

PrintServer 17 Series Printer

PostScript Level 2 Programmer's
Supplement

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Preface

Intended Audience

The *PrintServer 17 Series Printer PostScript Level 2 Programmer's Supplement* provides PostScript Level 2 information for application or PostScript programmers who are using the following PrintServer 17 Series printers:

Model Name	Resolution (dpi)
PrintServer 17	300 x 300
PrintServer 17/600	600 x 600, 400 x 400

Refer to this document first for information about the PostScript language interpreter when working with these PrintServer 17 series printers.

Associated Documents

The following documents provide general PostScript language information:

Digital PostScript Printers Programmer's Supplement, AA-HL84G-TE.
PostScript Language Reference Manual Supplement for Version 2013 by Adobe Systems Incorporated, March 31, 1993; available through the Adobe Systems Developer Support organization (see address in the next section).
PostScript Language Reference Manual, Second Edition by Adobe Systems Incorporated, ISBN 0-201-18127-4; available in bookstores.

PostScript Support

Adobe Systems Incorporated offers additional technical documentation and support through the Adobe Systems Developers' Association. As a member, you receive regular mailings of technical papers, telephone support, and discounts on PostScript hardware and software products. To join, write, call, or FAX Adobe at the following:

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1

PostScript Parameters and Resources

This chapter lists the setup operators for page description, page device, user, system, and other parameters for PrintServer 17 series printers.

1.1 Passwords

The **SystemParamsPassword** and the **StartJobPassword** for PrintServer printers are stored on the supporting host. They can not be changed by way of PostScript. For information about modifying the PostScript passwords, see the config file discussion in the PrintServer management guide for your platform.

1.2 Page Device Parameters

Page device parameters set the state for each PostScript page. They can be modified with the **setpagedevice** operator and examined with the **currentpagedevice** operator.

Modifications to these parameters made outside the server loop (an unencapsulated job) are persistent across jobs. Parameters that are persistent across power cycles are identified in Table 1–1. The supporting host default files may modify these parameters as part of the boot process.

```
<</Parameter value>> setpagedevice
```

Table 1–1 lists the page device parameters and their default values.

Table 1–1 Page Device Parameters

Parameter	Default	Type	Valid Values
BeginPage	{pop}	procedure	any PostScript language procedure

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Table 1–1 (Cont.) Page Device Parameters

Parameter	Default	Type	Valid Values
Duplex ¹	false	Boolean	true—pages printed duplex false—pages printed simplex
EndPage	{exch pop 2 ne}	procedure	any PostScript language procedure
ExitJamRecovery	true	Boolean	true—pages jammed after being imaged are reprinted false—pages jammed after being imaged are not reprinted
HWResolution ¹	[300 300] ² [600 600] ³	array	[300 300] ² [600 600] ³ [400 400] ³
ImagingBBox	null	array or null	4-element array of integers or null
InputAttributes	Section 1.2.1	dictionary	PostScript language dictionary
Install	Section 2.1.3	procedure	any PostScript language procedure
Jog ¹	0	integer	0—Jog disabled ⁴ 1—Jog at device deactivation 2—Jog at end of job 3—Jog at end of each set
ManualFeed ¹	false	Boolean	true—media is drawn from manual feed position

¹Persistent across power cycles.

²Pertains to the PrintServer 17.

³Pertains to the PrintServer 17/600.

⁴The relationship between the page device parameter **/Jog** and offset stacking is described in Section 1.2.2.1.

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Table 1–1 (Cont.) Page Device Parameters

Parameter	Default	Type	Valid Values
ManualFeedTimeout ¹	1350	integer	false—media is fed through one of the input trays non-negative integer, 0 disables timeout
Margins ¹	[0 0]	array	any 2-element array of integers within hardware limits measured in device pixels
MediaColor	null	string	string or null
MediaType	null	string	string or null
MediaWeight ⁵	null	number	number or null
NumCopies	null	integer	non-negative integer or null
OutputAttributes	Section 1.2.2	dictionary	PostScript language dictionary
OutputPage	true	Boolean	true—normal processing and printing false—processing is done but no paper is printed
OutputType	(Top)	string	any string or null, (Side) indicates face-up tray
PageSize	[size of the tray in the bottom slot]	array	any two element array of integers
Policies	Section 1.2.3	dictionary	PostScript language dictionary
TraySwitch ¹	true	Boolean	true—automatic input tray failover enabled false—disabled

¹Persistent across power cycles.

⁵MediaWeight will select the media within an allowance of plus or minus 2%. If two trays have defined media weights within this tolerance, **/Policies** dictionary is invoked.

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Table 1–1 (Cont.) Page Device Parameters

Parameter	Default	Type	Valid Values
Tumble ¹	false	Boolean	true–duplex pages are imaged for short edge binding false–duplex pages are imaged for long edge binding

¹Persistent across power cycles.

1.2.1 Input Attributes

The page device parameter set includes the **InputAttributes** dictionary that describes the PrintServer 17 series input sources. The base PrintServer 17 comes with two input slots through which media can be fed manually or from a tagged cassette tray inserted into the slot. The **InputAttributes** dictionary for the base configuration is as follows:

```
<< 0 <</PageSize [ value of inserted tray ]>>
  1 <</PageSize [ value of inserted tray ]>>
  2 null
  /Priority [0 1 2]
>>
```

Where:

- 0 is the lower tray slot
- 1 is the upper tray slot
- 2 is reserved for the envelope feeder

The **/Priority** array indicates the lower tray is selected when all other attributes match.

An envelope feeder is available as an optional input source and feeds media through a third input slot. When the envelope feeder is installed, the **InputAttributes** dictionary is as follows:

```
<< 0 <</PageSize [ value of inserted tray ]>>
  1 <</PageSize [ value of inserted tray ]>>
  2 <</PageSize [ default envelope size ]>>
  /Priority [1]
>>
```

Where:

- 0 is the lower tray.
- 1 is the upper tray.
- 2 is the envelope feeder.

