DEClaser 5100 Printer

Level 2 PostScript Programmer's Supplement

EK–DLPL2–PS. A01

Digital Equipment Corporation
Maynard, Massachusetts

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Preface

Scope

The *DEClaser 5100 Printer Level 2 PostScript Programmer's Supplement* provides product-specific PostScript information. Refer to this document first for information about the PostScript language interpreter for the DEClaser 5100 printer.

The following documents provide general PostScript language information:

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.

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Terms Used in this Document

The following table defines the terms used in this supplement:

Term	Definition
integer16	An integer in the range of -2^{15} to $2^{15}-1$
integer32	An integer in the range of -2^{31} to $2^{31}-1$
neg_integer16	An integer in the range of -2^{15} to -1
neg_integer32	An integer in the range of -2^{31} to -1
pos_integer16	An integer in the range of 0 to $2^{15}-1$
pos_integer32	An integer in the range of 0 to $2^{31}-1$
pos_real32	A real number in the range of -10^{38} to -10^{-38} or 10^{-38} to 10^{38} approximately. Values between -10^{-38} and 10^{-38} are converted to 0.
read-only	The value cannot be changed.
string32_nonull	A string of up to 32 non-null characters
string_nonull	A string of up to 65,535 non-null characters
string_prn	A string of up to 65,535 characters in the ASCII printable range

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PostScript Parameters and Resources

This chapter lists the page device, user, system, and other parameters of the DEClaser 5100 printer.

1.1 Page Device Parameters

Table 1–1 lists the page device parameters.

Table 1–1 Page Device Parameters

Parameter	Default	Type	Valid Values
BeginPage	{pop}	procedure	PostScript language procedure
DeviceRenderingInfo[1]	<</Type 5 /BandPage true>>	dictionary	PostScript language dictionary
EndPage	{exch pop 2 ne}	procedure	PostScript language procedure
ExitJamRecovery[1]	false	boolean	true, false
HWResolution[1]	[600 600]	array	[300 300], [600 300], [600 600], [1200 600][2], [1200 1200][2]

[1]Persistent across power cycles if set in an unencapsulated job.

[2]The [1200 600] and [1200 1200] arrays invoke **Policies** if the optional resolution enhancement card is not installed.

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Table 1–1 (Cont.) Page Device Parameters

Parameter	Default	Type	Valid Values
ImagingBBox	null	array or null	4-element array of integers or null
InputAttributes	See Table 1–4 and Table 1–5	dictionary	PostScript language dictionary
Install	Product-dependent — not included here	procedure	PostScript language procedure
ManualFeed[1]	false	boolean	true, false
ManualFeedTimeout[1]	60	integer	*pos_integer32*[4]
Margins[1]	[0 0]	array	any 2-element array of integers in the range of -512 to 511.
MediaColor	null	string	*string_nonull* or null
MediaType	null	string	*string_nonull* or null
MediaWeight[5]	null	real	*pos_real32* or null
NumCopies	null	integer	*pos_integer32* or null
OutputFaceUp	false	boolean	false
OutputPage	true	boolean	true, false
OutputDevice	/Printer	name	read-only /Printer

[1]Persistent across power cycles if set in an unencapsulated job.

[4]Look for definitions of *italicized* table entries in Terms Used in this Document in the Preface.

[5]**MediaWeight** selects the media with an allowance of plus or minus 2%. If two trays have defined media weights within this tolerance of each other, the **InputAttributes /Priority** array is referenced.

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Table 1–1 (Cont.) Page Device Parameters

Parameter	Default	Type	Valid Values
PageSize	N. America: [612 792], Rest of the World: [595 842][6]	array	any two element array of integers[3]
Policies	<</PolicyNotFound 1 /PageSize 0 /PolicyReport {pop} /HWResolution 2 /DeviceRenderingInfo 2>>	dictionary	See Table 1–2.

[3]The size of the integers is limited to the array describing the largest media that the DEClaser 5100 can handle, namely legal size. However, **setpagedevice** flags a match if the array describes a [width,height] or a [height,width] and makes the appropriate rotations and transformations. See Chapter 4 for a list of supported paper sizes.

[6]The default settings are already configured for your geographic location.

Table 1–2 lists the valid values for the **HWResolution Policy** parameter.

