Setting up pdfTeX

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Considerations

Keeping a few things in mind will help in installing, upgrading, and configuring pdfTeX.

- pdfTeX is an “all-in-one” processor.
  No `\specials`; no `dvips`
- Type 1 fonts work well.
- pdfTeX uses `kpathsea` just as TeX does.

Getting It

in a distro
separately

in a distro

pdfTeX comes with many popular distributions

- including teTeX, fpTeX, MikTeX, CMacTeX, web2c's texk[1]
- easy: someone else has done the work

[1] needs type1 fonts

separately

If your TEX installation doesn't have pdfTEX, you can install pdfTEX yourself.

- `ftp://ftp.muni.cz/pub/tex/local/cstug/thanh/pdftex/`
- can be difficult: many interdependent pieces to consider
- binaries
- platform-independent files (in `pdftexlib.zip`)

Many of the issues are the same as for upgrading pdfTEX in an existing TEX installation. See below.

Upgrading

whole distribution

just pdfTeX

whole distribution

While you are upgrading pdfTEX, why not upgrade everything? By upgrading your entire TEX installation, you benefit from improvements and bugfixes that you may not even be aware of.

just pdfTeX

There are two ways to upgrade pdfTeX itself in an existing TeX installation:

- from binaries
  advantages: no need to compile
  pitfalls: binaries may have been compiled for a different location in the system — set `$TEXMFCNF`
  Remember to install the `*.pool` files too!
  Rebuild `kpathsea` database with `mktexlsr`.
  Regenerate formats for pdfTeX and pdfe-TeX, including formats for LaTeX if necessary.

- from sources
  advantages:
  - you get the source for your perusal
  - you can do a custom build for your machine with your own preferences

  pitfalls: problems with the sources (e.g. missing pdfetex)

LaTeX users should remember to make symbolic links or copies of pdfTeX and pdfe-TeX to their LaTeX counterparts.

Configuration

`texmf.cnf`
`pdftex.cfg`
formats

There are a few tweaks to make once pdfTEX has been installed.[2]

[2] Fonts will be covered in other presentations here at TUG2000.

texmf.cnf

Firstly, pdfTeX must be able to find `texmf.cnf` itself.

- Binaries can be configured to look for `texmf.cnf` in a certain location.
- If the binaries don't know where `texmf.cnf` is, then they must be told: `$TEXMFCNF`

There are a few pdfTeX-specific variables for `texmf.cnf`:

```
VFFONTS
T1FONTS
TTFONTS
PKFONTS
TEXPSHEADERS
```

Also, my teTeX installation's `texmf.cnf` has some pdfTeX-specific sections, including `TEXINPUTS` and such, that rarely need adjustment.
There is a FAQ about errors regarding a too-small pool size. Pool size is adjustable in the `texmf.cnf` file.

pdftex.cfg

You can set some handy defaults in `pdftex.cfg`. The values set in `pdftex.cfg` correspond to internal registers that can be manipulated in your document if you need to override the default.
Some of the more interesting ones:

- `output_format`
  Set to one for PDF output to be pdfTEX's default.
- `compress_level`
  Set to `0` for no compression, `1` for fastest compression, through `9` for highest compression.[3]
- `image_resolution`
  The default is a low `72`, so set this value higher for high-resolution raster graphics.
- `page_width` and `page_height`
  pdfTEX has to know these since it creates PDF directly. Use `true` dimensions to make the settings immune to magnification.[4]

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[3] Is anyone using 9? Let me know!
[4] teTEX users take note! teTEX comes with these dimensions *not* set to true dimensions.

formats

Formats are binary dumps of the memory state of pdfTEX after it loads a given macropackage. Formats allow TEX and friends to run very quickly.
The memory of one executable won't look the same as the memory of a different executable, so whenever you have new executables, you must generate new format files.

- teTEX's `fmtutil` tool
  ```
  fmtutil --edit
  fmtutil --all
  ```

- ConTEXt's `texexec` tool
  ```
  texexec --make en nl uk de
  ```

- manual format generation

  – pdfTEX has same syntax as TEX:
  ```
  pdftex -ini -fmt=pdftex plain "\dump"
  ```
  – pdfe-TEX:
  ```
  pdfetex -ini -efmt=pdfetex plain "\dump"
  ```

Resources

links: http://www.tug.org/applications/pdftex/
source: ftp://ftp.muni.cz/pub/tex/local/cstug/thanh/pdftex/
manual: http://www.tug.org/applications/pdftex/pdftex-s.pdf
FAQ: http://www.tug.org/applications/pdftex/pdfTeX-FAQ.pdf
METAPOST: http://cm.bell-labs.com/who/hobby/MetaPost.html
perl: http://www.perl.com/