1.2.2 Output Attributes

The page device parameter set includes **OutputAttributes** dictionary that describes the PrintServer 17 output locations. The base PrintServer 17 comes with two output trays.

Table 1–2 Output Trays Available

Output Tray Location	Media is Delivered . . .
Top of the printer	Face down
Opposite the input sources	Face up

The **OutputAttributes** dictionary for the base configuration is as follows:

```
<< 0 <</OutputType /(Top) >>
    1 <</OutputType /(Side) >>
    /Priority [0]
>>
```

Where:

0 is the top face down output tray.

1 is the side face up tray.

1.2.2.1 Output Positioning

PostScript Level 2 provides for printer controlled offset stacking of output to those trays that have more than one position in the tray.

The PrintServer 17 series printers' top output tray supports two positions. The page device parameter is **/Jog**.

When **/Jog** is disabled (set to 0), the PrintServer 17 series printers support the following PostScript Level 1 compatibility operators that perform offset stacking:

- maxoutposition
- outputposition
- setoutputposition
- outputpositioning
- setoutputpositioning
- defaultoutputpositioning
- setdefaultoutputpositioning

Refer to *Digital PostScript Printers Programmer's Supplement*, AA–HL84G–TE, for descriptions of these compatibility operators.

1.2.3 Policies

The **Policies** dictionary describes what happens when a request to the page device can not be satisfied. The **Policies** dictionary is described in the *PostScript Language Reference Manual*. Additional information about the PageSize policies can be found in the *PostScript Language Supplement for Version 2013* (Policy 7). The PrintServer 17 series policy defaults are listed in Table 1–3.

Table 1–3 Policies Parameters

Key	Initial Value
PolicyNotFound	1 - Ignore the request
Duplex	1 - Ignore the request
PageSize	1 - Ignore the request
Tumble	1 - Ignore the request
OutputDevice	0 - Generate a configurationerror
OutputType	0 - Generate a configurationerror
PolicyReport	{pop}

1.3 User Parameters

User parameters maintain the initial PostScript state for an encapsulated job. They can be modified with the **setuserparams** operator and examined with the **currentuserparams** operator.

```
<</Parameter value>> setuserparams
```

Modifications to these parameters made in an unencapsulated job are persistent across jobs.

Table 1–4 lists the user parameters for the PrintServer 17 series printer.

Table 1–4 User Parameters

Parameter	Default	Type	Valid Values
AccurateScreens	false	Boolean	false—do not use the accurate screen algorithm true—use the accurate screen algorithm
JobName	()	string	any string in the ASCII printable range
JobTimeout¹	from system parameters ²	integer	≥ 0

¹Not subject to **save** and **restore**.

²Default value taken from the system parameter of the same name. See Section 1.4.

(continued on next page)

Table 1–4 (Cont.) User Parameters

Parameter	Default	Type	Valid Values
MaxDictStack	530	integer	≥ 0
MaxExecStack	10015	integer	≥ 0
MaxFontItem	12500	integer	≥ 0
MaxFormItem	100000	integer	≥ 0
MaxLocalVM	2147483647	integer	$\geq Min \leq Max^3$
MaxOpStack	100000	integer	≥ 0
MaxPatternItem	20000	integer	≥ 0
MaxScreenItem	48000	integer	≥ 0
MaxUPathItem	5000	integer	≥ 0
MinFontCompress	1250	integer	≥ 0
VMReclaim	0	integer	0–garbage collection enabled -1–garbage collection disabled for local VM -2–garbage collection disabled for local and global VM
VMThreshold	40000	integer	≥ 0
WaitTimeout	from system parameters ²	integer	<i>read-only</i>

²Default value taken from the system parameter of the same name. See Section 1.4.

³The *Min* value is an integer of value equal to the current local VM. The *Max* is an integer of value equal to the largest possible integer, which is 2147483647. If a value is requested that is less than the amount currently in use, the value will be set to the amount currently in use.

1.4 System Parameters

System parameters effect and reflect the overall configuration of the printer. They can be examined with the **currentsystemparams** operator. These parameters can only be modified with the use of the **SystemParamsPassword** with the **setsystemparams** operator. Changes are persistent across jobs. Changes persistent across power cycles are marked.

```
<</SystemParamsPassword (password)
 /PrinterName (name)>> setsystemparams
```

Table 1–5 lists the system parameters and their initial values.

Table 1–5 System Parameters

Parameter	Default	Type	Valid Values
BuildTime	development dependent	integer	<i>read-only</i>
ByteOrder	false	Boolean	<i>read-only</i>
CurDisplayList	0 ¹	integer	<i>read-only</i>
CurFontCache	0 ¹	integer	<i>read-only</i>
CurFormCache	0 ¹	integer	<i>read-only</i>
CurOutlineCache	0 ¹	integer	<i>read-only</i>
CurPatternCache	0 ¹	integer	<i>read-only</i>
CurScreenStorage	0 ¹	integer	<i>read-only</i>
CurSourceList	0 ¹	integer	<i>read-only</i>
CurUPathCache	0 ¹	integer	<i>read-only</i>
FactoryDefaults	false	Boolean	false—uses values stored in permanent memory for defaults true—uses the factory default values for defaults
FatalErrorAddress	0 ²	integer	<i>read-only</i>
FontResourceDir	()	string	any string without nulls
GenericResourceDir	(Resource/)	string	any string without nulls
GenericResourcePathSep	(/)	string	any string without nulls

¹Initialization of PostScript during the boot process consumes cache and storage. The default values will reflect that consumption.

