

4 Print Environment

Introduction

All of a printer's current feature settings are collectively referred to as a print environment. A PCL printer maintains four print environments: Factory Default Environment, User Default Environment, Modified Print, and Overlay Environment.

This chapter identifies the Factory Default Environment and User Default Environment. The Factory Default Environment, which is programmed into a printer at the factory, is listed in Table 4-1 for the PCL context and Table 4-2 for the HP-GL/2 context. The User Default Environment, which can be set from a printer's control panel, is listed in Table 4-3.

Note

If a feature setting is not supported on a printer (for example, duplex on non-duplex printers, or status readback on printers which do not support that feature), then the printer's print environment does not contain that feature setting. In the following tables, not all values are used for all printers. See Table 1-1 to identify supported values for a certain HP printer.

The HP LaserJet 4PJ printer defaults to the ESC/P personality. The defaults listed here are for PCL only.

Table 4-1. Factory Default Environment — PCL Context

JOB CONTROL	
Number of Copies ¹	1
Duplex ¹	Off (Simplex)
Binding ²	Long-edge
Registration	Left=0, Top=0
Tray Lock ¹	All trays unlocked
Manual Feed ¹	Off
Job Separation ³	Off
Output Bin	Upper (face down) bin
Units of Measure	300 Units/inch
PAGE CONTROL	
Print Direction	0
Orientation ¹	Portrait
Page Size ¹	Letter
Paper (Media) Source	Paper Source (Printer Specific Large Source)
Media Destination	0 (Automatic Selection)
Vertical Motion Index ¹	8 (6 lpi)
Horizontal Motion Index ⁴	12 (10 cpi)
Top Margin	1/2" (150 dots)
Text Length	60 lines
Left Margin	Left logical page boundary
Right Margin	Right logical page boundary
Perforation Skip	On
Line Termination	CR→CR, LF→LF, FF→FF

¹ User can select default values from the printer's Operator Control Panel for these feature settings.

² Selectable from the printer Operator Control Panel if duplex is selected.

³ Used on HP LaserJet IIISi and 4Si printers only.

⁴ The font characteristics are determined by the default font. The default font can be the factory default font, the user selected default font from the Operator Control Panel, or from a font cartridge with a default font.

**Table 4-1. Factory Default Environment — PCL Context
(continued)**

FONT S1	
Symbol Set ^{2,6}	Roman-8
Spacing ⁶	Fixed
Pitch ³	10 cpi
Height ⁴	12 point
Style	Upright
Stroke Weight	Medium
Typeface ⁶	Courier
UNDERLINING	
Underlining Mode	Off
CHARACTER TEXT PATH DIRECTION	
Character Text Path Direction	0 (horizontal)
TEXT PARSING	
Text Parsing Method ⁵	0 or 31
FONT MANAGEMENT	
Font ID	0
Character Code	0
Symbol Set ID	0
RASTER GRAPHICS	
Presentation Mode	3 (Print image along physical page width)
Left Graphics Margin	0
Resolution	75 dpi
Compression Mode	0
Raster Height	N/A
Raster Width	Logical Page Width

¹ The font characteristics are determined by the default font. The default font can be the factory default font, the user selected default font from the Operator Control Panel, or from a font cartridge with a default font.

² User can select default values from the printer's Operator Control Panel for these feature settings.

³ Selectable from the front panel if a fixed-space scalable font was selected as the user default.

⁴ Selectable from the front panel if a proportional scalable font was selected as the user default.

⁵ If the default symbol set is WIN31J, the value is 31; otherwise, it is 0—only available on the LaserJet 4PJ, 4LJ Pro, and LaserJet 4V/4MV printers if the ESC/P SIMM is installed. If the default symbol set is GB2312, the value is 38; otherwise it is 0.

⁶ For the LaserJet 4PJ and 4LJ Pro printers, the default symbol set is WIN31J, the default typeface is MS Mincho, and the default spacing is proportional. For the LaserJet 4V/4MV printer, the default symbol set is Roman-8, default typeface is Courier, and spacing fixed; Japanese customers must explicitly change the defaults if desired. For the LaserJet 4LC printer, the default symbol set is GB2312, default typeface is Sim Sun, and the default spacing is proportional. For the LaserJet 5L, 5Si, 5SiMx, 6P, 6MP printers and the LaserJet 5Si Mopier, the default symbol set is PC-8.

