice

The printer supports one OutputDevice type: **Default.** The default output device is equivalent to the Printer instance. Each instance is represented as a dictionary which contains key-value pairs describing certain capabilities of that particular output device. Refer to the following tables and to Section 4.4 of the *Supplement* for further details of the contents of the dictionaries.

The following table lists the key value pairs in the resource dictionary for OutputDevice type /Default.

Resource Dictionary for OutputDevice Type /Default

Key	Value
HWResolution	[[600 600] [300 300]]
ManualSize	[[612 792] [421 595] [864 1296] [516 728] [728 1032] [595 842] [842 1190] [612 936] [612 1008] [792 1224] [648 792] [638 842] [396 612] [522 756] [612 752]]
PageSize	[[612 792] [421 595] [864 1296] [516 728] [728 1032] [595 842] [842 1190] [612 936] [612 1008] [792 1224] [648 792] [638 842] [396 612] [522 756] [612 792]]
ProcessColorModel	/DeviceGray

Resources Whose Instances Are Implicit

The following instances information is specific to this printer.

Resources Whose Instances Are Implicit

Category name	Instances	
ColorRenderingType	1	
ColorSpaceFamily	CIEBasedA CIEBasedABC CIEBasedDEF CIEBasedDEFG DeviceGray	DeviceCMYK DeviceRGB DeviceN Pattern Separation
Emulator	No instances.	
Filter	ASCII85Decode ASCII85Encode ASCIIHexDecode ASCIIHexEncode CCITTFaxDecode CCITTFaxEncode DCTDecode DCTEncode	FlateDecode FlateEncode LZWDecode LZWEncode NullEncode ReusableStreamDecode RunLengthDecode RunLengthEncode SubFileDecode
FMapType	2, 3, 4, 5, 6, 7, 8, 9	
FontType	0, 1, 2, 3, 4, 5, 6, 9, 10, 11, 14, 32, 42	
FormType	1	
HalftoneType	1, 2, 3, 4, 5, 6, 10, 16	
ImageType	1, 3, 4	
IODevice	%disk% %fontset% %rom%	%rom1% %rom2% %scsi%
PatternType	1, 2	

Resources Used in Defining New Resource Categories

The following table lists those resources available in the printer that can be used to define new resource categories.

Category Name	Instances	
Category	Category CIDFont CMap ColorRendering ColorRenderingType ColorSpace ColorSpaceFamily ControlLanguage Emulator Encoding Filter FMapType Font FontSet	FontType Form FormType Generic Halftone HalftoneType HWOptions ImageType IODevice OutputDevice Pattern PatternType PDL ProcSet
Generic	No instances defined.	

Compatibility

Level 1 Compatibility Operators

The following operators are included for compatibility with existing Level 1 PostScript language driver software. These compatibility operators are present in Level 3 printers for compatibility purposes only and their use in PostScript Level 3 language programs is strongly discouraged.

The following compatibility operators are present in the printer. They are listed here in three groups by dictionary. See “Compatibility Operator Descriptions” on page 1-24for information about those compatibility operators which are not found, or differ from, the ones documented in Chapter 6 of the *Supplement*.

Operators in statusdict		
a3tray	ledgertray	setdostartpage
a4tray	legaltray	setdosysstart
b5tray	lettertray	setduplexmode
buildtime	manualfeed	setjobtimeout
byteorder	margins	setmargins
checkpassword	newsheet	setpagestackorder
defaulttimeouts	pagecount	setprintername
diskonline	pagestackorder	setsccinteractive
diskstatus	printername	setsoftwareiomode
doprinterrors	product	settumble
dostartpage	realformat	setuserdiskpercent
dosysstart	resolution	softwareiomode
duplexmode	revision	tumble
firstside	sccinteractive	userdiskpercent
initializedisk	setdefaulttimeouts	waittimeout
jobname	setdoprinterrors	11x17tray
jobtimeout		

Operators in userdict		
11x17	b4	
a3	b5	letter
a4	folio	lettersmall
a4small	ledger	note
a5	legal	

Operators in systemdict		
devdismount	devformat	devstatus
devforall	devmount	

Compatibility Operator Descriptions

Some of the following compatibility operators use tray numbers to represent paper tray locations or feeding methods. The table below lists the tray numbers and the corresponding meanings for the printer. The compatibility operators listed here were implemented and defined for the printer.

Tray Numbers and Their Meanings in the Compatibility Operators

Tray #	Meaning
0	<Tray 1>
1	<Tray 2>
2	<Tray 3>
3	<MBT>
4	<HCF>
10*1	<Inserter tray 1>
11*1	<Inserter tray 2>
20*2	<Inserter tray>

*1: Publishing Finisher only.
*2: Booklet Finisher only - 92 ppm

defaultpapertray defaultpapertray *int*

The operator returns the first element of the **Priority** array in the **InputAttributes** dictionary found within the current page device. This number represents the default paper tray slot which may or may not be installed. If there is no **Priority** array within **InputAttributes** at the time that **defaultpapertray** is executed, some arbitrary slot number will be returned.