²A non-zero value indicates the PostScript interpreter had a software error before the last reboot.

(continued on next page)

Table 1–5 (Cont.) System Parameters

Parameter	Default	Type	Valid Values
JobTimeout ³	0	nonnegative integer	≥ 15 (in secs) or 0 (disables timeout)
LicenseID	LN-015-003	string	<i>read-only</i>
MaxDisplayList	≈1,000,000	integer	≥ 0
MaxFontCache	32000000	integer	≥ 0
MaxFormCache	100000	integer	≥ 0
MaxImageBuffer	65536	integer	≥ 0
MaxOutlineCache	65536	integer	≥ 0
MaxPatternCache	100000	integer	≥ 0
MaxScreenStorage	400000	integer	≥ 0
MaxSourceList	≈1,000,000	integer	≥ 0
MaxUPathCache	300000	integer	≥ 0
PageCount ³	current number of pages imaged	integer	<i>read-only</i>
PrinterName ³	(PrintServer 17)	string	any string up to 32 non-null characters
RamSize	current value	integer	<i>read-only</i>
RealFormat	(VAX)	string	<i>read-only</i>
Revision	returns systemdict value	string	<i>read-only</i>
StartJobPassword ³	(LPS)	string	any string up to 32 non-null characters ⁴
SystemParamsPassword ³	(LPS)	string	any string up to 32 non-null characters ⁴
WaitTimeout	0	integer	0–disabled <i>read only</i>

³Persistent across power cycles.

⁴The **SystemParamsPassword** and **StartJobPassword** values are not returned by the **currentsystemparams** operator.

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Table 1–5 (Cont.) System Parameters

Parameter	Default	Type	Valid Values
<u>Parameters Specific to PrintServer Printers</u>			
SheetCount ³	current number of sheets delivered	integer	<i>read-only</i>
<u>Parameters Used for DECimage Control⁶</u>			
InstallSpecialImageActive ³	false	Boolean	false– DECimage enhancement disabled true– DECimage enhancement enabled
InstallPunch0 ³	0.0	real	any real number
InstallPunch1 ³	1.0	real	any real number
InstallSharp ³	1.5	real	any real number ≥ -1 ⁵
InstallDotSize ³	1	integer	≥ 1

³Persistent across power cycles.

⁵No sharpening is done with a value of 1.0. Recommended values are in the range -1.0 to +4.0. Values less than -1.0 are not detectable.

⁶See Chapter 2 for more information on controlling DECimage.

1.5 Parameters for %LaserJetIII% Emulator

The PrintServer 17 series printers support printer emulation of PCL5. The %LaserJetIII% emulator parameter set specifies the initial state of each PCL5 job. These parameters can be modified only by a privileged PostScript job. Changes are persistent across jobs.

```
<</LineWrap false /Password (password)>>
(%LaserJetIII%) setdevparams
```

Table 1–6 lists the parameters for the LaserJetIII emulator.

Table 1–6 Parameters for %LaserJetIII% Emulator

Parameter	Default	Type	Valid Values
Copies	1	integer	≥ 0
Duplex	0	integer	0–simplex 1–long-edge binding duplex 2–short-edge binding duplex (tumble)
FontFixed	true	Boolean	true–fixed pitch font requested false–proportional spaced font requested
FontHeight	1200	integer	the height of the font in point size multiplied by 100.
FontItalic	false	Boolean	true–italic or oblique font requested false–regular font requested
FontNumber	1	integer	see font sample pages for valid values.
FontPitch	1000	integer	the number of characters per inch for monospaced scalable fonts multiplied by 100
FontSource	0	integer	0–internal font source 1–downloaded font -1–obsolete font selection method
FontSymbolSet	277	integer	≥ 0
FontTypeface	3	integer	≥ 0
FontWeight	0	integer	$\geq -7 \leq 7$
Landscape	false	Boolean	true–default orientation is landscape

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Table 1–6 (Cont.) Parameters for %LaserJetIII% Emulator

Parameter	Default	Type	Valid Values
LineWrap	true	Boolean	false—default orientation is portrait true—long lines wrap to the next line false—long lines are truncated
MaxLJMemory	3,000,000	integer	amount of memory (in bytes) that can be used by PCL, if available.
PageSize	-1	integer	-1—draws from default slot 1—draws from executive tray 2—draws from letter tray 3—draws from legal tray 26—draws from a4 tray 80—draws from envelope feeder with 3.875x7.5 inch (Monarch) imageable area 81—draws from envelope feeder with 4.125x9.5 inch (#10business) imageable area 90—draws from envelope feeder with dl imageable area 91—draws from envelope feeder with c5 imageable area
TopMargin	3600	integer	white space at top in 1/7200 units
Type	(Emulator)	string	(Emulator)
VMI	1200	integer	space between lines of text in 1/7200 units
WaitTimeout	0	integer	0—disabled, <i>read only</i>

1.5.1 Generating Font Sample Pages

To generate font sample pages, create a PostScript job containing the following code fragment:

```
/LaserJetIII /ProcSet findresource /FontReport get exec
```

1.6 Resources

Tables 1–7 through 1–9 list the following types of resources:

- Regular resource categories are identified by name
- Implicit resource categories are those whose instances are implicit
- Resources used in defining new resource categories

Table 1–7 Regular Resources

Category Name	Instances
ColorRendering	/DefaultColorRendering
ColorSpace	None
Encoding	/ISOLatin1Encoding /StandardEncoding
Font	AvantGarde-Book AvantGarde-BookOblique AvantGarde-Demi AvantGarde-DemiOblique Bookman-Demi Bookman-DemiItalic Bookman-Light Bookman-LightItalic Courier ¹ Courier-Oblique Courier-Bold Courier-BoldOblique Helvetica Helvetica-Bold Helvetica-Oblique Helvetica-BoldOblique Helvetica-Narrow Helvetica-Narrow-Bold

¹The resident Courier font is an outline font.