Table 1–2 Policy Values for HWResolution

This Value...	Means...
0	Generate a **configurationerror**.
1	Ignore the request.
2	Reduce the resolution and change the setting of **BandPage**, if necessary, to an achievable configuration based on the available memory. The printer first successively drops to an achievable resolution. If there is not enough memory to support the lowest resolution and **BandPage** is false, **BandPage** is set to true and and the printer may use the requested resolution or again drop to an achievable resolution. If there is not enough memory to support the lowest resolution and **BandPage** is set to true, the printer generates a **configurationerror**.

Table 1–3 lists the valid values for the **DeviceRenderingInfo Policy** parameter.

Table 1–3 Policy Values for DeviceRenderingInfo

This Value...	Means...
0	Generate a **configurationerror**.
1	Ignore the request.
2	This policy is for the **/Type** parameter, which must be 5. This policy forces the value to 5.

InputAttributes Defaults

There are factory-set defaults for the **InputAttributes** parameter in the page device dictionary. These defaults vary, based on the area where the printer is sold (North America or elsewhere).

Table 1–4 lists the defaults for the **InputAttributes** parameter in the page device dictionary.

Table 1–4 Default InputAttributes Settings

Tray Name	Slot Number	North America	Rest of the World
Front tray	0	[612 792]	[595 842]
Internal tray	1	[612 792]	[595 842]
LCIT	2	[612 792]	[595 842]
Envelope tray	3	[297 684]	[297 684]

If you interrogate **InputAttributes** using **currentpagedevice**, the entries for uninstalled options (LCIT or envelope tray) return a PostScript null.

Tagged trays override the default **PageSize** array.

InputAttributes Priority Arrays

The default values for the **InputAttributes Priority** array depend on which input trays are installed.

A four-element priority array exists at all times. However, optional trays that are not installed have the tray number entry and a PostScript null as the value. For example:

```
<< 0 <</PageSize [595 842]>>
   1 <</PageSize [612 792]>>
   2   null
   3   null  >>
```

Table 1–5 lists the default priority arrays.

Table 1–5 Default InputAttributes Priority Arrays

Installed Media Sources	Priority Array[1]
Front tray and Internal tray	[1 0 3 2]
Front tray and Internal tray and LCIT	[2 1 0 3]
Front tray and Internal tray and Envelope tray	[1 0 3 2]
Front tray and Internal tray and LCIT and Envelope tray	[2 1 0 3]

[1]The order of the elements in the **Priority** array depends on the setting of the default feeder entry in the Feeder Select or Set-up/Feeders menu on the operator panel.

1.2 User Parameters

Table 1–6 lists the user parameters for the DEClaser 5100 printer.

Table 1–6 User Parameters

Parameter	Default	Type	Valid Values
AccurateScreens	false	boolean	true, false
JobName	()	string	*string_prn*
JobTimeout[3]	From system parameters	integer	≥ 0
MaxDictStack	530	integer	≥ 0
MaxExecStack	10,015	integer	≥ 0
MaxOpStack	100,000	integer	≥ 0
MaxFontItem	12,500	integer	≥ 0
MaxFormItem	100,000	integer	≥ 0
MaxLocalVM	2,147,483,647[1]	integer	$\geq Min, \leq Max$[4]
MaxScreenItem	See Table 1–7.	integer	≥ 0
MaxPatternItem	20,000	integer	≥ 0
MaxUPathItem	5,000	integer	≥ 0
MinFontCompress	1,250	integer	≥ 0
VMReclaim[2]	0	integer	0, -1, or -2
VMThreshold	40,000	integer	≥ 0
WaitTimeout	From system parameters	integer	≥ 0

[1]This number (2 GB) is the maximum theoretical limit.

[2]Garbage collection control: a value of 0 enables garbage collection, -1 disables it for local VM, and -2 disables it for both local and global VM.

[3]NOT subject to **save** and **restore**.

[4]The *Min* value is an integer of value equal to the current local VM. The *Max* value is an integer of value equal to the largest possible integer, which is 2,147,483,647. If a value is set that is less than the amount currently in use, the value changes to amount currently in use.

MaxScreenItem Default Values

The default values for **MaxScreenItem** depend on how much memory is installed in the printer. Table 1–7 lists the defaults.

