



PostScript Programming Guide

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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.

Revision Table

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PostScript Language 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 <i>Reference Manual</i> .
Collate			
	boolean	true	See Chapter 6 of the <i>Reference Manual</i> and print behavior information on page 5.
Duplex			
	boolean	false	See Chapter 6 of the <i>Reference Manual</i> .
EdgeToEdge			
	boolean	false	<i>Use:</i> <</PostRenderingEnhance true /PostRenderingEnhanceDetails <</EdgeToEdge true>> >> setpagedevice <i>Instead of:</i> <</EdgeToEdge true >> setpagedevice
EndPage			
	procedure	{exch pop 2 ne}	See Chapter 6 of the <i>Reference Manual</i> .
ExitJamRecovery			
	boolean	false	See Chapter 4 of the <i>Supplement</i> .

Page Device Parameters Table (Continued)

Key	Type	Default	For More Information
HWResolution			
	array	[600 600]	See Chapter 6 of the <i>Reference Manual</i> .
ImagingBBox			
	array or null	null	See Chapter 6 of the <i>Reference Manual</i> .
InputAttributes			
	dictionary	See below	See Chapter 6 of the <i>Reference Manual</i> .
Install			
	Procedure	See below.	See Chapter 6 of the <i>Reference Manual</i> .
Jog			
	integer	0	See Chapter 4 of the <i>Supplement</i> and below.
LeadingEdge			
	integer or null	null	See chapter 4 of the <i>Supplement</i> .
ManualFeed			
	boolean	false	See Chapter 6 of the <i>Reference Manual</i> .
ManualFeedTimeout			
	integer	300	See Chapter 4 of the <i>Supplement</i> .
Margins			
	array	[0 0]	See Chapter 4 of the <i>Supplement</i> .
MediaPosition			
	integer or null	null	See Chapter 6 of the <i>Reference Manual</i> .
MediaType			
	string or null	(plain)	See Chapter 6 of the <i>Reference Manual</i> .
MediaColor			
	string or null	(White)	See Chapter 6 of the <i>Reference Manual</i> .
MediaWeight			
	number or null	null	See below.
NumCopies			
	integer or null	1	See Chapter 6 of the <i>Reference Manual</i> and print behavior information on page 5.
= 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 <i>Reference Manual</i> .
OutputDevice			
	name or string	/Printer	See Chapter 4 of the <i>Supplement</i> .
OutputFaceUp			
	boolean	false	See Chapter 6 of the <i>Reference Manual</i> .
OutputPage			
	boolean	true	See Chapter 4 of the <i>Supplement</i> .
OutputType			
	string or null	(Stacker 2)	See Chapter 6 of the <i>Reference Manual</i> .
PageDeviceName			
	string or null	null	See Chapter 4 of the <i>Supplement</i> .
PageSize			
	array	See below	See Chapter 4 of the <i>Supplement</i> .
Policies			
	dictionary	<</HWResolution 0 /PolicyNotFound 1 /LeadingEdge 2 /MediaWeight 2 /OutputDevice 0 /MediaType 2 /PolicyReport{pop} /ProcessColorModel 0 /Separations 0 /PageSize 3>>	See Chapter 6 of the <i>Reference Manual</i> . See Chapter 4 of the <i>Supplement</i> and below.
ProcessColorModel			
	name or string	/DeviceGray	See Chapter 4 of the <i>Supplement</i> .
Staple			
	integer	0	See Chapter 4 of the <i>Supplement</i> and below.
StapleDetails			
	dictionary	See below	See Chapter 4 of the <i>Supplement</i> and below.
TraySwitch			
	boolean	true	See Chapter 4 of the <i>Supplement</i> and below.
Tumble			
	boolean	false	See Chapter 6 of the <i>Reference Manual</i> .
= 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	invalid	
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

TraySwitch

This boolean controls whether other trays of the same paper size, media type, media weight, media color and leading edge 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 media starting with Tray 1 and searches in order through HCF, except MBT. The value of Priority is not used to determine the tray switching order.

Output Type

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

*1: 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.

This command is only available when Container Stacker is installed.

InputAttributes

Please refer to “Compatibility Operator Descriptions” for supported tray numbers.

InputTrayMask

This operator masks individual input tray (Hopper) for Autocascade.

Example : [x] statusdict /inputTrayMask get exec

x means integer of tray number.

