

Building T_EX Live

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- cross-platform T_EX distribution, yearly release, DVD
- sponsored by TUG, DANTE e.V., all user groups
- basis for distros (Debian, Fedora, BSD, ...)
- native TL: both sharable packages and compiled programs
- binaries for over 20 platforms, average 100MB
(GNU/Linux, BSD, MacOSX, other Unix, Windows)
- about 3.5GB without binaries (doc, fonts, ...)
- MiK_TE_X: Windows-only, independent of TL, uses CTAN

- follows TDS (T_EX Directory Structure), by file type:
doc, tex, fonts, scripts, ...
- almost all under texmf-dist directory
- essentially no platform-specific binaries there
- then subdirs, e.g.,
texmf-dist/tex/latex/base/article.cls
texmf-dist/fonts/tfm/public/cm/cmr10.tfm
- names invented and exceptions made as needed
- code doesn't care; texmf-dist/web2c/texmf.cnf

Packages 2: Updates • <http://ctan.org/upload> 4/11

- author → CTAN → TL Master → tlnet → CTAN → user
- CTAN (Comprehensive T_EX Archive Network, <http://ctan.org>), about 100 mirrors (more welcome)
- only sources (except .pdf), for browsing, and README
- .tds.zip not needed, or recommended
- announcements not needed, TL checks actual contents
- TL imports from CTAN by hand (usually daily, usually by me)

Packages 3: TL import

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- <http://tug.org/texlive/pkgupdate.html> (TL dev)
- copy CTAN directory to scratch directory
- make derived `.sty`, `.tfm`, etc., from `.ins/.dtx`, etc. (but don't remake `.pdf`)
- distribute files into appropriate `tex`, `fonts`, etc., directories
- when ok (compared to current), commit
- special cases everywhere, embedded in scripts

Packages 4: TL export

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- <http://tug.org/texlive/pkginstall.html> (users)
- nightly update to tug.org, if all goes well
- CTAN pulls from tug.org to systems/texlive/tlnet
- distributed to CTAN mirrors, can take a couple days
- `tlmgr` update: bleeding-edge, not required, not recommended, but appreciated
- download default is CTAN multiplexor:
<http://mirror.ctan.org>
- <http://ctan.org/mirrors> has list for explicit choice (`tlmgr` option `repo`)

Packages 5: Criteria for inclusion

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- <http://tug.org/texlive/pkgcontrib.html>
- normal characters in filenames—no @, whitespace, etc.
- no filename (T_EX or executable) conflicts, existing or likely
- free software license (GPL, LPPL, etc.), explicitly stated, with source
- source for documentation too, or exclude PDF
- useful in itself or in conjunction with free software; e.g., not LPPL support for a proprietary font
- otherwise accepted

Programs 1: Source tree

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- <http://tug.org/texlive/svn>
- VC is Subversion (git-over-svn works), or just rsync
- Master/ vs. Build/, now we're in Build
- about 600MB, both T_EX-related and third-party libraries
- some pieces maintained in TL source tree—
Web2C, Kpathsea, dvips, dvi_{pdf}mx
- but most imported, including pdfT_EX, LuaT_EX, XeT_EX,
MetaPost

Programs 2: Building

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- `http://tug.org/texlive/build.html`
- C and C++ compilers suffice; not necessarily GNU
- `script Build/Build ≡ configure && make world`
- build done in separate `Build/Work/` subdirectory,
results in separate `Build/inst/` subdirectory;
source directories left alone
- result is not a usable $\text{T}_{\text{E}}\text{X}$ system,
just a directory of executables
- copied into `Master/bin/platform`

Programs 3: tex.web

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- `http://tug.org/texlive/doc/tlbuild.html`
(build one package)
- source dir: `Build/source/texk/web2c/tex.web`
- `tie tex.ch tex-binpool.ch ... → tex-final.ch`
- `tangle tex.web tex-final.ch → .p`
- `web2c tex[.p] → .c`
- `cc ...`
- link with helper `web2c/lib/lib.a` (Pascal runtime)
- `[gdb] ./tex -ini ...`
- `(re)make` in `Build/Work/texk/web2c/`

Acknowledgements

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- Thomas Esser— $\text{teT}_{\text{E}}\text{X}$ perpetrator
- Sebastian Rahtz—TL perpetrator
- Norbert Preining—package infrastructure
(`tlmgr`, `install-tl`, ...)
- Peter Breitenlohner—program infrastructure
- cast of thousands (<http://tug.org/texlive/doc/texlive-en/texlive-en.html#ack>)

Thanks for listening.