Table 1–7 MaxScreenItem Memory-Dependent Defaults

If the Amount of Memory Is...	Then the Default Is...
2 MB	13,000
6–66 MB	26,000

1.3 System Parameters

Table 1–8 lists the system parameters and their initial values.

Table 1–8 System Parameters

Parameter	Default	Type	Valid Values
BuildTime	product constant	integer	read-only
ByteOrder	true	boolean	read-only
CurDisplayList	0	integer	read-only
CurFontCache	0	integer	read-only
CurFormCache	0	integer	read-only
CurInputDevice	current value	string	read-only
CurOutlineCache	0	integer	read-only
CurOutputDevice	current value	string	read-only
CurPatternCache	0	integer	read-only
CurScreenStorage	0	integer	read-only
CurSourceList	0	integer	read-only
CurUPathCache	0	integer	read-only

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Table 1–8 (Cont.) System Parameters

Parameter	Default	Type	Valid Values
DoPrintErrors[1]	false	boolean	true = print an error page and send backchannel messages on PS error. false = send only backchannel messages.
DoStartPage[1]	true	boolean	true, false
FactoryDefaults[1]	false	boolean	true, false
FatalErrorAddress[1]	0	integer	read-only
FontResourceDir	(fonts/)	string	*string_nonull*
GenericResourceDir	(Resource/)	string	*string_nonull*
GenericResourcePathSep	(/)	string	*string_nonull*
JobTimeout[1]	0	integer	*pos_integer32*[2]
LicenseID	(LN-015-001)	string	read-only
MaxDisplayList	0	integer	*pos_integer32*
MaxFontCache	285,000[4]	integer	*pos_integer32*
MaxFormCache	100,000	integer	*pos_integer32*
MaxImageBuffer	65,536	integer	*pos_integer32*
MaxOutlineCache	65,536	integer	*pos_integer32*
MaxPatternCache	100,000	integer	*pos_integer32*
MaxScreenStorage	60,000[4]	integer	*pos_integer32*
MaxSourceList	0	integer	*pos_integer32*
MaxUPathCache	300,000	integer	*pos_integer32*
PageCount[1]†	current value	integer	read-only

[1]Persistent across power cycles.

[2]If this value is not 0 (infinite), then the recommended value is 20 seconds or greater.

[4]See Table 1–9.

†The **SheetCount** parameter value is the same as the **PageCount** parameter value. They are both unaffected by a reset to factory defaults.

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Table 1–8 (Cont.) System Parameters

Parameter	Default	Type	Valid Values
PrinterName[1]	(DEClaser 5100)	string	*string32_ nonull*
RamSize	2,097,152[4]	integer	read-only
RealFormat	(IEEE)	string	read-only
Revision	Returns **systemdict** revision value	integer	read-only
StartJobPassword [1]	()	string	*string32_ nonull*
SystemParamsPassword [1]	()	string	*string32_ nonull*
ValidNV	true	boolean	read-only
WaitTimeout[1]	0	integer	*pos_integer32*
Parameters Unique to the DEClaser 5100			
SheetCount[1]†	current value	integer	read-only
Parameters Used for DECimage Plus Control[3]			
InstallSpecialImageActive[1]	false	boolean	true, false
InstallPunch0[1]	0.0	real	Any real number
InstallPunch1[1]	1.0	real	Any real number

[1]Persistent across power cycles.

[3]See Chapter 2 for more information about DECimage Plus parameters.

[4]See Table 1–9.

†The **SheetCount** parameter value is the same as the **PageCount** parameter value. They are both unaffected by a reset to factory defaults.

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Table 1–8 (Cont.) System Parameters

Parameter	Default	Type	Valid Values
InstallSharp[1]	1.5	real	Any real number ≥ -1‡
InstallDotSize[1]	1	integer	1[5]

[1]Persistent across power cycles.

[5]The DEClaser 5100 implementation of DECimage Plus does not use the **DotSize** parameter. However, the **DotSize** parameter still exists for compatibility with DECimage.

‡No sharpening is done with a value of 0.0. Useful values are in the range -1.0 to +4.0. Values less than -1.0 are not meaningful.

Memory-Dependent System Parameter Default Values

Some system parameter default values depend on the amount of memory the printer has. Table 1–9 lists the parameters that have memory-dependent values.

