

# 3 The Print Environment

## Introduction

The group of all of the printer's current feature settings, collectively, is referred to as the print environment. The printer maintains four print environments: the **Factory Default Environment**, the **User Default Environment**, the **Modified Print Environment** and the **Overlay Environment**. This chapter describes the Factory Default Environment, the User Default Environment, and the Modified Print Environment (the Overlay Environment is described in Chapter 12, *Macros*).

Default settings refer to the settings programmed into the printer at the factory or settings selected using the control panel. The term “default” simply refers to the settings the printer uses unless printer commands select other settings.

Each time a job is printed, some of the printer's feature settings may be changed from their default values to produce the desired printed output for that job. After the job prints, the job-specific feature settings are no longer required, since the next job is likely to have different output requirements. The next job should clear all previous job settings by performing a reset. This allows a job to start with the default settings as a known base set, and vary only those settings that are needed. Starting with the default environment at the beginning of each print job eliminates the need to set every feature each time a job is run.

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### Note

The print environment features presented in this chapter are for a variety of HP LaserJet printers. Not all of the features are applicable to every printer. To identify variations and default settings for specific printers, refer to Chapter 3 of the *PCL 5 Comparison Guide*.

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# Factory Default Environment

A factory default is a feature setting programmed into the printer at the factory. The group of all of the printer's feature settings set to their factory settings is referred to as the Factory Default Environment. These features are described in this manual. Since the HP-GL/2 features are used for HP-GL/2 operation only, the print environment features are separated, for convenience, into two lists or contexts: PCL and HP-GL/2. Table 3-1 lists typical PCL print environment features, and Table 3-2 lists typical HP-GL/2 print environment features.

## Note

The factory default settings for the printer features are not shown here, since they differ depending on the printer model. To identify variations and default settings for specific printers, refer to Chapter 3 of the *PCL 5 Comparison Guide*.

**Table 3-1 Factory Default Print Environment Features – PCL Context**

<b>JOB CONTROL</b>	<b>FONTS<sup>1</sup></b>
Number of Copies <sup>2</sup>	Symbol Set <sup>2</sup>
Duplex <sup>2</sup>	Spacing
Binding <sup>2, 3</sup>	Pitch <sup>4</sup>
Registration	Height <sup>5</sup>
Tray <sup>2</sup>	Style
Manual Feed <sup>2</sup>	Stroke Weight
User-defined Units	Typeface
	Underlining Mode

1. The font characteristics are determined by the default font. The default font can be the factory default font or the user-selected default font from the printer's control panel or from a font cartridge containing a default font.
2. User default values may be selected by the user from the printer's control panel for these items.
3. Selectable from the printer control panel if duplex is selected.
4. Selectable from the printer's control panel if a fixed-space scalable font has been selected as the user default.
5. Selectable from the printer's control panel if a proportional scalable font has been selected as the user default.

**Table 3-1 Factory Default Print Environment Features –  
PCL Context (continued)**

<b>PAGE CONTROL</b>	<b>FONT MANAGEMENT</b>
Print Direction	Font ID
Orientation <sup>2</sup>	Character Code
Page Size <sup>2</sup>	Symbol Set ID
Paper Source	<b>RASTER GRAPHICS</b>
Vertical Motion Index <sup>2</sup>	Left Graphics Margin
Horizontal Motion Index <sup>2</sup>	Resolution
Top Margin	Compression Mode
Text Length	Raster Height
Left Margin	Raster Width
Right Margin	Raster Graphics Presentation Mode
Perforation Skip	<b>PICTURE FRAME</b>
Line Termination	Picture Frame Width
<b>PRINT MODEL</b>	Picture Frame Height
Current Pattern	Picture Frame Anchor Point
Source Transparency Mode	HP-GL/2 plot Horizontal Size
Pattern Transparency Mode	HP-GL/2 Plot Vertical Size
Pattern Reference Point	<b>MACRO</b>
Pattern Rotation	Macro ID

1. The font characteristics are determined by the default font. The default font can be the factory default font or the user-selected default font from the printer's control panel or from a font cartridge containing a default font.
2. User default values may be selected by the user from the printer's control panel for these items.
3. Selectable from the printer control panel if duplex is selected.
4. Selectable from the printer's control panel if a fixed-space scalable font has been selected as the user default.
5. Selectable from the printer's control panel if a proportional scalable font has been selected as the user default.

**Table 3-1 Factory Default Print Environment Features – PCL Context (*continued*)**

<b>RECTANGULAR AREA FILL</b>	<b>TROUBLESHOOTING</b>
Horizontal Rectangle Size	End-of-Line Wrap
Vertical Rectangle Size	Display Functions
Pattern (Area Fill) ID	
<b>STATUS READBACK</b>	
Current Location Type	
Current Location Unit	

1. The font characteristics are determined by the default font. The default font can be the factory default font or the user-selected default font from the printer's control panel or from a font cartridge containing a default font.
2. User default values may be selected by the user from the printer's control panel for these items.
3. Selectable from the printer control panel if duplex is selected.
4. Selectable from the printer's control panel if a fixed-space scalable font has been selected as the user default.
5. Selectable from the printer's control panel if a proportional scalable font has been selected as the user default.