PageSize

PS Value	Meaning	Paper Size
[842 1190]	A3 SEF	297 x 420 mm
[595 842]	A4 LEF	297 x 210 mm
[595 842]	A4 SEF	210 x 297 mm
[421 595]	A5 SEF	149 x 210 mm
[728 1032]	B4 SEF	257 x 364 mm
[516 728]	B5 LEF	257 x 182 mm
[522 756]	Executive LEF	10.5" x 7.25"
[396 612]	Statement SEF	5.5" x 8.5"
[792 1224]	Ledger SEF	11" x 17"
[612 1008]	Legal SEF	8.5" x 14"
[612 792]	Letter LEF	11" x 8.5"
[612 792]	Letter SEF	8.5" x 11"
[864 1296]	Super B SEF	12" x 18"
[612 936]	Folio SEF	8.5" x 13"
[648 792]	Letter Tab LEF	9" x 11"
[638 842]	A4 Tab LEF	297 x 295 mm
-	Custom	-

MediaType

PS Value	Meaning	Priority
Plain	Plain	Highest
Bond	Bond	
Recycled	Recycled	
Color	Color	
Prepunched	Prepunched	
Letterhead	Letterhead	
Preprinted	Preprinted	
Special	Special	
Other	Other	
Transparency	Transparency	
Transparency-pp	Transparency-pp	
Label	Label	Lowest
null*	-	-

* When the PS value is null, printer selects the Plain paper type.

MediaColor

PS Value	Meaning	Priority
White	White	Highest
Blue	Blue	
Buff	Buff	
Goldenrod	Goldenrod	
Green	Green	
Pink	Pink	
Yellow	Yellow	
Color1*	Custom Color 1	
(omitted)		
Color80*	Custom Color80	Lowest
null**	-	-

* PS value for Custom Color can be changed by Web.

** When the PS value is null, printer selects any paper color.

MediaWeight

PS Value	Meaning
16	16 lb (60 g/m ²)
17	17 lb (64 g/m ²)
(omitted)	
53	53 lb (199 g/m ²)
null*	-

* When the PS value is null, printer selects 20 lb paper weight.

LeadingEdge

PS Value	Meaning
2	Short Edge Feeding (SEF)
3	Long Edge Feeding (LEF)*
null	-

* LEF is prior to SEF when :
LeadingEdge is null
PageSize supports both LEF and SEF
Best Fit is disabled

MediaPosition

PS Value	Meaning
0	Tray 1
1	Tray 2
2	Tray 3
3	MBT
4	HCF (Optional)
null*	-

* When the PS value is null, printer ignore this operator.

Best Fit

DDP70e and DDP92 support “Best Fit”, which means that it changes policies how to select paper when the requested paper is not installed in the printer, by changing “Best Fit” value. The supported Best Fit values are enabled and disabled. It can be changed by OCP, and by the PS job also. The following sections show the details.

Best Fit : Enabled

When the Best Fit is enabled, the printer selects the most preferred paper already installed in the printer. The following page device keys are set to achieve this function :

/DeferredMediaSelection : false

/Policies /PageSize : 3

Every attribute of paper has the priority to select the most preferred paper. The following table shows the priority of attributes.

Attribute	Priority
/PageSize	Highest
/MediaType	
/MediaColor	
/MediaWeight	
/LeadingEdge	
/InputAttributes /Priority	
/InputTrayMask	Lowest

/PageSize

The printer selects tray(s) that has the paper size, which has the nearest available medium unless the printer has the requested paper size. Refer to “Recovery Policies and Media Selection” in the PostScript Reference Manual how to select the nearest available medium. As described in the Reference Manual, the page image may be scaled.

/MediaType

The printer selects tray(s), from among the tray(s) after /PageSize is processed, which has the highest priority of the paper type unless the printer has the requested paper type.

/MediaColor

The printer selects tray(s), from among the tray(s) after /MediaType is processed, which has the minimum differential paper color unless the printer has the requested paper color.

/MediaWeight

The printer selects tray(s), from among the tray(s) after /MediaColor is processed, which has the minimum differential paper weight unless the printer has the requested paper weight.

/LeadingEdge

The printer selects tray(s), from among the tray(s) after /MediaWeight is processed, which has the alternative (SEF or LEF) leading edge unless the printer has the requested leading edge.

/InputAttributes /Priority

The printer establishes the priority of tray(s), from among the tray(s) after /LeadingEdge is processed, by the value of /InputAttributes /Priority.

/InputTrayMask

The printer masks tray(s), which is specified by InputTrayMask. If the tray list gets empty after InputTrayMask is processed, the printer selects tray 1 to print the medium even when the tray 1 is masked.

Best Fit : Disabled

When the Best Fit is disabled, the printer stops and shows a message on OCP to load the requested paper. The following page device keys are set to achieve this function:

/DeferredMediaSelection : true

/Policies /PageSize : 2

The printer does not use tray(s), which is masked by InputTrayMask or not listed on /InputAttributes /Priority.

NOTE:

The printer does not use the tray(s) masked by InputTrayMask or not listed on /InputAttributes /Priority.