Table 1–9 Memory-Dependent System Parameters

Installed Memory	Parameters		
	MaxFontCache	MaxScreenStorage	RamSize
2 MB	285,000	60,000	2,097,152
6 MB	629,145	120,000	6,291,456
10 MB	1,048,576	120,000	10,485,760
18 MB	1,400,000	120,000	18,874,368
22 MB	1,400,000	120,000	23,068,672
34 MB	1,400,000	120,000	35,651,584
38 MB	1,400,000	120,000	39,845,888
50 MB	1,400,000	120,000	52,428,800
66 MB	1,400,000	120,000	69,206,016

1.4 Serial, Parallel, and LocalTalk Interface Parameters

Tables 1–10 through 1–12 list the parameters for the serial, parallel, and LocalTalk interfaces.

Table 1–10 Parameters for %Serial%, %Serial_NV%, %Serial_Pending%

Parameter	Default	Type	Valid Values
Baud	9,600	integer	300 . . . 57,600[1]
CheckParity	false	boolean	true, false
DataBits	8	integer	8,7
FlowControl	/XonXoff	name	/XonXoff, /Dtr, /RobustXonXoff, /RcvXonXoff, /DtrLow, /XonXoff2[2]
HasNames	false	boolean	read-only
Interpreter	/PostScript	name	read-only /PostScript /AutoSelect /LaserJet4
Parity	/None	name	/Mark, /Space, /Odd, /Even, /None
SerialMode	/RS232	name	/RS232 /RS422
StopBits	1	integer	1,2
Type	/Communications	name	read-only

[1]Only certain discrete values are allowed. The communications hardware rounds the value entered to the nearest valid value.

[2]/XonXoff2 performs the same function as /XonXoff.

Table 1–11 Parameters for %Parallel%, %Parallel_NV%, %Parallel_Pending%

Parameter	Default	Type	Valid Values
Handshake	0	integer	read-only 0 (unidirectional) 1 (bidirectional)
HasNames	false	boolean	read-only
Interpreter	/AutoSelect	name	read-only /PostScript /AutoSelect /LaserJet4
Type	/Communications	name	read-only

Table 1–12 Parameters for %LocalTalk%, %LocalTalk_NV%, %LocalTalk_ Pending%

Parameter	Default	Type	Valid Values
HasNames	false	boolean	true, false
Interpreter	/PostScript	name	read-only /PostScript /AutoSelect /LaserJet4
LocalTalkType[1]	(LaserWriter)	string	*string32_nonull*
Type	/Communications	name	read-only

[1]It is recommended that you NOT modify the value of this parameter.

1.5 Ethernet Network Card Parameters

Table 1–13 lists the parameters available if an optional network card is installed. Regardless of the network protocol, the names of the network interface devices are %EtherTalk%, %EtherTalk_NV%, and %EtherTalk_Pending%.

Table 1–13 Parameters for %EtherTalk%, %EtherTalk_NV%, %EtherTalk_ Pending%

Parameter	Default	Type	Valid Values
EtherTalkType	(LaserWriter)	string	*string32_nonull*
HasNames	false	boolean	false
Interpreter	/PostScript	name	read-only /PostScript /AutoSelect /LaserJet4
Type	/Communications	name	read-only

1.6 PostScript Font Cartridge Parameters

Table 1–14 lists PostScript font cartridge parameters.

Table 1–14 Parameters for %cartridge1% and %cartridge2%

Parameter	Default	Type	Valid Values
BlockSize	1	integer	non-zero *pos_integer32*
CartridgeID	cartridge-dependent	integer	read-only
CartridgeType	4	integer	read-only
Free	0	integer	read-only
HasNames	true	boolean	read-only
InitializeAction	0	integer	read-only
LogicalSize	cartridge-dependent	integer	read-only
Mounted	true[1]	boolean	true (mounted), false (un-mounted)
PhysicalSize	cartridge-dependent	integer	read-only
Removable	true	boolean	read-only
Searchable	true	boolean	read-only
SearchOrder	10, 15[2]	integer	*pos_integer32*
Type	/FileSystem	name	read-only
Writeable	false	boolean	read-only

[1]The system attempts to mount the **filesystem** device upon startup and at the beginning of each PostScript job. If mounting is successful, then the value is *true*, otherwise it is *false*.

