Norbert Preining

Vienna University of Technology, Austria

CSTUG MEETING 2008, BRNO, CZECH REPUBLIC

13 December 2008
## Layout

<table>
<thead>
<tr>
<th>Part for users</th>
<th>Technical part</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overview</td>
<td>Getting things into TeX Live</td>
</tr>
<tr>
<td>Installation</td>
<td>The new infrastructure</td>
</tr>
<tr>
<td>TeX Live Manager</td>
<td>Internals of the \texttt{tlpdb}, config options</td>
</tr>
<tr>
<td>Other news</td>
<td></td>
</tr>
</tbody>
</table>
History

- late 1993 Dutch \TeX\ Users Group, 4All\TeX\ CD, TDS working group
History

- late 1993 Dutch \TeX\ Users Group, 4All\TeX\ CD, tds working group
- 1995 Unix-based TDS CD based on te\TeX\
History

- late 1993 Dutch TEX Users Group, 4AllTEX CD, TDS working group
- 1995 Unix-based TDS CD based on teTEX
- 1996 first edition, Sebastian Rahtz
History

- late 1993 Dutch TeX Users Group, 4AllTeX CD, TDS working group
- 1995 Unix-based TDS CD based on teTeX
- 1996 first edition, Sebastian Rahtz
- 2000 5th edition, non-free software removed
- 2002 7th edition: Mac OS X support
- 2005 addition of the -sys scripts
- 2006-07 XeTeX addition, end of TeX development, Karl Berry
History

- late 1993 Dutch \TeX Users Group, 4All\TeX CD, TDS working group
- 1995 Unix-based TDS CD based on te\TeX
- 1996 first edition, Sebastian Rahtz
- 2000 5th edition, non-free software removed
- 2002 7th edition: Mac OS X support
History

- late 1993 Dutch \TeX\ Users Group, 4All\TeX\ CD, \tds\ working group
- 1995 Unix-based \tds CD based on te\TeX\n- 1996 first edition, Sebastian Rahtz
- 2000 5th edition, non-free software removed
- 2002 7th edition: Mac OS X support
- 2005 addition of the -sys scripts
History

- late 1993 Dutch \TeX\ Users Group, 4\TeX\ CD, TDS working group
- 1995 Unix-based TDS CD based on te\TeX
- 1996 first edition, Sebastian Rahtz
- 2000 5th edition, non-free software
- 2002 7th edition: Mac OS X support
- 2005 addition of the -sys scripts
- 2006-07 Xe\TeX\ addition, end of te\TeX\ development, Karl Berry
Features

- ‘complete’ – all the free stuff from CTAN
- multi-platform
- uniform across platforms
- practically daily updates
- DFSG free with a few exceptions
Features of the new installer

➤ Installation from various sources
➤ Text and GUI mode
➤ Windows == Unix (cum grano salis)
Installation sources

- DVD
  - update TeX Live Manager, noexec
- Network
- local (hard disk) mirror of CTAN
- svn checkout
- another installation
Installation sources

- DVD
- Network
  automatic detection of nearest CTAN-mirror
- local (hard disk) mirror of CTAN
- svn checkout
- another installation
Installation sources

- DVD

- Network

- local (hard disk) mirror of CTAN
  use it like a DVD

- svn checkout

- another installation
Installation sources

- DVD
- Network
- local (hard disk) mirror of CTAN
- svn checkout
- another installation
Installation sources

- DVD
- Network
- local (hard disk) mirror of CTAN
- svn checkout
- another installation
  recent installations, -location argument necessary
Where to start

- Go and get it at http://mirror.ctan.org/systems/texlive/tlnet/2008

- `install-tl-unx.tar.gz` for Unix-ish systems

- `install-tl.zip` for all systems

- `w32`: double-click the `.bat` file

- `Unix`: `./install-tl`
Where to start

- Go and get it at http://mirror.ctan.org/systems/texlive/tlnet/2008

- `install-tl-unx.tar.gz` for Unix-ish systems

- `install-tl.zip` for all systems
  supports all systems, but ships Perl for w32