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
HWRResolution	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
<pre>%!PS /ston { ←Staple On <</Staple 1 /Jog currentpagedevice /Jog get 1 add 2 mod>> setpagedevice clippath stroke showpage clippath stroke showpage } def /stoff { ←Staple Off <</Staple 0 /Jog currentpagedevice /Jog get 1 add 2 mod>> setpagedevice clippath stroke showpage } def ston stoff ston %%EOF</pre>

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

Job Request	Result
Page 1 Staple: yes	Page 1 and Page 2 are stapled. Page 3 is not stapled. Page 4 and Page 5 are stapled.
Page 2 Staple: yes	
Page 3 Staple: no	
Page 4 Staple: yes	
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 <i>Supplement</i> .
JobName	string	()	See Section 3.1 of the <i>Supplement</i> .
JobTimeout	integer	0	See Section 3.1 of the <i>Supplement</i> .
MaxDictStack	integer	530	See Section 3.1 of the <i>Reference Manual</i> .
MaxExecStack	integer	10015	See Section 3.1 of the <i>Reference Manual</i> .
MaxFontItem	integer	12500	See Section 3.1 of the <i>Reference Manual</i> .
MaxFormItem	integer	100000	See Section 3.1 of the <i>Reference Manual</i> .
MaxLocalVM *	integer	80% of RamSize	See Section 3.1 of the <i>Reference Manual</i> .
MaxOpStack	integer	100000	See Section 3.1 of the <i>Reference Manual</i> .
MaxPatternItem	integer	20000	See Section 3.1 of the <i>Reference Manual</i> .
MaxScreenItem	integer	60000	See Section 3.1 of the <i>Reference Manual</i> .
MaxUPathItem	integer	5000	See Section 3.1 of the <i>Reference Manual</i> .
MinFontCompress	integer	1250	See Section 3.1 of the <i>Reference Manual</i> .
VMReclaim	integer	0	See Section 3.1 of the <i>Reference Manual</i> .
VMThreshold	integer	40000	See Section 3.1 of the <i>Reference Manual</i> .
WaitTimeout	integer	40	See Section 3.1 of the <i>Supplement</i> .
* 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 <i>Supplement</i> .
ByteOrder*			
	boolean	false	See Section 3.2 of the <i>Reference Manual</i> .
CurDisplayList**			
	integer	0	See Section 3.2 of the <i>Reference Manual</i> .
CurFontCache**			
	integer	0	See Section 3.2 of the <i>Reference Manual</i> .
CurFormCache**			
	integer	0	See Section 3.2 of the <i>Reference Manual</i> .
CurInputDevice**			
	string	()	See Section 3.2 of the <i>Supplement</i> .
CurOutlineCache**			
	integer	0	See Section 3.2 of the <i>Reference Manual</i> .
CurOutputDevice**			
	string	()	See Section 3.2 of the <i>Supplement</i> .
CurPatternCache**			
	integer	0	See Section 3.2 of the <i>Reference Manual</i> .
CurScreenStorage**			
	integer	0	See Section 3.2 of the <i>Reference Manual</i> .
CurSourceList**			
	integer	0	See Section 3.2 of the <i>Supplement</i> .
CurUPathCache**			
	integer	0	See Section 3.2 of the <i>Reference Manual</i> .
DoPrintErrors§			
	boolean	true	See Section 3.2 of the <i>Supplement</i> .
DoStartPage			
	boolean	false	See Section 3.2 of the <i>Supplement</i> .
FactoryDefaults§			
	boolean	false	See Section 3.2 of the <i>Supplement</i> .
FatalErrorAddress§			
	integer	0	See Section 3.2 of the <i>Supplement</i> .
FontResourceDir			
	string	(fonts/)	See Section 3.2 of the <i>Supplement</i> .

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

StartupMode §			
	integer	1	See Section 3.2 of the <i>Supplement</i> .
SystemParamsPassword §&			
	string or null	null	Value is stored on the HDD. See Section 3.2 of the <i>Supplement</i> .
WaitTimeout §			
	integer	300	See Section 3.2 of the <i>Supplement</i> .
* 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 20937618 for a 256 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	3015.103
* Also defined in statusdict.		