[2]Cartridge 1 is the left cartridge slot; cartridge 2 is the right cartridge slot. Cartridge 1 has a value of 10 and cartridge 2 has a value of 15.

1.7 Engine Parameters

Table 1–15 lists the %Engine% parameters.

Table 1–15 Parameters for %Engine%

Parameter	Default	Type	Valid Values
Darkness[1]	0.5 (approx)	real	0.0 - 1.0
TimeToStandby[1]	30	integer[2]	*pos_integer32*
Type	/Parameters	name	read-only

[1]Persistent across power cycles.

[2]Units are measured in minutes.

1.8 Disk Parameters

Table 1–16 lists the %disk% parameters if a disk is installed.

Table 1–16 Parameters for %disk%

Parameter	Default	Type	Valid Values
BlockSize	512	integer	read-only
Free	current value	integer	read-only
HasNames	true	boolean	read-only
InitializeAction	0	integer	See Table 1–17
LogicalSize	current value	integer	*pos_integer32* $\leq$ PhysicalSize
Mounted	true	boolean	true: mounted or present; false: dismounted
PhysicalSize	current value	integer	read-only
Removable	false	boolean	read-only
Searchable	true	boolean	true, false
SearchOrder	9	integer	*pos_integer32*
Type	/FileSystem	name	read-only

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Table 1–16 (Cont.) Parameters for %disk%

Parameter	Default	Type	Valid Values
Writeable	true	boolean	true, false

InitializeAction Valid Values

Table 1–17 lists the valid values of the **InitializeAction** parameters and what they mean. **InitializeAction** is 0 for devices that are not not writeable.

Table 1–17 Valid Values for InitializeAction

This Value...	Means...
0	No action.
1	Delete the current file system and create a new one of size **LogicalSize**.
2	Reformat the entire media before creating a new file system of size **LogicalSize**.
3	Same as 2.

1.9 ROM Parameters

Table 1–18 lists the ROM device parameters. %rom1% is the system firmware ROM. %rom2% is the on-board font ROM.

Table 1–18 Parameters for %rom%, %rom1%, and %rom2%

Parameter	Default	Type	Valid Values
BlockSize	1	integer	read-only
CartridgeID	ROM-dependent	integer	read-only
CartridgeType	4	integer	read-only
Free	0	integer	read-only
HasNames	true	boolean	read-only
InitializeAction	0	integer	0
LogicalSize	ROM-dependent	integer	read-only
Mounted	true	boolean	true, false
PhysicalSize	ROM-dependent	integer	read-only
Removable	false	boolean	read-only
Searchable	true	boolean	true, false
SearchOrder	25, 30, 35[1]	integer	*pos_integer32*
Type	/FileSystem	name	read-only
Writeable	false	boolean	read-only

[1]The value of %rom1% is 25, %rom2% is 30, and %rom% is 35.

1.10 Resources

Tables 1–19 through 1–21 list the following types of resources:

- Regular
- Implicit
- Those used to define new resource categories

Table 1–19 Regular Resources

Category Name	Instances
ColorRendering	/DefaultColorRendering300x300 /DefaultColorRendering600x300 /DefaultColorRendering600x600 /DefaultColorRendering1200x600 /DefaultColorRendering1200x1200
ColorSpace	None
Encoding	/ISOLatin1Encoding StandardEncoding
Font	/ACaslon-Italic /ACaslon-Regular /ACaslon-Semibold /ACaslon-SemiboldItalic /AGaramond-Bold /AGaramond-BoldItalic /AGaramond-Italic /AGaramond-Regular /Americana /Americana-ExtraBold /AvantGarde-Book /AvantGarde-BookOblique /AvantGarde-Demi /AvantGarde-DemiOblique /Barmeno-Bold /Barmeno-ExtraBold /Barmeno-Medium /Barmeno-Regular /Blackoak /Bookman-Demi /Bookman-DemiItalic /Bookman-Light /Bookman-LightItalic /Carta /Courier /Courier-Bold /Courier-BoldOblique /Courier-Oblique /Formata-Italic /Formata-Medium /Formata-MediumItalic /Formata-Regular

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Table 1–19 (Cont.) Regular Resources