- `w32`: double-click the `.bat` file

- Unix: `./install-tl`
Where to start

- Go and get it at http://mirror.ctan.org/systems/texlive/tlnet/2008

- install-tl-unx.tar.gz for Unix-ish systems

- install-tl.zip for all systems

- w32: double-click the .bat file or start it from a cmd shell for additional arguments

- Unix: ./install-tl
Where to start

▶ Go and get it at http://mirror.ctan.org/systems/texlive/tlnet/2008

▶ install-tl-unx.tar.gz for Unix-ish systems

▶ install-tl.zip for all systems

▶ w32: double-click the .bat file

▶ Unix: ./install-tl
and add arguments if you need them
Arguments for the Installer

- location installation source, can be
  /normal/path
  file:/some/path
  ftp://some.server/path
  http://some.server/path

- gui tries to start the GUI installer, -no-gui for w32
to disable the default GUI installer

- lang specifies a language code, currently supported:
en, de, fr, it, nl, pl, sl, zh_cn, zh_tw

- some more: -profile, -non-admin,...
Installation settings

- binary systems
Installation settings

- binary systems
- schemes

Select a scheme

- basic scheme (plain and LaTeX)
- ConTeXt scheme
- full scheme (everything)
- GUST TeX Live scheme
- GUTenberg TeX Live scheme
- medium scheme (plain, latex, recommended packages, some languages)
- minimal scheme (plain only)
- Omega scheme
- teTeX scheme
- XML scheme

[OK] [Cancel]
Installation settings

- binary systems
- schemes
- collections

<table>
<thead>
<tr>
<th>Select the collections to be installed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essential programs and files</td>
</tr>
<tr>
<td>Essential binaries</td>
</tr>
<tr>
<td>Extra BibTeX styles</td>
</tr>
<tr>
<td>TeX auxiliary programs</td>
</tr>
<tr>
<td>ConTeXt format</td>
</tr>
<tr>
<td>TeX Live documentation</td>
</tr>
<tr>
<td>TeX font-related programs</td>
</tr>
<tr>
<td>Extra fonts</td>
</tr>
<tr>
<td>Recommended fonts</td>
</tr>
<tr>
<td>Extra formats</td>
</tr>
<tr>
<td>Games typesetting (chess, etc)</td>
</tr>
<tr>
<td>Extra generic packages</td>
</tr>
<tr>
<td>Recommended generic packages</td>
</tr>
<tr>
<td>Graphics tools</td>
</tr>
<tr>
<td>HTML/SGML/XML support</td>
</tr>
<tr>
<td>Humanities packages</td>
</tr>
<tr>
<td>Basic LaTeX packages</td>
</tr>
<tr>
<td>LaTeX packages</td>
</tr>
<tr>
<td>LaTeX supplementary packages</td>
</tr>
<tr>
<td>LaTeX recommended packages</td>
</tr>
<tr>
<td>Advanced math typesetting</td>
</tr>
<tr>
<td>MetaPost (and Metafont) drawing packages</td>
</tr>
<tr>
<td>Music typesetting</td>
</tr>
<tr>
<td>Omega</td>
</tr>
<tr>
<td>Graphics packages</td>
</tr>
<tr>
<td>Plain TeX supplementary packages</td>
</tr>
<tr>
<td>PSTricks packages</td>
</tr>
<tr>
<td>Extra font utilities</td>
</tr>
<tr>
<td>Support for publishers and theses</td>
</tr>
<tr>
<td>Typesetting for natural and computer sciences</td>
</tr>
<tr>
<td>GNU Texinfo</td>
</tr>
<tr>
<td>TrueType font manipulation</td>
</tr>
<tr>
<td>Windows support programs</td>
</tr>
<tr>
<td>XeTeX packages</td>
</tr>
</tbody>
</table>
Installation settings

- binary systems
- schemes
- collections
- language collections and docs
Installation settings cont.