Model Strings

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

String Name	Type	Value
LicenseID	integer	DDP70e: (LN-091-002) DDP92: (LN-091-004)
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 <i>Supplement</i> .
Bus*			
	name	%scsi%	See Section 3.3 of the <i>Supplement</i> .
Free** §			
	integer	disk-dependent	See Section 3.3 of the <i>Supplement</i> .
HasNames*			
	boolean	true	See Section 3.3 of the <i>Supplement</i> .
InitializeAction			
	integer	0	See Section 3.3 of the <i>Supplement</i> .
Interleave*			
	integer	5	See Section 3.3 of the <i>Supplement</i> .
LogicalSize§ **			
	integer	disk-dependent	See Section 3.3 of the <i>Supplement</i> .
Mounted			
	boolean	true	See Section 3.3 of the <i>Supplement</i> .
PhysicalSize** §			
	integer	disk-dependent	See Section 3.3 of the <i>Supplement</i> .
PrepareAction			
	integer	0	See Section 3.3 of the <i>Supplement</i> .
Removable*			
	boolean	false	See Section 3.3 of the <i>Supplement</i> .
Searchable			
	boolean	true	See Section 3.3 of the <i>Supplement</i> .
SearchOrder			
	integer	0	See Section 3.3 of the <i>Supplement</i> .
Type*			
	name	/FileSystem	See Section 3.3 of the <i>Supplement</i> .
Writable			
	boolean	true	See Section 3.3 of the <i>Supplement</i> .
§ 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 <i>Supplement</i> .
CartridgeID *			
	integer	9110	See Section 3.3 of the <i>Supplement</i> .
CartridgeType *			
	integer	4	See Section 3.3 of the <i>Supplement</i> .
Free*			
	integer	0	See Section 3.3 of the <i>Supplement</i> .
HasNames*			
	boolean	true	See Section 3.3 of the <i>Supplement</i> .
InitializeAction			
	integer	0	See Section 3.3 of the <i>Supplement</i> .
LogicalSize *			
	integer	449104	See Section 3.3 of the <i>Supplement</i> .
Mounted			
	boolean	true	See Section 3.3 of the <i>Supplement</i> .
PhysicalSize *			
	integer	449104	See Section 3.3 of the <i>Supplement</i> .
Removable*			
	boolean	false	See Section 3.3 of the <i>Supplement</i> .
Searchable			
	boolean	true	See Section 3.3 of the <i>Supplement</i> .
SearchOrder			
	integer	11	See Section 3.3 of the <i>Supplement</i> .
Type*			
	name	/FileSystem	See Section 3.3 of the <i>Supplement</i> .
Writable*			
	boolean	false	See Section 3.3 of the <i>Supplement</i> .
* 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 <i>Supplement</i> .
Mounted=			
	boolean	true	See Section 3.3 of the <i>Supplement</i> .
Removable=			
	boolean	false	See Section 3.3 of the <i>Supplement</i> .
Searchable=			
	boolean	true	See Section 3.3 of the <i>Supplement</i> .
SearchOrder=			
	integer	10	See Section 3.3 of the <i>Supplement</i> .
Type=			
	name	/FileSystem	See Section 3.3 of the <i>Supplement</i> .
Writable=			
	boolean	false	See Section 3.3 of the <i>Supplement</i> .
= 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 <i>Supplement</i> .
CheckParity=			
	boolean	false	See Section 3.3 of the <i>Supplement</i> .
InitiatorId=			
	integer	6	See Section 3.3 of the <i>Supplement</i> .
Poll=			
	integer	61	See Section 3.3 of the <i>Supplement</i> .
TargetId=			
	integer	1	See Section 3.3 of the <i>Supplement</i> .
Type=			
	name	/Parameters	See Section 3.3 of the <i>Supplement</i> .
= 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-Demitalic 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-BoldObli 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-BoldExtObli Univers-BoldOblique Univers-Condensed Univers-CondensedBold Univers-CondensedBoldOblique Univers-CondensedOblique Univers-Extended Univers-ExtendedObli 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	CIDnritN 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]]
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]]
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 Indexed
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 CompatibleCIDFont ControlLanguage Emulator Encoding Filter FMapType Font FontSet	FontType Form FormType FunctionType Generic Halftone HalftoneType IdiomSet ImageType IODevice OutputDevice Pattern PatternType PDL ProcSet ShadingType
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 28 for 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 a4tray b5tray buildtime byteorder checkpassword defaulttimeouts diskonline diskstatus doprinterrors dostartpage dosysstart duplexmode firstside initializedisk jobname jobtimeout	ledgertray legaltray lettertray manualfeed margins newsheet pagecount pagestackorder printername product realformat resolution revision sccinteractive setdefaulttimeouts setdoprinterrors	setdostartpage setdosysstart setduplexmode setjobtimeout setmargins setpagestackorder setprintername setscinteractive setsoftwareiomode settumble setuserdiskpercent softwareiomode tumble userdiskpercent waittimeout 11x17tray

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

Operators in systemdict		
devdismount devforall	devformat devmount	devstatus

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>

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

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

If you want to print binary data as PostScript job, select “Raw” mode for PostScript I/O Mode.

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	Ignored
^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 ^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.

OG	L	0 1	
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