Category Name	Instances
	/Helvetica /Helvetica-Bold /Helvetica-BoldOblique /Helvetica-Narrow /Helvetica-Narrow-Bold /Helvetica-Narrow-BoldOblique /Helvetica-Narrow-Oblique /Helvetica-Oblique
	/Kaufmann
	/Lithos-Black /Lithos-Regular /LubalinGraph-Book /LubalinGraph-BookOblique /LubalinGraph-Demi /LubalinGraph-DemiOblique
	/NewCenturySchlbk-Bold /NewCenturySchlbk-BoldItalic /NewCenturySchlbk-Italic /NewCenturySchlbk-Roman
	/Palatino-Bold /Palatino-BoldItalic /Palatino-Italic /Palatino-Roman /Parisian /ParkAvenue /Poetica-SuppOrnaments
	/Souvenir-Demi /Souvenir-DemiItalic /Souvenir-Light /Souvenir-LightItalic /Symbol
	/Tekton /Tekton-Bold /Times-Bold /Times-BoldItalic /Times-Italic /Times-Roman /Trajan-Bold
	/WoodtypeOrnaments-Two

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Table 1–19 (Cont.) Regular Resources

Category Name	Instances
	/ZapfChancery-MediumItalic /ZapfDingbats
Form	None
Halftone	/DefaultHalftone300x300 /DefaultHalftone600x300 /DefaultHalftone600x600 /DefaultHalftone1200x600 /DefaultHalftone1200x1200 /DIThreshArray300x300[1] /DIThreshArray600x300[1] /DIThreshArray600x600[1] /DIThreshArray1200x600[1] /DIThreshArray1200x1200[1]
OutputDevice	Default
Pattern	None
ProcSet	DemoPage FontList FrontPanelRefCard Settings StartPage

[1]Type 3 halftone resources for DECimage Plus.

Table 1–20 Implicit Resources

Category Name	Instances
ColorRenderingType	1
ColorSpaceFamily	/CIEBasedA /CIEBasedABC /DeviceCMYK /DeviceGray /DeviceRGB /Indexed /Pattern /Separation

(continued on next page)

Table 1–20 (Cont.) Implicit Resources

Category Name	Instances
Filter	/ASCII85Decode /ASCII85Encode /ASCIIHexDecode /ASCIIHexEncode /CCITTFaxDecode /CCITTFaxEncode /DCTDecode /DCTEncode /LZWDecode /LZWEncode /SubFileDecode /NullEncode /RunLengthDecode /RunLengthEncode
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†
HWOptions	none
ImageType	1

†A HalftoneType value of 7 is required for DECimage Plus.

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Table 1–20 (Cont.) Implicit Resources

Category Name	Instances
IODevice	(%cartridge1%) (%cartridge2%) (%disk%)[1] (%Engine%) (%EtherTalk%)[1] (%EtherTalk_NV%)[1] (%EtherTalk_Pending%)[1] (%LocalTalk%) (%LocalTalk_NV%) (%LocalTalk_Pending%) (%Parallel%) (%Parallel_NV%) (%Parallel_Pending%) (%rom%) (%rom1%) (%rom2%) (%Serial%) (%Serial_NV%) (%Serial_Pending%)
PatternType	1

[1]This resource exists only if the device is installed.

Table 1–21 Resources for Defining New Resource Categories

Category Name	Instances
Category	/Category /ColorRendering /ColorRenderingType /ColorSpace /ColorSpaceFamily /Emulator /Encoding /Filter /FMapType /Font /FontType /Form /FormType /Generic /Halftone /HalftoneType /HWOptions /ImageType /IODevice /OutputDevice /Pattern /PatternType /ProcSet
Generic	None

2

DECimage Plus Parameters and Operators

2.1 Type 7 Halftone Parameters

The parameters used by the DEClaser 5100 PostScript interpreter for DECimage Plus image enhancement 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	1
HalftoneType	7	integer	7
Punch	[0.0 1.0]	array	A two-element array of real numbers
OrigHalftone	See Section 2.1.1.	dictionary	Halftone dictionary of type 1 through 6
OtherHalftone	**/DIThreshArray600x600**[1]	dictionary	Halftone dictionary of type 1 through 6
Sharp	1.5	real	Any real number. See Table 1–8.
SpecialImageActive	false	boolean	true, false

[1]Dependent on the current resolution. Refer to Table 1–19 for other values. The value is not the name, but contains the actual halftone dictionary.