- destination folders
  - TEXDIR
  - TEXMFSYSVAR
  - TEXMFSYSCONFIG
  - TEXMFHOME

<table>
<thead>
<tr>
<th>Directory</th>
<th>Path</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEXDIR (the main TeX directory)</td>
<td>/home/norbert/texlive/2008</td>
</tr>
<tr>
<td>TEXMFLOCAL (directory for site-wide local files)</td>
<td>/home/norbert/texlive/texmf-local</td>
</tr>
<tr>
<td>TEXMFSYSVAR (directory for autogenerated data)</td>
<td>/home/norbert/texlive/2008/texmf-var</td>
</tr>
<tr>
<td>TEXMFSYSCONFIG (directory for local config)</td>
<td>/home/norbert/texlive/2008/texmf-config</td>
</tr>
<tr>
<td>TEXMFHOME (directory for user-specific files)</td>
<td>~/texmf</td>
</tr>
</tbody>
</table>
Installation settings cont.

- destination folders
  - TEXDIR
  - TEXMFSYSVAR
  - TEXMFSYSCONFIG
  - TEXMFHOME

- options
  - papersize
  - create formats
  - install font/macro documentation
  - install font/macro sources
Post installation actions

Windows systems
- Menu entry for \TeX Live with all programs
- Desktop link to ps-view
- adjusting the PATH environment

Unix systems
- add `texdir/bin/<arch>` to path
- adjust `manpath` and `infopath`
Post installation actions

Windows systems
▶ Menu entry for \TeX\ Live with all programs
▶ Desktop link to ps-view
▶ adjusting the PATH environment

Unix systems
▶ add \texttt{TEXDIR/bin/\langle ARCH\rangle} to \texttt{PATH}
▶ adjust \texttt{MANPATH} and \texttt{INFOPATH}
Other ways to use the installer

**Running from DVD**

only text mode, writable root necessary, only the texmf trees and binaries are not copied
Other ways to use the installer

Running from DVD

only text mode, writable root necessary, only the texmf trees and binaries are not copied

Portable usage tl_portable(.bat)

minimal impact on the system, first time it runs creates files in home directory, second time startup much faster, gives a shell that is set up for running TeX Live from there
Demo Text and GUI mode installer

==> Note: Letters/digits in <angle brackets> indicate menu items <=
===> for commands or configurable options <=

Proposed platform: Intel x86_64 with GNU/Linux

<B> binary systems: 1 out of 15

<S> Installation scheme (scheme-full)

Customizing installation scheme:

<C> standard collections

<L> language collections

83 collections out of 84, disk space required: 1426 MB

<D> directories:

TEXDIR (the main TeX directory):
/usr/local/texlive/2008

TEXMFLocal (directory for site-wide local files):
/usr/local/texlive/texmf-local

TEXMFsysvar (directory for variable and automatically generated data):
/usr/local/texlive/2008/texmf-var

TEXMFsysconfig (directory for local config):
/usr/local/texlive/2008/texmf-config

TEXMfhome (directory for user-specific files):
~/texmf

<O> options:

[ ] use letter size instead of A4 by default

[X] create all format files

[X] install macro/font doc tree

[X] install macro/font source tree

[ ] create symlinks in standard directories

<V> set up for running from DVD

Other options:

=====> TeX Live installation procedure <=====

Enter command:
The new player

\TeX \text{ Live Manager}
TEX Live Manager \texttt{tlmgr}

- installation/removal of additional packages or collections
- update all packages to the newest versions available
- backups and restore
- paper configuration like texconfig, but also for Windows
- managing the installed binary systems
- searching the installed and all available packages
- list and searching all schemes, collections, packages
- setting some default values like the installation location
- regenerate fmtutil.cnf, language.dat, and updmap.cfg from the information stored in the database and local additions
tex live manager – syntax

tlmgr [opt]... action [opt]... [arg]...
TEX Live Manager – Syntax

\texttt{tlmgr \[opt]\... action \[opt]\... \[arg]\...}

With first set of options:

- \texttt{-location} installation source, see above
- \texttt{-gui} starts the GUI
- \texttt{-gui-lang} should be auto-detected, can be overridden
- standard options \texttt{-help}, \texttt{-q}, \texttt{-v}, \texttt{-version}
TEX Live Manager – Syntax

tlmgr [opt]... **action** [opt]... [arg]...

- general actions: search, show, list, uninstall, check, gui, version, help

- configuration actions: option, paper, generate

- package management actions: install, update, remove, backup, restore, arch
The search (and show) action

\texttt{tlmgr [opt]... search [opt]... what}

searches the \textit{locally} installed package names and descriptions for \texttt{what}.