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Table 1–7 (Cont.) Regular Resources

Category Name	Instances
	Helvetica-Narrow-Oblique
	Helvetica-Narrow-BoldOblique
	LubalinGraph-Book
	LubalinGraph-BookOblique
	LubalinGraph-Demi
	LubalinGraph-DemiOblique
	NewCenturySchlbk-Roman
	NewCenturySchlbk-Bold
	NewCenturySchlbk-Italic
	NewCenturySchlbk-BoldItalic
	Palatino-Roman
	Palatino-Bold
	Palatino-Italic
	Palatino-BoldItalic
	Souvenir-Demi
	Souvenir-DemiItalic
	Souvenir-Light
	Souvenir-LightItalic
	Symbol
	Times-Roman
	Times-Bold
	Times-Italic
	Times-BoldItalic
	ZapfChancery-MediumItalic
	ZapfDingbats
Form	None
Halftone	/DefaultHalftone
	/DThresholdArray
OutputDevice	Default

(continued on next page)

Table 1–7 (Cont.) Regular Resources

Category Name	Instances
Pattern	None

Table 1–8 Implicit Resources

Category Name	Instances	Instances
ColorRenderingType	1	
ColorSpaceFamily	/CIEBasedA	/CIEBasedABC
	/DeviceCMYK	/DeviceGray
	/DeviceRGB	/Indexed
	/Pattern	/Separation
Emulator	/LaserJetIII	
Filter	/ASCII85Decode	/ASCII85Encode
	/ASCIIHexDecode	/ASCIIHexEncode
	/CCITTFaxDecode	/CCITTFaxEncode
	/DCTDecode	/DCTEncode
	/LZWDecode	/LZWEncode
	/NullEncode	/RunLengthEncode
	/RunLengthDecode	/SubFileDecode
FMapType	2, 3, 4, 5, 6, 7, 8	
FontType	0, 1, 3, 4, 5, 6, 7, 42	
FormType	1	
HalftoneType	1, 2, 3, 4, 5, 6, 7	
ImageType	1	
IODevice	()	
PatternType	1	

Table 1–9 Resources Used to Define New Resource Categories

Category Name	Instances	Instances
Category	<i>/Category</i>	
	<i>/ColorRendering</i>	<i>/ColorRenderingType</i>
	<i>/ColorSpace</i>	<i>/ColorSpaceFamily</i>
	<i>/Emulator</i>	<i>/Encoding</i>
	<i>/Filter</i>	<i>/FMapType</i>
	<i>/Filter</i>	<i>/FMapType</i>
	<i>/Font</i>	<i>/FontType</i>
	<i>/Form</i>	<i>/FormType</i>
	<i>/Generic</i>	
	<i>/Halftone</i>	<i>/HalftoneType</i>
	<i>/ImageType</i>	<i>/IODevice</i>
	<i>/Pattern</i>	<i>/PatternType</i>
	<i>/ProcSet</i>	

2

DECimage Plus Parameters and Operators

2.1 Type 7 Halftone Parameters

The parameters used by the PrintServer 17 series PostScript interpreter for the DECimage Plus enhancement feature are stored in a special Type 7 halftone dictionary. Table 2–1 summarizes the halftone dictionary parameters.

Table 2–1 Type 7 Halftone Dictionary Parameters

Parameter	Default Value	Type	Valid Values
DotSize	1	integer	any integer ≥ 1
HalftoneType	7	integer	7
OrigHalftone	See Section 2.1.1	dictionary	halftone dictionary of type 1, 2, 3, 4, or 5
OtherHalftone	See Section 2.1.1	dictionary	halftone dictionary of type 1, 2, 3, 4, or 5
Punch	[0.0 1.0]	array	any array of real numbers
Sharp	1.5	real	any real number
SpecialImageActive	false	Boolean	true, false

2.1.1 Description

The type 7 halftone parameters are described as follows:

- **DotSize** specifies the size of the device dot to be used. This value has no affect, is not used, and renders the image with a value of 1. This is an optional parameter.
- **HalftoneType** must be 7. This is a required parameter.

- **OrigHalftone** is the halftone dictionary that was in place before DECimage Plus was invoked. When DECimage Plus is turned off, **OrigHalftone** is made the current halftone. This is a required parameter.
- **OtherHalftone** is the halftone dictionary used by the DECimage Plus sharpener on an image. This is a required parameter. The DECimage Plus halftone dictionary is proprietary.
- **Punch** contains the values of punch0 and punch1. It is an optional parameter. The default value of [0.0 1.0] applies a linear transfer function to the image.
- **Sharp** defines how much sharpening is applied to the image. It is an optional parameter. A value of 0 applies no sharpening. A value less than -1 has no meaning and will produce a **rangecheck** error.
- **SpecialImageActive** determines whether to apply DECimage Plus enhancement to the image. This parameter is required.

2.1.2 DIThreshArray Halftone Parameters

The type 7 halftone dictionary applies a special DECimage Plus type 3 halftone resource. A different **DIThreshArray** is used for each different hardware resolution indicated by the **/HWResolution** page device parameter. Table 2–2 lists **DIThreshArray** halftone parameters.