2.1.1 Description

The type 7 halftone parameters are described as follows:

- **DotSize** specifies the size of the device dot to be used. It is not used by DECimage Plus and renders the image with a value of 1. This is an optional parameter and is present for compatibility with DECimage.
- **HalftoneType** must be 7. This is a required parameter.
- **OrigHalftone** is the halftone dictionary 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. Refer to Table 2–2 for the default value.
- **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 produces 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 uses a special type 3 halftone resource, depending on the value of the **HWResolution** page device parameter:

- **/DIThreshArray300x300**
- **/DIThreshArray600x300**
- **/DIThreshArray600x600**
- **/DIThreshArray1200x600**
- **/DIThreshArray1200x1200**

Table 2–2 lists **DIThreshArray** halftone parameters.

Table 2–2 DIThreshArray Halftone Dictionary Parameters

Parameter	Default	Type
HalftoneType	3	integer
Width	128	integer
Height	128	integer
Thresholds	Product-dependent — not included here	string
TransferFunction	Product-dependent — not included here	procedure
ThresholdCopyright	Product-dependent — not included here	string

2.2 Invoking DECimage Plus from a PostScript Program

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 parameters using the DECimage Plus **statusdict** operators.

The DECimage Plus operators have been implemented as PostScript level 2 procedures. Digital recommends using these operators to set up and execute 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** operator returns a boolean value reflecting whether subsequent images will be rendered with DECimage Plus image enhancement.

```
- DECimage 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 **setdefault-DECimage** 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 1 Compatibility Operators

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

Sections 3.1 through 3.3 list the standard and Digital-specific **statusdict**, **userdict**, and **systemdict** compatibility operators.

3.1 statusdict Compatibility Operators

Table 3–1 lists the standard **statusdict** compatibility operators.

Table 3–1 Standard statusdict Compatibility Operators

a4tray	**printername**
appletalktype	**product**
b5tray	**ramsize**
buildtime	**realformat**
byteorder	**revision**
checkpassword	**setdefaulttimeouts**[4]
defaulttimeouts	**setdostartpage**[4]
dostartpage	**setjobtimeout**
firstside[1]	**setmargins**[4]
jobname	**setpagestackorder**[4]
jobtimeout	**setprintername**[4]
legaltray	**setsccbatch**[4]
lettertray	**setsccinteractive**[2]
manualfeed	**sccbatch**
manualfeedtimeout[3]	**sccinteractive**[2]
margins	**sheetcount**
newsheet[1]	**waittimeout**
pagecount	
pagestackorder	

Compatibility operators for systems with disks	
diskonline	**setuserdiskpercent**
diskstatus	**userdiskpercent**
initializedisk	

[1]The *PostScript Language Reference Manual Supplement for Version 2013* states that these operators are defined only when the page device parameter **Duplex** is present. That statement is untrue for these operators, which are defined in **statusdict** on both simplex and duplex printers.

[2]Performs no function in the DEClaser 5100 printer.

[3]**manualfeedtimeout** is not defined by default; but is used if the print job defines it.

[4]This operator can be executed successfully only in an unencapsulated job.

Table 3–2 lists the Digital-specific additions to the **statusdict** compatibility operators.

Table 3–2 Digital-Specific Additions to statusdict Compatibility Operators

3.875x7.5tray	**halflettertray**
4.125x9.5tray	**papertray**
7x9tray	**setDECimage**
a5tray	**setDECimageparams**
c5tray	**setdefaultDECimage**[1]