Options:

- \texttt{-global} also searches the remote database
- \texttt{-file} searches for file names
The search (and show) action

\texttt{tlmgr [opt]... search [opt]... what}

searches the \textit{locally} installed package names and
descriptions for \texttt{what}.

Options:

- \texttt{-global} also searches the remote database
- \texttt{-file} searches for file names

\texttt{tlmgr [opt]... show what}

shows information on the given packages
The install action

\texttt{tlmgr [opt]... install [opt]... what}

installs the package \texttt{what} including all dependencies

Options:

- \texttt{-no-depends} do not install dependencies
- \texttt{-no-depends-at-all} do not even install architecture specific sub-packages
The update action

tlmgr [opt]... update [opt]... what

installs the package what including all dependencies

Options:

▶ -list list packages to be updated (or added) with revisions
▶ -all update everything
▶ -dry-run don’t actually do it
▶ -backupdir dir saves a snapshot of the current status to the specified directory
▶ -no-depends, -no-depends-at-all as before
The GUI of the \TeX\ Live Manager

Updating packages
Use Ctrl or Shift or drag to select more

Select packages
Search
News

isomath
mathspec

Information on the selected item

Mathematics conformant to ISO 31.

The isomath package enables formatting Greek and Latin letters as symbols for vectors, matrices, and tensors in the typefaces recommended for scientific papers by the International Standard ISO 31.

Update selected
Update all
Concluding remarks on tlmgr

- very much work in progress, please do update your tlmgr immediately after a new installation
Concluding remarks on tlmgr

- very much work in progress, please do update your tlmgr immediately after a new installation
- the GUI needs a lot of work, does not exhibit all the functionality of the cmd line version

Recovering from crashed tlmgr or perl modules

- for Windows systems: ctan: update-tlmgr-latest.exe
- for Unix systems: ctan: update-tlmgr-latest.sh
Concluding remarks on tlmgr

- very much work in progress, please do update your tlmgr immediately after a new installation
- the GUI needs a lot of work, does not exhibit all the functionality of the cmd line version
- Perl programmers – join us!
Concluding remarks on \texttt{tlmgr}

- very much work in progress, please do update your \texttt{tlmgr} immediately after a new installation
- the GUI needs a lot of work, does not exhibit all the functionality of the cmd line version
- Perl programmers – join us!

Recovering from crashed \texttt{tlmgr} or perl modules
Concluding remarks on \texttt{tlmgr}

→ very much work in progress, please do update your \texttt{tlmgr} immediately after a new installation.
→ the \texttt{gui} needs a lot of work, does not exhibit all the functionality of the \texttt{cmd} line version.
→ Perl programmers – join us!

Recovering from crashed \texttt{tlmgr} or perl modules

→ for Windows systems: CTAN:
  update-\texttt{tlmgr-latest.exe}
Concluding remarks on tlmgr

- very much work in progress, please do update your tlmgr immediately after a new installation
- the GUI needs a lot of work, does not exhibit all the functionality of the cmd line version
- Perl programmers – join us!

Recovering from crashed tlmgr or perl modules

- for Windows systems: CTAN: update-tlmgr-latest.exe
- for Unix systems: CTAN: update-tlmgr-latest.sh
Other (user visible) news

- **hyph-utf8**: all engines share the same patterns
Other (user visible) news

- **hyph-utf8**: all engines share the same patterns
- **luaTEX**: embedded lua interpreter
Other (user visible) news

- **hyph-utf8**: all engines share the same patterns
- **lua\TeX**: embedded lua interpreter
- **xindy** indexing program
Other (user visible) news

- **hyph-utf8**: all engines share the same patterns
- **luaTeX**: embedded lua interpreter
- **xindy**: indexing program
- **(W32) Perl and Ghostscript**: ‘hidden’ copies, no interference with full-scale distributions
Other (user visible) news

- **hyph-utf8**: all engines share the same patterns
- **luaTeX**: embedded lua interpreter
- **xindy** indexing program
- **(W32) Perl and Ghostscript**: ‘hidden’ copies, no interference with full-scale distributions
- **(W32) fc-cache** helps XeLaTeX to handle fonts more efficiently.
Other (user visible) news