**Table 4-1. Factory Default Environment — PCL Context
(continued)**

PRINT MODEL	
Current Pattern	Solid
Source Transparency Mode	0 (transparent)
Pattern Transparency Mode	0 (transparent)
Pattern Reference Point	0, 0
Logical Operation	ROP 252
Pattern Rotation	0 (Pattern rotates with print direction)
RECTANGULAR AREA FILL	
Horizontal Rectangle Size	0
Vertical Rectangle Size	0
Area Fill ID	0
PICTURE FRAME	
Picture Frame Width	Logical page width
Picture Frame Height	Text length
Picture Frame Anchor Point	PCL Cursor at left edge of the logical page (top margin plus 75% of VMI)
HP-GL/2 Plot Horizontal Size	Picture frame horizontal size
HP-GL/2 Plot Vertical Size	Picture frame vertical size
MACRO	
Macro ID	0
TROUBLESHOOTING	
End-of-Line Wrap	Off
Display Functions	Off
STATUS READBACK	
Current Location Type	0 - Invalid location
Current Location Unit	0 - All units

Table 4-2. Factory Default Environment — HP-GL/2 Context

CHARACTER GROUP	
Character Set	Roman-8
Font Spacing	Fixed
Pitch	10 cpi
Height	12 point
Posture	Upright
Stroke Weight	Medium
Typeface	HP-GL/2 stick
Character Direction	Horizontal
Character Direction Mode	Absolute
Character Size	Size transformation off
Character Size Mode	Absolute
Character Slant	0
Extra Horizontal Space	0
Extra Vertical Space	0
Character Fill Mode	Solidly filled, no edging
Label Origin	1
Label Terminator	Etx
Transparent Data Mode	Off
Primary Font ID	0
Secondary Font ID	0
Scalable or Bitmap Font	Select scalable fonts only
VECTOR GROUP	
Plotting Mode	Absolute
Pen State	Up
POLYGON GROUP	
Polygon Buffer	Cleared
Polygon Mode	Off

**Table 4-2. Factory Default Environment — HP-GL/2 Context
(continued)**

LINE AND FILL ATTRIBUTE GROUP	
Line Type	Solid
Line Type Repeat Length	4% of the diagonal distance from P1 to P2
Line Cap	Butt
Line Join	Mitered
Miter Limit	5
Pen Width	0.35 mm
Pen Width Selection Mode	Metric
Selected Pen	No pen
Symbol Mode	Off
Fill Type	Solid (bi-directional)
User-defined Line Type	Eight standard line types
Anchor Corner	(0,0) Plotter units
User-defined Fill Types	Solid fill
Transparency Mode	On (transparent)
Screened Vector	No screening
CONFIGURATION AND STATUS GROUP	
Scale Mode	Off
Window	PCL default picture frame (the PCL default logical page less 1/2 inch at the top and the bottom)
Coordinate System Orientation	Orientation of PCL default logical page coordinate system
P1, P2	Lower left, upper right corners, respectively, of picture frame

Note

Table 4-3 lists the User Default Environment. This print environment is stored in non-volatile RAM (NVRAM), which allows it to be retained in the event of a power cycle (except for the HP LaserJet 4L, 5L, 6L, and 1100 series printers, which do not contain NVRAM). In earlier printers without PJP, the feature settings contained in the User Default Environment were selectable through the control panel only. In newer printers with PJP, these feature settings can be set from either the control panel (if the printer has one) or through PJP or both.

The User Default Environment is reset to the Factory Default Environment upon a cold reset.

Table 4-3. User Default Environment

Menu Item	Range	III	IIID	IIISi	IIIP	4	4Si	4L	4ML, 4PJ, 4PJ, 4MP, 4LJ Pro, 4LC	4 Plus, 4M Plus, 5P, 5MP	4V, 4MV
Copies	1* through 99 ¹	✓	✓	✓	✓	1-999	1-999	1-999	1-999	1-999	1-999
Orientation	Portrait*, Land.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Font Source	Internal*, Cartridge, Soft Fonts	✓	✓	✓	✓	✓ ²	✓ ²	✓✓	✓ ^{2,3}	✓ ²	✓ ²
Font Number	0* (Courier) to n	✓	✓	✓	✓	✓	✓	✓	✓ ⁷	✓	✓
Pitch ⁴	10.00* .44 - 99.99	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Point Size ⁵	12.00* 4 - 999.75	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Symbol Set	Roman-8*	✓	✓	✓	✓	✓	✓	✓	✓ ⁷	✓	✓
Form/Lines of Text ⁶	60* 5 - 128	✓	✓	✓	✓	✓	✓	✓	✓ ⁷	✓	✓
Paper (Job) Size	Letter*, Legal, Executive, A4, Com-10, Monarch, DL, C5	✓	✓	no C5	✓	plus B5	no C5	plus B5	plus B5 & Custom ⁶	plus B5	plus A3, 11 x 17 and more ⁹
Manual Feed	Off*, On	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Duplex	Off* (simplex), On	ns	✓	✓	ns	ns	✓	ns	ns	✓ ⁸	ns
Binding	Long-edge*, Short-edge	ns	✓ ⁸	✓ ⁸	ns	ns	✓ ⁸	ns	ns	✓ ⁸	ns
Output Bin	Upper*, Lower	ns	ns	✓	ns	ns	✓	ns	ns	ns	ns
Resolution Enhancement	Medium*, Light, Dark, Off	✓	✓	✓	✓	✓	On/ Off	✓	✓	✓	✓
Print Density	1, 2, 3*, 4, 5	ns	ns	ns	ns	ns	ns	✓	✓	✓	✓
EconoMode	On, Off*	ns	ns	ns	ns	ns	ns	✓	✓	✓	✓
Resource Saving	On, Off*	ns	ns	ns	ns	ns	✓	ns	ns	On, Off, Auto*	On, Off, Auto*