DECimage	**setdefaultDECimageparams**[1]
DECimageparams	**setdefaultenvelopetraysize**[1]
defaultDECimage	**setdefaultmansize**[1]
defaultDECimageparams	**setdefaultpapertray**[1]
defaultenvelopetraysize	**setpapertray**
defaultmansize	**twothirdsa4tray**
defaultpapertray	
dltray	
envelopetray	
executivetray	

[1]This operator can be executed successfully only in an unencapsulated job.

3.2 userdict Compatibility Operators

Table 3–3 lists the standard **userdict** compatibility operators.

Table 3–3 Standard userdict Compatibility Operators

a4	**legal**
a4small	**letter**
b5	**lettersmall**
note[1]	

[1]The **note** operator functions differently from the PostScript level 1 counterpart. The level 1 function of imposing a "small" clipping path on the **letter**, **a4**, and **legal** operators has been replaced by a level 2 function of imposing a smaller clipping path to any currently defined page size.

Table 3–4 lists the Digital-specific additions to the **userdict** compatibility operators.

Table 3–4 Digital-Specific Additions to userdict Compatibility Operators

3.875x7.5	**dl**
4.125x9.5	**executivepage**
7x9	**halfletter**
a5	**legalsmall**
c5	**twothirdsa4**

3.3 systemdict Compatibility Operators

Table 3–5 lists the standard **systemdict** compatibility operators.

Table 3–5 Standard systemdict Compatibility Operators

devdismount	**devmount**
devforall	**devstatus**
devformat	

4
Supported Media Types

4.1 Media Size Operators

Table 4–1 lists the supported paper types and operators for the DEClaser 5100 printer.

Table 4–1 DEClaser 5100 Media Sizes and Operators

Operator	Size	Dimensions
3.875x7.5tray [1]	#7 3/4 envelope	3.875 in. x 7.5 in.
4.125x9.5tray[1]	#10 envelope	4.125 in. x 9.5 in.
7x9tray[1]	Digital manual	7.0 in. x 9.0 in.
a4tray	A4	210 mm x 297 mm
a5tray[1]	A5	148 mm x 210 mm
b5tray[1]	B5[2]	182 mm x 257 mm
c5tray[1]	C5 envelope	162 mm x 229 mm
dltray[1]	C5/6 envelope	110 mm x 220 mm
envelopetray	Variable	min: 98 mm x 190 mm max: 162 mm x 250 mm
executivetray	Executive	7.25 in. x 10.5 in.
halflettertray[1]	Half letter	5.5 in. x 8.5 in.
legaltray	Legal	8.5 in. x 14.0 in.
lettertray	Letter (or A)	8.5 in. x 11.0 in.
twothirdsa4tray [1]	2/3 A4	198 mm x 210 mm

[1]Not supported by tray tags. In the level 1 implementation, these operators would have resolved to an adjustable tray. The level 2 implementation requires that the **InputAttributes** parameter in the page device be defined accordingly for these operators to be successfully executed.

[2]B5 is a JIS size; all others are ISO standard sizes.

4.2 Page Size Operators

Table 4–2 lists the supported page size operators.

Table 4–2 DEClaser 5100 Page Size Operators

Operator	Imageable Region[1]	Physical Media Size	/PageSize Array
3.875x7.5	3.52 in. x 7.3 in.	3.875 in. x 7.5 in.	[279 540]
4.125x9.5	3.73 in. x 9.3 in.	4.125 in. x 9.5 in.	[297 684]
7x9	6.61 x 8.8 in.	7.0 in. x 9.0 in.	[504 648]
a4	200.49 mm x 290.49 mm	210 mm x 297 mm	[595 842]
a4small	192.36 mm x 275.51 mm	210 mm x 297 mm	[595 842]
a5	138.18 mm x 204.81 mm	148 mm x 210 mm	[420 595]
b5	173.4 mm x 251.88 mm	182 mm x 257 mm	[516 729]
c5	151.72 mm x 223.77 mm	162 mm x 229 mm	[459 649]
dl	102.95 mm x 215 mm	110 mm x 220 mm	[312 624]
executivepage	6.93 mm x 10.28 in.	7.25 mm x 10.5 in.	[522 756]
halfletter	5.12 in. x 8.3 in.	5.5 in. x 8.5 in.	[396 612]
legal	8.11 in. x 13.79 in.	8.5 in. x 14.0 in.	[612 1008]
legalsmall	6.72 in. x 12.82 in.	8.5 in. x 14.0 in.	[612 1008]
letter	8.11 in. x 10.78 in.	8.5 in. x 11.0 in.	[612 792]
lettersmall	7.68 in. x 10.16 in.	8.5 in. x 11.0 in.	[612 792]
twothirdsa4	189.65 mm x 204.89 mm	198 mm x 210 mm	[561 595]

[1]The imageable area is the region where visible marks can be made. It is centered on the page.

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