- **hyph-utf8**: all engines share the same patterns
- **luaTeX**: embedded lua interpreter
- **xindy** indexing program
- (W32) Perl and Ghostscript. 'hidden' copies, no interference with full-scale distributions
- (W32) fc-cache helps XeTeX handle fonts more efficiently.
- (W32) **PS_View**, a new PostScript (and PDF viewer that is free software
Other (user visible) news

- **hyph-utf8**: all engines share the same patterns
- **luaTeX**: embedded Lua interpreter
- **xindy** indexing program
- **(W32) Perl and Ghostscript** 'hidden' copies, no interference with full-scale distributions
- **(W32) fc-cache** helps XeTeX to handle fonts more efficiently.
- **(W32) PS_View**, a new PostScript (and PDF viewer that is free software)
- **(W32) dviout** DVI previewer
Intermezzo for
Package writers
Getting things into \TeX\ Live

New package
Getting things into \TeX\ Live

- New package
- Upload CTAN
Getting things into TeX Live

- New package
- upload CTAN
- known to ctan2tds?

- call ctan2tds
- adjust ctan2tds
- tug reference checkout
- update tlnet
- mirror to Cambridge
- mirrors to other ctan mirrors
Getting things into \TeX{} Live

1. New package
2. upload CTAN
3. known to ctan2tds?
   - yes
     - call ctan2tds
   - no
Getting things into TeX Live

- New package
- Upload CTAN
- known to ctan2tds?
  - adjust ctan2tds
  - yes
    - call ctan2tds
Getting things into TeX Live

New package

upload CTAN

known to ctan2tds?

yes

adjust ctan2tds

call ctan2tds

TUG reference checkout

User's computer

update tlnet

mirror to Cambridge ctan

mirrors to other ctan
Getting things into \TeX{} Live

- New package
- upload CTAN
  - known to ctan2tds?
    - yes
      - adjust ctan2tds
      - call ctan2tds
  - no
    - TUG reference checkout
      - update tlnet
- mirror to Cambridge
  - mirrors to other CTAN mirrors
- User's computer
Getting things into \TeX\ Live

- New package
- upload CTAN
- known to \textit{ctan2tds}?
  - yes
    - adjust \textit{ctan2tds}
    - call \textit{ctan2tds}
  - no
- TUG reference checkout
- update \textit{tl}net
- mirror to Cambridge CTAN
Getting things into \TeX{} Live

1. **New package**
   - **upload CTAN**
   - **known to ctan2tds?**
     - **yes**
       - **adjust ctan2tds**
       - **call ctan2tds**
   - **no**

2. **TUG reference checkout**
   - **update tlnet**
     - **mirror to Cambridge CTAN**
     - **mirrors to other CTAN mirrors**
Getting things into TeX Live

New package

upload CTAN

known to ctan2tds?

adjust ctan2tds

yes

call ctan2tds

TUG reference checkout

update tlnet

mirror to Cambridge CTAN

mirrors to other CTAN mirrors

User’s computer

User’s computer
Technical part
Aims of the new infrastructure

- Separation of static from generated content
  Going from a ‘source’ to the ‘object’ should include automatically data from various other sources
Aims of the new infrastructure

- Separation of static from generated content
  Going from a ‘source’ to the ‘object’ should include automatically data from various other sources
- No additional files to be kept in sync
  any additional files tend to be outdated, all the necessary information should be present in one place and be easily parseable.
Aims of the new infrastructure

- Separation of static from generated content
  Going from a ‘source’ to the ‘object’ should include automatically data from various other sources
- No additional files to be kept in sync
  any additional files tend to be outdated, all the necessary information should be present in one place and be easily parseable.
- Single package updates via the web
Aims of the new infrastructure

▶ Separation of static from generated content
  Going from a ‘source’ to the ‘object’ should include automatically data from various other sources
▶ No additional files to be kept in sync
  any additional files tend to be outdated, all the necessary information should be present in one place and be easily parseable.
▶ Single package updates via the web
▶ Better documentation
  since \TeX\ Live is replacing {\texttt{te\TeX}} we want to give people incorporating \TeX\ Live into distributions a better documented and easier to handle system
The central texlive.tlpdb

One installation or media is now completely described by one file, the \TeX{} Live Database:

- simple text file – easily parseable
- revision number for the single packages
- generated from static content (the tlpsrc files)
- enriched with information from the \TeX{} Catalogue
- format documented in detail (POD documentation in the respective perl module)
How does `texlive.tlpdb` look like

texlive.tlpdb

name_abbr
...

name_memoir
...