Table 2–2 DIThreshArray—Type 3 Halftone Parameters for DECimage Plus

Parameter	Default	Type	Valid Values
HalftoneType	3	integer	3
Width	128	integer	128
Height	128	integer	128
Thresholds	<i>This parameter is proprietary and copyrighted.</i>	string	a string of threshold values
TransferFunction	<i>This parameter is DECimage Plus specific and should not be modified.</i>	procedure	a PostScript language procedure
ThresholdCopyright	© Digital Equipment Corporation 1993. All rights reserved. Unpublished - rights reserved under applicable copyright laws.	string	Digital copyright notice

2.1.3 Default Install Procedure

The default **Install** procedure in the page device dictionary contains the following code to set the halftone, as well as other graphics setup. This procedure is executed whenever **setpagedevice** is executed.

```
currentsystemparams begin
InstallSpecialImageActive
{ << /HalftoneType 7
  /SpecialImageActive InstallSpecialImageActive
  /OtherHalftone
  [/DIThreshArray300 /DIThreshArray400 /DIThreshArray600]
  currentpagedevice /HWResolution get
  0 get 100 div cvi 2 sub -1 bitshift get
  /Halftone findresource
  /OrigHalfTone
  [/Halftone300 /Halftone400 /Halftone600]
  currentpagedevice /HWResolution get
  0 get 100 div cvi 2 sub -1 bitshift get
  /Halftone findresource
  /Punch [InstallPunch0 InstallPunch1]
  /Sharp InstallSharp
  >>
} {
[/Halftone 300 /Halftone400 /Halftone600]
  currentpagedevice /HWResolution get
  0 get 100 div cvi 2 sub -1 bitshift get
  /Halftone findresource
} ifelse sethalftone
end
```

The PrintServer 17 will be set-up with a type 7 halftone by default. Whether or not DECimage Plus is turned on is dependent on the value of the system parameter **InstallSpecialImageActive**.

2.2 Invoking DECimage Plus from a PostScript Program

Digital provides extensions to PostScript for managing and invoking DECimage Plus. You can invoke DECimage Plus image enhancement for one job or for all subsequent jobs. The following sections explain how to invoke DECimage Plus and set DECimage Plus parameters using the DECimage Plus **statusdict** operators.

The DECimage Plus operators execute the PostScript level 2 procedures required for setup and execution of DECimage Plus image enhancement.

2.2.1 Invoking DECimage Plus for the Current Job

To invoke DECimage Plus for the current job, use the **setDECimage** operator.

```
boolean setDECimage -
```

When the value of the boolean is true, the type 7 halftone dictionary parameter **SpecialImageActive** is also set to true. The **Punch**, **Sharp**, and **DotSize** parameters are also loaded with the values of the **InstallPunch0**, **InstallPunch1**, **InstallSharp**, and **InstallDotSize** system parameters, unless they have been previously set by the **setDECimageparams** operator.

The **DECimage Plus** operator returns a boolean value reflecting whether subsequent images will be rendered with DECimage Plus image enhancement.

```
- DECimage Plus boolean
```

To set the DECimage Plus system parameters for the current PostScript job, use the **setDECimageparams** operator.

```
punch0 punch1 sharp dotsize setDECimageparams -
```

The **DECimageparams** operator returns the values of the parameters that DECimage Plus is using for the current job.

```
- DECimageparams punch0 punch1 sharp dotsize
```

2.2.2 Invoking DECimage Plus Persistently

To invoke DECimage Plus for subsequent PostScript jobs, use the **setdefaultDECimage** operator.

```
boolean setdefaultDECimage -
```

This privileged operator can only be executed in an unencapsulated job. When the value of the boolean is true, the system parameter **InstallSpecialImageActive** is set to true. This allows subsequent images to be enhanced with DECimage Plus.

The **defaultDECimage** operator returns the boolean value of **InstallSpecialImageActive**.

```
- defaultDECimage boolean
```

To set the default values of the DECimage Plus parameters for subsequent jobs, use the **setdefaultDECimageparams** operator.

```
punch0 punch1 sharp dotsize setdefaultDECimageparams -
```

This operator sets the default values of the **InstallPunch0**, **InstallPunch1**, **InstallSharp**, and **InstallDotSize** system parameters. This operator is privileged and can only be executed in an unencapsulated job.

The **defaultDECimageparams** operator returns the values of the parameters that DECimage Plus is using for subsequent PostScript jobs.

```
- defaultDECimageparams punch0 punch1 sharp dotsize
```

3

PostScript Level 2 Compatibility Operators

All Level 2 compatibility operators are implemented by way of PostScript Level 2 procedures. This causes some Level 2 operators to return different error messages from their Level 1 counterparts. Always check the range and type of operands used with compatibility operators carefully.

Table 3–1 lists the standard and Digital-specific **statusdict** and **userdict** operators.

Compatibility Operators

It is recommended that you reference the following books for explanations of the operators listed in Table 3–1:

Digital PostScript Printers Programmer's Supplement, AA–HL84G–TE

PostScript Language Reference Manual Supplement for Version 2013 by Adobe Systems Incorporated, March 31, 1993; available through the Adobe Systems Developer Support organization.

PostScript Language Reference Manual, Second Edition by Adobe Systems Incorporated, ISBN 0-201-18127-4; available in bookstores.

Note

Be aware that the effect of these operators may vary (especially in reporting error messages) from PrintServer 17 PostScript Level 1 implementation.

Table 3–1 lists PostScript extension operators supported by the PrintServer 17 series printers.

Note

Non-operational operators remove or place the correct number of elements on the stack, but no error checking is performed and no action is taken by executing the operator.

Table 3–1 PostScript Extension Operators on the PrintServer 17 Series Printers

Operator	Explanation
3.875x7.5	In userdict. Imposes a coordinate space for 3.875 inch x 7.5 inch in paper.
3.875x7.5tray	Selects the envelope feeder and imposes a coordinate space for 3.875 x 7.5 inch envelopes.
4.125x9.5	In userdict. Imposes a coordinate space for 4.125 inch x 9.5 inch in paper.