✓ - Supported * - Default value (see Chapter 3 for list) ns - Not Supported

¹ PCL range is 1 through 32767

² SIMMs also available

³ The HP LaserJet 4L, 4ML, 4PJ, and 4MP printers do not accept cartridges.

⁴ Displayed for fixed-spaced scalable fonts only

⁵ Displayed for proportional scalable fonts only

⁶ Sets PCL text length

⁷ For LaserJet 4PJ and 4LJ Pro, WIN3.1J is the default symbol set and MS Mincho is default typeface; for the LaserJet 4LC, GB2312 is the default symbol set and SimSun is the default typeface. A4 is default paper size, 64 is default lines of text; printer also supports JIS B5 paper, Hagaki and Ofufuku-Hagaki postcards.

⁸ Supported if duplex is installed (duplex is an option on LaserJet 4 Plus and 4M Plus)

⁹ LaserJet 4V/4MV also supports JIS B5, JIS B4, JPOST, JPOSTD, Commercial B5, and Custom (11.7" x 17.7").

Table 4-3. User Default Environment (continued)

Menu Item	Range	5L 6L	5, 5M 6P, 6MP	5Si 5SiMx 5Si Mopier	Color LaserJet	DeskJet 1200C DeskJet 1600C
Copies	1* through 999 ¹	✓	✓	✓	✓	✓
Orientation	Portrait*, Land.	✓	✓	✓	✓	✓
Font Source	Internal*, Cartridge, Soft Fonts	✓ (no cartridges)	✓ (no cartridges)	✓ (no cartridges)	✓	✓
Font Number	0* (Courier) to n	✓	✓	✓	✓	✓
Pitch ²	10.00* .44 - 99.99	✓	✓	✓	✓	✓
Point Size ³	12.00* 4 - 999.75	✓	✓	✓	✓	✓
Symbol Set	Roman-8*	PC-8*	✓	PC-8*	✓	✓
Form/Lines Text ⁴	60* 5 - 128	✓	✓	✓	✓	✓
Paper (Job) Size	Letter*, Legal,	plus A4, Executive, Envelopes (Com-10, Monarch, C5, DL, B5) Custom (3" x 5" – 8.5" x 14")	plus A4, A5, Executive, Envelopes (Com10, Monarch, C5, DL, B5) (6P/6MP also includes Custom, JISB5, JPOST, JPOSTD)	plus A4, Executive, A3, B4, B5, Ledger (11" x 17"), plus COM10, Envelopes (Com-10, Monarch, DL, C5, B5)	plus A4, 11 x 17, A3, Executive, plus COM10, DL, C5 envelopes	
Manual Feed	Off*, On	✓	✓	✓	✓	✓
Duplex	Off* (simplex), On	ns	5/5M (option) 6P/6MP (ns)	✓	ns	ns
Binding	Long-edge*, Short-edge	ns	5/5M (w/ duplex option)	✓	ns	ns
Output Bin (Media Bin)	Upper*, Lower	ns	ns	✓	✓	ns
Resolution Enhancement	Medium*, Light, Dark, Off, On	On*, Off	✓	On*, Off	✓	✓
Print Density	1, 2, 3*, 4, 5	✓	✓	✓	✓	✓
EconoMode	On, Off*	✓	✓	✓	✓	✓
Resource Saving	On, Off*	ns	On, Off, Auto*	On, Off, Auto*	On, Off, Auto*	On, Off, Auto*

✓ - Supported * - Default value (see Chapter 2 for list) ns - Not Supported

¹ PCL range is 1 through 32767

² Displayed for fixed-spaced scalable fonts only.