- sequence of key value pairs
- separated by an empty line (or more)
- one group per package
- some ‘meta’-packages for configuration options
The single package: \texttt{tlpobj} by example I

\begin{verbatim}
name_a0poster
category_Package
revision_7340
shortdesc_Support for designing posters on large paper.
longdesc_Provides fonts in sizes of 12pt up to 107pt and also makes sure that in math formulas the symbols appear in the right size. Can also create a PostScript header file for dvips which ensures that the poster will be printed in the right size. Supported sizes are DIN A0, DIN A1, DIN A2 and DIN A3.
docfiles_size=47
texmf-dist/doc/latex/a0poster/a0.pdf
  details="Package documentation (German)"
  language="de"
texmf-dist/doc/latex/a0poster/a0.tex
texmf-dist/doc/latex/a0poster/a0_eng.pdf
  details="Package documentation (English)"
  language="en"
texmf-dist/doc/latex/a0poster/a0_eng.tex
runfiles_size=4
texmf-dist/tex/latex/a0poster/a0poster.cls
texmf-dist/tex/latex/a0poster/a0size.sty
catalogue-version_1.22b
catalogue-date_2006-11-28 22:38:04 +0100
catalogue-ctan/macros/latex/contrib/a0poster
catalogue-license_lppl
\end{verbatim}
The origin of this \texttt{a0poster.tlpsrc}:

- minimal input file with static data
- rest is generated from actual \texttt{svn} repository (revision, size)
- enriched with information from the \TeX\ Catalogue (\texttt{catalogue-*}, specification of the documentation files)
- tagged documentation files (details, language), information again from the Catalogue
The single packages: \texttt{tlpobj by example II}

bin-bibtex8 and friends

\begin{verbatim}
name_bin-bibtex8
category_TLCore
revision_7340
depend_bin-bibtex8.ARCH
docfiles_size=15
    _texmf/doc/bibtex8/00readme.txt
    _texmf/doc/bibtex8/HISTORY
    _texmf/doc/bibtex8/csfile.txt
    _texmf/doc/bibtex8/file_id.diz
runfiles_size=10
    _texmf-dist/bibtex/csf/base/88592pl.csf
    _texmf-dist/bibtex/csf/base/cp1250pl.csf
    _texmf-dist/bibtex/csf/base/cp852pl.csf
    _texmf-dist/bibtex/csf/base/iso8859-7.csf

name_bin-bibtex8.alpha-linux
category_TLCore
revision_7340
shortdesc\_binary\_files\_of\_bin\_bibtex8\_for\_alpha\_linux
binfiles_arch=alpha-linux\_size=62
    _bin/alpha-linux/bibtex8

...

name_bin-bibtex8.win32
category_TLCore
revision_7340
shortdesc\_binary\_files\_of\_bin\_bibtex8\_for\_win32
binfiles_arch=win32\_size=25
    _bin/win32/bibtex8.exe
\end{verbatim}
The origin of the above bin-bibtex8

bin-bibtex8.tlpsrc

name_bin-bibtex8
category_TLCore
runpattern_d_texpmf-dist/bibtex/csf/base
docpattern_f_texpmf/doc/bibtex8/*
binpattern_f_bin/${ARCH}/bibtex8

- various patterns for capturing files
- tricks to capture binaries on unix and windows
- separate objects for the binary files of the package
The pattern language

patterns are of the form

\[\text{[PREFIX]}\text{TYPE PAT}\]

where PREFIX can be +, !+, or !,
The pattern language

patterns are of the form

\[ \text{[PREFIX]}\text{TYPE } \text{PAT} \]

where PREFIX can be +, !+, or !, and TYPE PAT can be:

- **f path** includes all files which match path where only the last component of path can contain the usual glob characters * and ? (but no others!).
The pattern language
patterns are of the form

\[ \text{[PREFIX]} \text{TYPE \ PAT} \]

where \( \text{PREFIX} \) can be +, !+, or !, and \( \text{TYPE \ PAT} \) can be:

- \( \text{f path} \) includes all files which match \( \text{path} \) where \textit{only} the last component of \( \text{path} \) can contain the usual glob characters * and ? (but no others!).
- \( \text{d path} \) includes all the files in and below the directory specified as \( \text{path} \).
The pattern language
patterns are of the form

\[ \text{[PREFIX]}\text{TYPE } \text{PAT} \]

where PREFIX can be +, !+, or !, and TYPE PAT can be:

t \text{word}1 \ ... \ \text{word}N \ \text{word}L \text{ includes all the files in and below all directories of the form}

\text{word}1/\text{word}2/\ldots/\text{word}N/\ldots/\text{any}/
\text{dirs}/\ldots/\text{word}L/
The pattern language
patterns are of the form

\[\text{[PREFIX]}\text{TYPE PAT}\]

where PREFIX can be +, !+, or !, and TYPE PAT can be:

t word1 ... wordN wordL includes all the files in and below all directories of the form
word1/word2/.../wordN/.../any/dirs/.../wordL/

r regexp includes all files matching the Perl regexp
\(^\text{^regexp}\)
Example patterns

- `runpattern f texmf/chktex/*`
  includes all files in `Master/texmf/chktex/`

- `binpattern f bin/${ARCH}/bibtex`
  includes the bibtex binaries into the `bin-bibtex` package, depending on the architecture

- `runpattern d texmf/tex/lambda/base`
  includes all files in and under the above path

- `runpattern t texmf-dist omega uni2char`
  includes all files in `texmf-dist/omega/.../uni2char/`

- `runpattern r .*/foobar`
  includes the files matching the regexp
Example patterns

- `runpattern f texmf/chktex/*`
  includes all files in `Master/texmf/chktex/`

- `binpattern f bin/${ARCH}/bibtex`
  includes the bibtex binaries into the bin-bibtex package, depending on the architecture
Example patterns

- `runpattern f texmf/chktex/*`
  includes all files in `Master/texmf/chktex/`

- `binpattern f bin/${ARCH}/bibtex`
  includes the bibtex binaries into the bin-bibtex package, depending on the architecture

- `runpattern d texmf/tex/lambda/base`
  includes all files in and under the above path
Example patterns

- runpattern f texmf/chktex/*
  includes all files in Master/texmf/chktex/

- binpattern f bin/${ARCH}/bibtex
  includes the bibtex binaries into the bin-bibtex package, depending on the architecture

- runpattern d texmf/tex/lambda/base
  includes all files in and under the above path

- runpattern t texmf-dist omega uni2char
  includes all files in texmf-dist/omega/.../uni2char/
Example patterns

- **runpattern f texmf/chktex/**
  includes all files in Master/texmf/chktex/

- **binpattern f bin/${ARCH}/bibtex**
  includes the bibtex binaries into the bin-bibtex package, depending on the architecture

- **runpattern d texmf/tex/lambda/base**
  includes all files in and under the above path

- **runpattern t texmf-dist omega uni2char**
  includes all files in texmf-dist/omega/.../uni2char/

- **runpattern r .*/foobar**
  includes the files matching the regexp
Autogenerated patterns

To keep \texttt{tlpsrc} files small, if a pattern section is empty or all patterns are prefixed with +, the following patterns are automatically generated (actual list is specified in a special \texttt{tlpsrc}-file):

- runpatterns in category Package:
  \begin{verbatim}
  t texmf-dist todir name
  \end{verbatim}
- docpatterns in category Package:
  \begin{verbatim}
  t texmf-dist doc name
  \end{verbatim}
- docpatterns in category Documentation:
  \begin{verbatim}
  t texmf-doc doc name
  \end{verbatim}
- srcpatterns in category Package:
  \begin{verbatim}
  t texmf-dist source name
  \end{verbatim}
- srcpatterns in category Documentation:
  \begin{verbatim}
  t texmf-doc source name
  \end{verbatim}
Additional tricks

arch expansion

In case the string \${ARCH} occurs in one binpattern it is automatically expanded to the respective architecture.