(continued on next page)

Table 3–1 (Cont.) PostScript Extension Operators on the PrintServer 17 Series Printers

Operator	Explanation
4.125x9.5tray	Selects the envelope feeder and imposes a coordinate space for 4.125 x 9.5 inch envelopes.
7x9	In userdict. Imposes a coordinate space for 7.0 inch x 9.0 inch in paper.
a4	In userdict. Imposes a coordinate space for A4-size media (210 mm x 297 mm).
a4small	In userdict. Imposes a reduced coordinate space for A4-size media (191 mm x 275 mm).
a4tray	Selects A4 paper tray and installs the A4 coordinate space.
a5	In userdict. Imposes a coordinate space for A5-size media (148 mm x 210 mm).
b5	In userdict. Imposes a coordinate space for B5-size media (182 mm x 257 mm).
b6	In userdict. Imposes a coordinate space for B6-size media (128 mm x 182 mm).
buildtime	Time stamp identifying a specific build of the PostScript interpreter.
byteorder	Native order of multiple-byte numbers in binary encoded tokens; <i>false</i> indicates high-order byte first; <i>true</i> indicates low-order byte first.
c5	In userdict. Imposes a coordinate space for C5-size media (162 mm x 229 mm).
c5envelope²	In userdict. Imposes a coordinate space for C5-size media (162 mm x 229 mm).
checkconfiguration	Checks the current hardware configuration and returns errors, if any. Always returns true.
checkpassword	Determines if a value is equal to the system password.
com10envelope²	In userdict. Imposes a coordinate space for 4.125 inch x 9.5 inch media.
DECimage	Returns the status of DECimage Plus for a given job.

²Included for compatibility with HP 4Si.

(continued on next page)

Table 3–1 (Cont.) PostScript Extension Operators on the PrintServer 17 Series Printers

Operator	Explanation
DECimageparams	Returns the DECimage Plus parameters for a given job.
defaultDECimage	Returns the printer's default DECimage Plus status.
defaultDECimageparams	Returns the printer's default DECimage Plus parameters.
defaultduplexmode	Returns the printer's default value of physical duplex mode.
defaultenvelopefeedsiz	Returns the default envelope size and orientation set by setdefaultenvelopefeedsiz .
defaultjobtimeout	Returns the default value for job timeout.
defaultmansize	In userdict. Returns the default page size and orientation set by setdefaultmansize .
defaultoutputpositioning	Indicates if the output positioning is enabled by default.
defaultoutputtray	Returns the current default output tray.
defaultpagetimeout	Returns the default value for page timeout.
defaultpapertray	Returns the value of the input tray that will be the default for subsequent jobs.
defaulttimeouts	Returns the value of the job, manualfeed, and wait timeouts set by the setdefaulttimeouts operator.
defaulttumble	Returns the default value for tumble mode.
dl	In userdict. Imposes a coordinate space for DL-size (C5/6) (110 mm x 220 mm) envelopes.
dlenvelope²	In userdict. Imposes a coordinate space for DL-size (C5/6) (110 mm x 220 mm) envelopes.
dltray	Selects the envelope feeder and imposes a coordinate space for DL-size (C5/6) (110 mm x 220 mm) envelopes.
doautocontinue²	Non-operational on PostScript Level 2; always returns true.
doidlefonts	Non-operational on PostScript Level 2.
dojamrecovery²	Specifies whether complete jam recovery is enabled, as set with the setdojamrecovery operator.

²Included for compatibility with HP 4Si.

(continued on next page)

Table 3–1 (Cont.) PostScript Extension Operators on the PrintServer 17 Series Printers

Operator	Explanation
doret²	Non-operational on PostScript Level 2; always returns true.
duplexmode	Returns the current setting of the physical duplex mode for the current job.
emulate	Causes the PostScript interpreter to yield control and the PCL5 emulator to start processing.
envelopetray	Selects the envelope feeder. The printer uses the default envelope feed size and orientation for envelopes fed from the envelope feeder.
executivepage	In userdict. Imposes a coordinate space for executive-size paper (7.25 inch or 7.5 inch x 10.5 inch).
executivetray	Selects the executive tray and installs the coordinate space for executive-size paper.
feedenvelopes	Returns <i>true</i> if the envelope feeder is installed.
firstside	Takes no argument. Returns a Boolean value indicating on which physical side of a sheet the current page will print. For simplex jobs, always returns true.
halfletter	In userdict. Imposes a coordinate space suitable for half-letter-size (5.5 inch x 8.5 inch) paper.
idlefonts	Returns information about the fonts to be scan-converted during idle time. Non-operational on PostScript Level 2.
jobname	Specifies the name of current job.
jobtimeout	Returns the number of seconds remaining before the job timeout occurs.
legal	In userdict. Imposes a coordinate space for legal-size paper (8.5 inch x 14.0 inch).
legalsmall	In userdict. Imposes a reduced coordinate space for legal-size media.
legaltray	Selects the legal tray and installs the coordinate space for legal-size paper.
letter	In userdict. Imposes a coordinate space for letter-size paper (8.5 inch x 11.0 inch).

²Included for compatibility with HP 4Si.