Errors: stackoverflow

papertray **papertray** *int*

This operator returns the first element of the **Priority** array in the **InputAttributes** dictionary found within the current page device. This number represents the current paper tray slot which may or may not be installed. If there is no **Priority** array within **InputAttributes** at the time that **papertray** is executed, some arbitrary slot number will be returned.

Errors: stackoverflow

setdefaultpapertray *int* **setdefaultpapertray**

This operator copies the values of **PageSize** and **MediaType** found in the **InputAttributes** dictionary for the specified tray into a dictionary with keys for the **PageSize** and **MediaType**. It also writes the requested tray number into the first element of the Priority array in the **InputAttributes** dictionary and places this entry in the dictionary it is building. This dictionary is then passed to **setpagedevice**. The result is that the requested tray will be selected as a default and will be used by any PostScript language job that does not expressly select a paper size or medium. If the **setdefaultpapertray** compatibility operator is invoked at a save level other than zero, an invalid access error occurs.

Errors: rangecheck, stackunderflow, typecheck

setpapertray ***int*** **setpapertray**

This operator copies the values of **PageSize** and **MediaType** found in the **InputAttributes** dictionary for the specified tray into a dictionary with keys for the **PageSize** and **MediaType**. It also writes the requested tray number into the first element of the **Priority** array in the **InputAttributes** dictionary and places this entry in the dictionary it is building. This dictionary is then passed to **setpagedevice**. The result is that the requested tray will be selected until some other **setpagedevice** operation or tray selection compatibility operator causes a different tray to be selected.

Errors: rangecheck, stackunderflow, typecheck

Paper Size Compatibility Operators

The following table describes the paper size compatibility operators. See the subsection *Paper Size Operations* in the *Supplement* for more information.

Paper Size Compatibility Operators in userdict

Operator	PageSize	ImagingBBox
a3	[842 1190]	null
a4	[595 842]	null
a4small	[595 842]	[25 25 570 817]
a5	[421 595]	null
b4	[728 1032]	null
b5	[516 728]	null
folio	[612 936]	null
ledger	[792 1224]	null
legal	[612 1008]	null
letter	[612 792]	null
lettersmall	[612 792]	[25 25 587 767]
note	[*width height*]	[25 25 *width*-25 *height*-25]
superB	[864 1296]	null

Paper Tray Compatibility Operators

The following table describes the paper tray compatibility operators. See the subsection *Paper Tray Operations* in the *Supplement* for more information.

Paper Tray Compatibility Operators in statusdict

Operator	PageSize	ImagingBBox
a3tray	[842 1190]	null
a4tray	[595 842]	null
a5tray	[421 595]	null
b5tray	[516 728]	null
foliotray	[612 936]	null
ledgertray	[792 1224]	null
legaltray	[612 1008]	null
lettertray	[612 792]	null
superBtray	[864 1296]	null

Chapter 2
I/O Setup

Postscript I/O Mode

The PostScript I/O mode can be selected on a per Virtual Printer basis via the Web menu:

Manage / System / Virtual Printer-><PS virtual printer>->PostScript-> PostScript I/O Mode / Raw, Normal, or TBCP

TBCP

In the TBCP mode the printer will recognize and process the special characters as specified in the table below.

ASCII KEYBOARD	ASCII NAME	VALUE (HEX)	CONTROL FUNCTION	PRINTER BEHAVIOR
^A	SOH	0x01	Quote data character	See Control Function
^C	ETX	0x03	Generate an interrupt error	See Control Function
^D	EOT	0x04	End of file marker	See Control Function
^E	ENQ	0x05	Reserved	Ignored
^Q	DC1	0x11	XON in XON/XOFF flow control	Ignored
^S	DC3	0x13	XOFF in XON/XOFF flow control	Ignored
^T	DC4	0x14	Job status request	See Control Function
^[	ESC	0x1B	Start of end protocol sequence	See Control Function
^\	FS	0x1C	Reserved	Ignored

The ^C special character causes an interrupt error. Data that follows a ^C character is discarded until a ^D character is received.

The ^T special character causes PostScript to return its status via the back-channel. If the PostScript interpreter is waiting for a job, the status string "*%%[status: idle]%%"* is sent. If the PostScript interpreter is busy processing a job, the status string "*%%[status: busy; source: Network]%%"* is sent.

The ^D special character forces the end of PostScript job.

To transmit control characters as data, the host software must quote the character. Quoting is done by replacing the character with the two-character sequence: ^A followed by the character itself XOR-ed with 0x40. For example, to send a byte with the hex value 0x14, the two-byte sequence 0x01 0x54 is sent.

All other special characters are ignored.

Index

Symbols

B

C

D

E

F

G

H

I

J

L

U

V

W