NAME

lj4_font - groff fonts for use with devlj4

DESCRIPTION

Nominally, all Hewlett-Packard LaserJet 4–series and newer printers have the same internal fonts: 45 scalable fonts and one bitmapped Lineprinter font. The scalable fonts are available in sizes between 0.25 point and 999.75 points, in 0.25-point increments; the Lineprinter font is available only in 8.5-point size.

The LaserJet font files included with **groff** assume that all printers since the LaserJet 4 are identical. There are some differences between fonts in the earlier and more recent printers, however. The LaserJet 4 printer used Agfa Intellifont technology for 35 of the internal scalable fonts; the remaining 10 scalable fonts were TrueType. Beginning with the LaserJet 4000–series printers introduced in 1997, all scalable internal fonts have been TrueType. The number of printable glyphs differs slightly between Intellifont and TrueType fonts (generally, the TrueType fonts include more glyphs), and there are some minor differences in glyph metrics. Differences among printer models are described in the *PCL 5 Comparison Guide* and the *PCL 5 Comparison Guide Addendum* (for printers introduced since approximately 2001).

LaserJet printers reference a glyph by a combination of a 256-glyph symbol set and an index within that symbol set. Many glyphs appear in more than one symbol set; all combinations of symbol set and index that reference the same glyph are equivalent. For each glyph, hpftodit(1) searches a list of symbol sets, and selects the first set that contains the glyph. The printing code generated by hpftodit(1) is an integer that encodes a numerical value for the symbol set in the high byte(s), and the index in the low byte. See groff_font(5) for a complete description of the font file format; symbol sets are described in greater detail in the *PCL 5 Printer Language Technical Reference Manual*.

Two of the scalable fonts, Symbol and Wingdings, are bound to 256-glyph symbol sets; the remaining scalable fonts, as well as the Lineprinter font, support numerous symbol sets, sufficient to enable printing of more than 600 glyphs.

The metrics generated by hpftodit(1) assume that the DESC file contains values of 1200 for res and 6350 for unitwidth (or any combination (e.g., 2400 and 3175) for which $\text{res} \times \text{unitwidth} = 7\,620\,000$). Although HP PCL 5 LaserJet printers support an internal resolution of 7200 units per inch, they use a 16-bit signed integer for cursor positioning; if **devlj4** is to support U.S. ledger paper (11×17), the maximum usable resolution is $32\,767 / 17$, or 1927, units per inch, which rounds down to 1200 units per inch. If the largest required paper size is less (e.g., 8.5×11 or A5), a greater resolution (and lesser unitwidth) can be specified.

LIMITATIONS

Font metrics for Intellifont fonts were provided by Tagged Font Metric (TFM) files originally developed by Agfa/Compugraphic. The TFM files provided for these fonts supported 600+ glyphs and contained extensive lists of kern pairs.

To accommodate developers who had become accustomed to TFM files, HP also provided TFM files for the 10 TrueType fonts included in the LaserJet 4. The TFM files for TrueType fonts generally included less information than the Intellifont TFMs, supporting fewer glyphs, and in most cases, providing no kerning information. By the time the LaserJet 4000 printer was introduced, most developers had migrated to other means of obtaining font metrics, and support for new TFM files was very limited. The TFM files provided for the TrueType fonts in the LaserJet 4000 support only the Latin 2 (ISO 8859-2) symbol set, and include no kerning information; consequently, they are of little value for any but the most rudimentary documents.

Because the Intellifont TFM files contain considerably more information, they generally are preferable to the TrueType TFM files even for use with the TrueType fonts in the newer printers. The metrics for the TrueType fonts are very close, though not identical, to those for the earlier Intellifont fonts of the same names. Although most output using the Intellifont metrics with the newer printers is quite acceptable, a few glyphs may fail to print as expected. The differences in

glyph metrics may be particularly noticeable with composite parentheses, brackets, and braces used by eqn(1) A script, located in **/usr/share/groff/1.22.3/font/devlj4/generate**, can be used to adjust the metrics for these glyphs in the special font S for use with printers that have all TrueType fonts.

At the time HP last supported TFM files, only Version 1 of the Unicode standard was available. Consequently, many glyphs lacking assigned code points were assigned by HP to the Private Use Area (PUA). Later versions of the Unicode standard included code points outside the PUA for many of these glyphs. The HP-supplied TrueType TFM files use the PUA assignments; TFM files generated from more recent TrueType font files require the later Unicode values to access the same glyphs. Consequently, two different mapping files may be required: one for the HP-supplied TFM files, and one for more recent TFM files.

FILES

/usr/share/groff/1.22.3/font/devlj4/DESC
> Device description file.

/usr/share/groff/1.22.3/font/devlj4/*F*
> Font description file for font *F*.

SEE ALSO
groff(1), **groff_diff(1),** hpftodit(1), grolj4(1), groff_font(5)

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