(continued on next page)

Table 3–1 (Cont.) PostScript Extension Operators on the PrintServer 17 Series Printers

Operator	Explanation
lettersmall	In userdict. Imposes a reduced coordinate space for letter-size paper.
lettertray	Selects the letter tray and installs letter-size coordinate space.
manualfeed	Controls whether the paper is fed manually or from a paper tray.
manualfeedtimeout	Returns the manual feed timeout currently in effect. A value of 0 means that the job will wait indefinitely for a page to be fed.
margins	Returns the two margin adjustment parameters set by the setmargins operator.
maxoutputposition	Returns the maximum output position value of the current output tray: 1 if tray supports jogging; 0 if tray does not support jogging.
monarcenvelope ²	In userdict. Imposes a coordinate space for Monarch-sized media (3.46 in. x 7.3 in.)
newsheet	Declares the current page as the logical first side of the sheet.
note	In userdict. Imposes lettersmall , legalsmall , or a4small coordinate spaces if a letter-size, legal-size, or A4-size media is selected for input.
outputposition	Returns the current output position (0 or 1) for the current output tray.
outputpositioning	Returns a value indicating whether output positioning is enabled.
outputtray	Returns the current output tray: 1 if face down (top); 2 if face up (side).
pagecount	Returns the current number of pages printed. Page is defined as one side of a sheet of paper. This value is saved in nonvolatile memory. Also, this value may not match the page count that appears on the PrintServer 17 window at power-up. For more information, refer to the <i>PrintServer 17 Printer Operator's Guide</i> .

²Included for compatibility with HP 4Si.

(continued on next page)

Table 3–1 (Cont.) PostScript Extension Operators on the PrintServer 17 Series Printers

Operator	Explanation
pagestackorder	Determines if the output pages are stacked face down (top output tray) or face up (side output tray). A Boolean value of true indicates face down stacking. A Boolean value of false indicates face up stacking.
pagetimeout	Returns the number of seconds remaining before the current page times out.
papersize	Returns a name object that describes the currently selected paper size. It also returns a Boolean value that indicates that the paper is loaded short edge first (true).
papertray	Returns a value that indicates which slot has been selected for the current input tray.
printername	Returns the printer name as a string.
product	Returns the product name: (PrintServer 17).
ramsize	Returns the number of bytes of RAM in the printer.
realformat	Native representation for real numbers in binary encoded tokens. This is either IEEE or the name of some specific machine architecture.
realtime	Returns the value of a clock that counts in realtime. The resolution of the clock is in 10 msec increments.
resolution	Returns the first component of the HWResolution array for the current output device.
returnstatus	Communicates status information back to the print symbiont (Digital-use only).
revision	Returns the revision level of the interpreter as an integer.
setDECimage	Enables DECimage Plus for a given job.
setDECimageparams	Sets the DECimage Plus parameters for a given job.
setdefaultDECimage¹	Enables DECimage Plus as the printer's default image-printing mode. Must be outside the server loop. Requires the use of SystemParamsPassword .

¹A password is required. Also, this operator will persist across power-cycle only if included in the defaults file. If added to the defaults file, it is necessary to issue the reconfigure command at the remote console. For more information, refer to the PrintServer management guide for your platform.

(continued on next page)

Table 3–1 (Cont.) PostScript Extension Operators on the PrintServer 17 Series Printers

Operator	Explanation
setdefaultDECimageparams¹	Sets the printer's image default DECimage parameters. Must be outside the server loop. Requires the use of SystemParamsPassword .
setdefaultduplexmode¹	Sets the printer's default physical duplex mode. Requires the use of StartJob password.
setdefaultenvelopefeedsizes¹	Specifies the default page size and paper orientation used for envelopes from an envelope feeder. Only a privileged job can execute this operator. Requires the use of SystemParamsPassword .
setdefaultjobtimeout¹	Sets the default timeout limit for jobs. A default value of 0 disables jobtimeout , and the default should be 0 or greater than 15. Must be outside the server loop. Requires the use of StartJob password.
setdefaultmansize	Sets the default imageable area for manually fed media. Requires the use of SystemParamsPassword .
setdefaultoutputpositioning¹	Enables or disables default output positioning. Requires the use of SystemParamsPassword .
setdefaultoutputtray¹	Sets the default output tray value. Requires the use of StartJob password.
setdefaultpagetimeout¹	Sets the default page timeout limit. A default value of 0 disables pagetimeout , and the default should be 0 or greater than 15. Must be outside the server loop. Requires the use of SystemParamsPassword .
setdefaultpapertray¹	Sets the slot to be used as the default input tray. Must be outside the server loop. Requires the use of StartJob password.
setdefaulttimeouts	Sets the default values for job, manual feed, and wait timeouts. Requires use of SystemParamsPassword
setdefaulttrayswitch	Sets the default value of trayswitch . Requires the use of StartJob password.
setdefaulttumble¹	Sets the printer's default value for tumble mode. Requires the use of StartJob password.

¹A password is required. Also, this operator will persist across power-cycle only if included in the defaults file. If added to the defaults file, it is necessary to issue the reconfigure command at the remote console. For more information, refer to the PrintServer management guide for your platform.

(continued on next page)

Table 3–1 (Cont.) PostScript Extension Operators on the PrintServer 17 Series Printers

Operator	Explanation
setdoautocontinue ²	Non-operational in PostScript Level 2.
setdoidlefonts	Non-operational in PostScript Level 2.
setdojamrecovery ²	Jam recovery enables the printer to reprint pages that have been damaged by a paper jam. Jam recovery keeps the image of the page in memory until the page completes printing. Jam recovery may affect throughput on certain printers.
setdoret ²	Non-operational in PostScript level 2.
setduplexmode	Sets the printer's physical duplex mode. Subject to save and restore .
setidlefonts	Selects the fonts to be scan-converted during idle time. Must be outside the server loop.
setjobtimeout	Sets the timeout period for the current job.
setmargins ¹	Sets the leading and left margins to adjust the relationship between hardware and the device space. Requires use of StartJob password.
setoutputposition	Sets the printer's current output tray position.
setoutputpositioning	Enables or disables output positioning within a tray.
setoutputtray	Sets the current output tray value.
setpagestackorder	Sets the pagestackorder , which specifies how pages are stacked in the output tray. Non-operational in PostScript Level 2.
setpagetimeout	Sets the page timeout for the current job.
setpapertray	Selects the input tray for the current job.
setprintername	Sets the name of the printer. Must be outside the server loop. Requires use of SystemParamsPassword .
setresolution	Sets the page device parameter HWResolution to <i>[dotsperinch dotsperinch]</i> .

