

PCL 5e Graphics FAQ - LaserJet

Q: In the PCL 5 Printer Language Technical Reference Manual on page 13-19, I can not seem to make Resolution-Specified User-Defined Pattern Header work.

A: There are actually 3 formats:

Format 0:

1 bit per pixel: black and white, or foreground color and white.

Format 1:

1 or 8 bits per pixel: use current palette

Format 20:

Resolution- specified. 1 bit per pixel: black and white, or foreground color and white.

Format 0 patterns have one bit per pixel. A 1 bit indicates black or foreground color. A 0 indicates either white or transparency, depending on the source and pattern transparency modes. A 0 bit cannot be colored.

Format 1 patterns use the current palette. Data is sent pixel by pixel, and the bits/index field of the pixel encoding byte determines the number of bits defining a pixel.

Format 20 adds X and Y resolution fields for devices that can specify pattern resolution.

To use the different Formats you must choose the format in the 0 byte of the header. For example: send Hex 14 in the 0 byte to select the resolution-Specified User-Defined Pattern Header format.

Q: When trying to edit PCL in Windows Notepad, lines form down through the graphics.

A: In Notepad and other Windows editors, text files are terminated with the Null value or Hex(00). As Notepad reads in the files from disk it converts all the Hex (00) values to Hex (20) values until it receives EOF from the Read Function. This causes raster graphics white space to be filled with one bit changed to a one. As the lines of raster graphics usually start vertically in the save position, these changed bits form vertical lines through the white space.

To avoid this, use a HEX editor to edit PCL files. DOS edit also works for small files, but it too has many limitations.

Q: What is the PCL Picture Frame?

A: The PCL Picture Frame is the area where HP-GL/2 graphics can be printed. HP-GL/2 graphics are also constricted to printing within the PCL Logical Page, regardless of where the PCL Picture Frame is positioned (anchored).

Q: Is the default coordinate system different in HP-GL/2 than PCL?

A: Yes, in HP-GL/2 +Y is up instead of down.

Q: Where is the default origin in HP-GL/2?

A: The default HP-GL/2 origin (a.k.a. P1) is at the lower left hand corner of the PCL Picture Frame. P1 and P2 can be repositioned with the IP and IR commands.

Q: Does orientation of the PCL logical page affect the orientation of the default HP-GL/2 coordinate system?

A: Yes, if you were to change the orientation of your logical page to landscape, then the HP-GL/2 coordinate system (as well as the PCL Picture Frame) would rotate 90 degrees making +Y go up the short edge of the page.

Q: What is the default unit of measure in HP-GL/2?

A: The HP-GL/2 default unit of measure is Plotter Units (plu).

1plu = .025mm

1016plu = 1 inch.

You can set up user-defined units of measure along the X and Y axis of the HP-GL/2 coordinate system with the Scale command (SC).

Q: How do I specify the size of the PCL Picture Frame?

A: You can specify the size of the PCL Picture Frame with the PCL Picture Frame Size commands [esc]*c#X and [esc]*c#Y, where # is in decipoints (1 inch = 720 decipoints).

Q: How do I position the PCL Picture Frame?

A: You can position the PCL Picture Frame by issuing the Picture Frame Anchor Point command [esc]*c0T, which positions the upper left hand corner of the PCL Picture Frame at the current PCL cursor position.

Q: How do I enter and exit HP-GL/2 mode?

A: Use [esc]%#B to enter HP-GL/2 mode, and [esc]%#A to exit HP-GL/2 mode

Q: How do the Scale command (SC) and points P1 and P2 work together to redefine units of measure?

A: The Scale command (SC) can be used to define the number of X units from the x coordinate of P1 to the x coordinate P2, and the number of Y units from the y coordinate of P1 to the y coordinate of P2.

By default P1 (HP-GL/2 origin) is the lower left hand corner of the PCL Picture Frame, and P2 is at the upper right hand corner. P1 and P2 can be repositioned with the IP and IR commands.

If the Scale command is not issued, then Plotter units will remain the unit of measure.

Q: What is PCL?

A: PCL is the Printer Control Language.