**Table 3-2 Factory Default Print Environment Features – HP-GL/2 Context**

<b>CHARACTER GROUP</b>	<b>POLYGON GROUP</b>
Symbol Set	Polygon Buffer
Font Spacing	Polygon Mode
Pitch	<b>LINE AND FILL ATTRIBUTE GROUP</b>
Height	Line Type
Posture	Line Type Repeat Length
Stroke Weight	Line Cap
Typeface	Line Join
Character Direction	Miter Limit
Character Direction Mode	Pen Turret
Character Size Mode	Pen Width
Character Width	Pen Width Selection Mode
Character Height	Selected Pen
Character Slant	Symbol Mode
Extra Horizontal Space	Fill Type
Extra Vertical Space	User-defined Line Type
Character Fill Mode	Anchor Corner
Label Origin	User-defined Fill Types
Label Terminator	<b>PALETTE EXTENSION</b>
Transparent Data Mode	Number of Pens
Primary Font ID	Transparency Mode
Secondary Font ID	Screened Vector
Scalable or Bitmap Font	<b>CONFIGURATION &amp; STATUS GROUP</b>
<b>VECTOR GROUP</b>	Scale Mode
Plotting Mode	Window
Pen State	Coordinate System Orientation
	P1, P2

# User Default Environment

There are several PCL features in the printer for which user defaults may be selected from the printer's control panel. User default settings are stored in the User Default Environment and are retained even if the printer is turned OFF. Some of these features are listed below (for a complete set of the control panel user default features refer to Chapter 3 of the *PCL 5 Comparison Guide*.)

- Number of Copies
- Font Selection (Font Source, Font Number, Pitch<sup>1</sup> or Point Size<sup>1</sup>)
- Duplex/Simplex
- Binding Edge<sup>2</sup>
- Tray
- Paper (Page Size: Paper and Envelopes)
- Manual Feed
- Orientation
- Symbol Set

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## Notes

Refer to “*Horizontal Motion Index (HMI) Command*” in Chapter 5 for the implications of setting the user default font (source, number, pitch or point size).

Refer to the printer *User's Manual* for instructions on how to select these user defaults from the control panel.

The PJL (Printer Job Language) “SET” command overrides the PCL user default environment for the duration of a PJL job. If PJL is not active, then the PCL user default environment has precedence. Refer to “PCL Commands” in Chapter 1 for more information.

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1. For scalable typefaces: fixed-space typefaces are selected only by pitch; and proportionally-spaced typefaces are selected only by point size.  
2. Selectable only if duplex is On.

# Modified Print Environment

The current printer feature settings constitute the Modified Print Environment. Whenever a feature setting is altered using escape sequences, the new setting is recorded in the Modified Print Environment.

The Modified Print Environment is saved during a macro **call** or **overlay** and restored upon its completion.

A Modified Print Environment consists of the current settings for the items listed in Table 3-1 and Table 3-2, with the exception of the items listed in Table 3-3, below.

**Table 3-3    Items Not Included in Modified Print Environment**

PCL Context	HP-GL/2 Context
Overlay environment	HP-GL/2 overlay environment
Current cursor position	Duplex registration
Cursor position stack	Polygon buffer
Downloaded fonts/macros	
User-defined patterns	

**Note**

Not all of the Modified Print Environment features are applicable to every printer. To identify variations and default settings for specific printers, refer to the *PCL 5 Comparison Guide*.

# Resetting the Print Environment

Resets are used to return the printer to a known environment. Depending on the type of reset performed, the printer returns to either the User Default Environment or the Factory Default Environment.

## Printer Reset

A Printer Reset restores the User Default Environment and deletes temporary fonts, macros, user-defined symbol sets, and patterns. A Printer Reset is performed by sending the  $\text{E}_\text{C}\text{E}$  command, or through the printer's control panel (see the printer *User's Manual*). The Printer Reset command is described in Chapter 4, *PCL Job Control Commands*.

The  $\text{E}_\text{C}\text{E}$  command prints any partial pages of data that may have been received. The control panel **[RESET]** discards any formatted pages which have not yet been printed.

Both resets (  $\text{E}_\text{C}\text{E}$  and the control panel **[RESET]** ) return the HP-GL/2 settings to their default values.  $\text{E}_\text{C}\text{E}$  used in HP-GL/2 mode returns the printer to PCL mode in addition to resetting the print environment. The HP-GL/2 **IN (Initialize)** command resets HP-GL/2 settings to their default values without affecting the PCL settings (refer to the Initialize command described in Chapter 19, *The Configuration and Status Group*, for additional information).

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### Notes

Hewlett-Packard strongly recommends the use of both the  $\text{E}_\text{C}\text{E}$  command and the  $\text{E}_\text{C}\text{\%}-12345\text{X}$  command (Universal Exit Language/Start of PDL — also referred to as the **UEL Command**) at the beginning and end of each job. (The order of these commands is critical. Refer to Table 4-1 for an example of their usage.)

The UEL Command ( $\text{E}_\text{C}\text{\%}-12345\text{X}$ ) has the same effect as the  $\text{E}_\text{C}\text{E}$  command, and also enters PDL Mode of operation for printers that support PDL (refer to “Universal Exit Language Command” in Chapter 4 for more information). The  $\text{E}_\text{C}\text{E}$  command should be included to ensure backward compatibility (the UEL command is ignored if received by a printer that does not support PDL).

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## Cold Reset

A Cold Reset restores the Factory Default Environment which includes resetting the control panel items to their factory default settings. A Cold Reset is performed by power cycling the printer while holding **[ON LINE]** until a **08 COLD RESET** is displayed.