¹A password is required. Also, this operator will persist across power-cycle only if included in the defaults file. If added to the defaults file, it is necessary to issue the reconfigure command at the remote console. For more information, refer to the PrintServer management guide for your platform.

²Included for compatibility with HP 4Si.

(continued on next page)

Table 3–1 (Cont.) PostScript Extension Operators on the PrintServer 17 Series Printers

Operator	Explanation
settrayswitch	Selects input tray failover. When set to true, it suppresses paperout errors and feeds media from an alternate paper tray that contains the correct paper type.
settumble	Sets the printer's tumble mode. Subject to save and restore .
sheetcount	Returns the number of sheets of paper that have been delivered to the output tray.
trayswitch	Specifies whether paperout errors are suppressed and whether paper is fed into the printer from an alternate paper tray that contains the correct paper type.
tumble	Returns the current setting of tumble mode.
twothirdsa4	In userdict. Imposes a coordinate space for two-thirds the size of A4-size media (198 mm x 210 mm).
waittimeout	Disabled on PrintServer 17 series printers; always returns zero.

4

Supported Media Types

4.1 Media Size Operators

Table 4–1 lists the supported media and associated operators for PrintServer 17 series printers.

Note

All standard PrintServer 17 media are fed short edge first.

Table 4–1 PrintServer 17 Series Media Sizes and Operators

Operator	Size	Dimensions	Valid Output Tray
3.875x7.5tray ¹	#7 3/4 envelope	3 7/8 x 7.5 in.	side ³
4.125x9.5tray ¹	#10 envelope (business)	4.125 x 9.5 in.	side ³
a4tray	A4	210 x 297 mm.	either
dltray ¹	C5/6 envelope	110 x 220 mm.	side ³
envelopetray ¹	Variable	min: 98 mm. x 190 mm. max: 162 mm. x 250 mm.	side ³
executivetray	Executive	7.25 x 10.5 in. ²	either
legaltray	Legal	8.5 x 14.0 in.	either
lettertray	Letter (or A)	8.5 x 11.0 in.	either

¹Not supported by tray tags; selects envelope feeder if installed. The default imageable area is determined from **defaultenvelopefeedsiz**

²PrintServer 17 “executive size” is 7.25 inches in width, while other PrintServers “executive size” is 7.50 inches in width.

³Canon recommends that envelopes and heavy stock be fed to the side tray rather than the top tray. The PrintServer 17 does not enforce this limitation.

(continued on next page)

Table 4–1 (Cont.) PrintServer 17 Series Media Sizes and Operators

Operator	Size	Dimensions	Valid Output Tray
dl envelopetray ¹	C5/6 envelope	110 x 220 mm	side ³
com10 envelopetray ¹	#10 envelope (business)	4.125 x 9.5 in.	side ³
monarc envelopetray ¹	#7 3/4 envelope	3 7/8 x 7 1/2 in.	side ³

¹Not supported by tray tags; selects envelope feeder if installed. The default imageable area is determined from **defaultenvelopefeedsiz**e

³Canon recommends that envelopes and heavy stock be fed to the side tray rather than the top tray. The PrintServer 17 does not enforce this limitation.

4.2 Page Size Operators

Table 4–2 lists the supported page size operators.

Table 4–2 PrintServer 17 Series Page Size Operators

Operator	Imageable Area ¹	Physical Media Size	/PageSize Array ²
3.875x7.5	3.46 x 7.3 in.	3.875 x 7.5 in.	[279 540]
4.125x9.5	3.73 x 9.3 in.	4.125 x 9.5 in.	[297 684]
7x9	6.61 x 8.8 in.	7.0 x 9.0 in.	[504 648]
a4	199.05 x 290.49 mm	210 x 297 mm	[595 842]
a4small	192.36 x 275.51 mm	210 x 297 mm	[595 842]
a5	138.009 x 204.81 mm	148 x 210 mm	[419 595]
b5	171.96 x 251.88 mm	182 x 257 mm	[516 729]
b6	~117 x ~177 mm	128 x 182 mm	[362 515]
c5	151.64 x 223.77 mm	162 x 229 mm	[459 649]
c5envelope	151.64 x 223.77 mm	162 x 229 mm	[459 649]
com10envelope	3.73 x 9.3 in.	4.125 x 9.5 in.	[297 684]
dl	101.5 x 215 mm	110 x 220 mm	[311 623]
dlenvelope	101.5 x 215 mm	110 x 220 mm	[311 623]

¹Centered on the physical page.

²PageSize array is given in points and assumes a portrait orientation.

(continued on next page)

Table 4–2 (Cont.) PrintServer 17 Series Page Size Operators

Operator	Imageable Area¹	Physical Media Size	/PageSize Array²
executivepage	6.93 x 10.28 in.	7.25 x 10.5 in.	[522 756]
halfletter	5.06 x 8.3 in.	5.5 x 8.5 in.	[396 612]
legal	8.1 x 13.78 in.	8.5 x 14.0 in.	[612 1008]
legalsmall	6.72 x 12.84 in.	8.5 x 14.0 in.	[612 1008]
letter	8.1 x 10.78 in.	8.5 x 11.0 in.	[612 792]
lettersmall	7.68 x 10.16 in.	8.5 x 11.0 in.	[612 792]
monarcenvelope	3.46 x 7.3 in.	3.875 x 7.5 in.	[279 540]
twothirdsa4	187.6 x 204.9 mm	198 x 210 mm	[561 595]

¹Centered on the physical page.

²PageSize array is given in points and assumes a portrait orientation.

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