³ Displayed for proportional scalable fonts only

⁴ Sets PCL text length

Table 4-3. User Default Environment (continued)

Menu Item	Range	1100 series	4000 series	5000, 8000 series	8100 series
Copies	1* through 999 ¹	✓	✓	✓	✓
Orientation	Portrait*, Land.	✓	✓	✓	✓
Font Source	Internal*, Cartridge, Soft Fonts	✓ (no cartridges)	✓ (no cartridges)	✓ (no cartridges)	✓ (no cartridges)
Font Number	0* (Courier) to n	✓	✓	✓	✓
Pitch ²	10.00* .44 - 99.99	✓	✓	✓	✓
Point Size ³	12.00* 4 - 999.75	✓	✓	✓	✓
Symbol Set	Roman-8*	PC-8*	✓	✓	✓
Form/Lines Text ⁴	60* 5 - 128	✓	✓	✓	✓
Paper (Job) Size	Letter*, Legal,	plus A4, Executive, Envelopes (Com-10, Monarch, C5, DL, B5) Custom (3" x 5" – 8.5" x 14")	plus A4, A5, B5, JISB5, Executive, Envelopes (Com10, Monarch, C5, DL, B5)	plus A3, A4, A5, B4, B5, JISB5, Ledger, Executive, Envelopes (Com10, Monarch, C5, DL, B5)	plus A3, A4, A5, B4, B5, JISB5, Ledger, 8k, 16k, JISExec, Executive, Envelopes (Com10, Monarch, C5, DL, B5)
Manual Feed	Off*, On	✓	✓	✓	✓
Duplex	Off* (simplex), On	ns	option	option	option
Binding	Long-edge*, Short-edge	ns	(w/ duplex option)	(w/ duplex option)	(w/ duplex option)
Output Bin (Media Bin)	Upper*, Lower	ns	✓	✓	✓
Resolution Enhancement	Medium*, Light, Dark, Off, On	On*, Off	✓	✓	✓
Print Density	1, 2, 3*, 4, 5	✓	✓	✓	✓
EconoMode	On, Off*	✓	✓	✓	✓
Resource Saving	On, Off*	ns	On, Off, Auto*	On, Off, Auto*	On, Off, Auto*

✓ - Supported * - Default value (see Chapter 2 for list) ns - Not Supported

¹ PCL range is 1 through 32767

² Displayed for fixed-spaced scalable fonts only.

³ Displayed for proportional scalable fonts only

⁴ Sets PCL text length

Table 4-3. User Default Environment (continued)

Menu Item	Range	2100 series	Color LaserJet 4500 series	Color LaserJet 8500 series
Copies	1* through 999 ¹	✓	✓	✓
Orientation	Portrait*, Land.	✓	✓	✓
Font Source	Internal*, Cartridge, Soft Fonts	✓ (no cartridges)	✓ (no cartridges)	✓ (no cartridges)
Font Number	0* (Courier) to n	✓	✓	✓
Pitch ²	10.00* .44 - 99.99	✓	✓	✓
Point Size ³	12.00* 4 - 999.75	✓	✓	✓
Symbol Set	Roman-8*	✓	✓	✓ (PC-8*)
Form/Lines Text ⁴	60* 5 - 128	✓	✓	✓
Paper (Job) Size	Letter*, Legal	plus A4, A5, B5, JISB5, Executive, Envelopes (Com10, Monarch, C5, DL, B5)	plus A4, A5, B5, JISB5, Executive, Envelopes (Com10, Monarch, C5, DL, B5)	plus A3, A4, Executive, B4, B5, Ledger (11" x 17"), Envelopes (Com10, Monarch, DL, C5, B5)
Manual Feed	Off*, On	✓	✓	✓
Duplex	Off* (simplex), On	option	option	✓
Binding	Long-edge*, Short-edge	(w/ duplex option)	(w/ duplex option)	✓
Output Bin (Media Bin)	Upper*, Lower	✓	✓	✓
Resolution Enhancement	Medium*, Light, Dark, Off, On	✓	✓	ns
Print Density	1, 2, 3*, 4, 5	✓	✓	ns
EconoMode	On, Off*	✓	✓	ns
Resource Saving	On, Off*	On, Off, Auto*	On, Off, Auto*	ns

✓ - Supported * - Default value (see Chapter 2 for list) ns - Not Supported

¹ PCL range is 1 through 32767

² Displayed for fixed-spaced scalable fonts only.

³ Displayed for proportional scalable fonts only

⁴ Sets PCL text length