bat/exe/dll/texlua for win32

For binpatterns of the form \$ bin/win32/foobar files foobar.bat, foobar.dll, foobar.exe, and foobar.texlua are also matched.
Effects of auto generation and tricks

total number of tlpsrc files: 1719

total number of tlpsrc files with patterns: 157

number of bin- and hyphen- tlpsrc files with patterns: 80

number of ‘normal’ packages with patterns: 77
Allowed fields for `tlpobj`

- **name**: identifies the package
- **category**: one of (currently) Collection, Scheme, TLCore, Documentation, Package
- **shortdesc, longdesc**: description of the package
- **depend**: Name (multiple entries possible)
- **execute**: activating maps, formats, hyphenation patterns
- **runfiles, docfiles, srcfiles, binfiles**: every files section has a size attribute, and the binfiles section can occur more than once with different arch tags (see above)
- **revision**: maximum svn revision number of the contained files, since version numbers are not parseable, trustworthy, or not even present
- **catalogue-* keys**: stuff taken from the catalogue for example catalogue-version, catalogue-authors, catalogue-license
Perl programming API

Important for ‘users’ or integrators

`TeXLive::TLPOBJ` for `tlpobj` files, basic functionality like read, write, and member access and change functions, etc.

`TeXLive::TLPDB` access to the TeX Live database.

`TeXLive::TLPostInstall` collects post installation actions
Perl programming API II

Important for ‘us’ as developer:

TeXLive::TLTREE properties of the subversion repository, in principle it is `svn status -v`
TeXLive::TeXCatalogue simple interface to the TeX Catalogue
TeXLive::TLPSRC for `tlpsrc` files, basic functionality like `reade`, `write`, etc
TeXLive::TLLUtils some handy functions
TeXLive::TLMedia abstracts an arbitrary installation media
Other (planned/wished) APIs

Are they necessary/useful? Maybe calling the Perl code …?

texlua next on the list to be done, would really help us a lot

python minimal code present (by Jim Hefferon)

C some code present, was a GSOC project, but no slot available (code by Jjgod Jiang)

bash maybe, some code present (by the author)

… no idea what else …
Documentation

- all modules contain a full documentation in pod format
- additional text API document
Some special packages

Some packages do not relate to actual files but are used to save options and configurations into the database by putting them into a depend line: 00texlive.config, 00texlive-installation.config, 00texlive.core.

Values are stored in these packages as dependencies.

All packages starting with 00texlive are considered virtual packages in the sense that no containers are generated and these packages are never split into .src and .doc sub-packages in the tlpdb.
This package contains configuration options for the \TeX{} Live archive:

- `container_split_{doc,src}_files`
  documentation and source files are split into separate containers (.tar.lzma) during container build time. Note that this has *no* effect on the appearance within the texlive.tlpdb. It is only on container level.
- `container_format/XXXXX`
  specifies the format, currently allowed is only *lzma*, which generates .tar.lzma files. *zip* can be supported.
- `release/NNNN`
  specifies the release number as used in the installer.
This package serves two purposes:

- at installation time the present values are taken as default for the installer
- on an installed system it serves as a configuration file. We have to remember these settings for additional package installation, removal, etc.

The value of `__MASTER__` for the location field tells the installer to use the present directory itself. For example, the DVD can be mounted anywhere and we want the installer to work.
Example 00texlive-installation.config

name 00texlive-installation.config
category TLCore
depend platform:x86_64-linux
depend location:/var/www/norbert/tlnet/2008
depend opt_paper:a4
depend opt_create_formats:0
depend opt_create_symlinks:0
depend opt_sys_bin:/usr/local/bin
depend opt_sys_info:/usr/local/info
depend opt_sys_man:/usr/local/man
depend opt_install_docfiles:1
depend opt_install_srcfiles:0
depend available_architectures:x86_64-linux win32
00texlive.core

actually contains files, but those are never installed and this package is only here to collect files which are not contained in any package, thus making the coverage check squeak
Resources

▶ tex-live@tug.org – main contact point
▶ www.tug.org/texlive – the main entry point, with links to developers’ resources, documentation
▶ www.tug.org/svn/texlive/trunk/ – web view onto the subversion repository;
▶ svn://tug.org/texlive/trunk – svn repository, anonymous access
▶ www.tug.org/texlive/pkgupdate.html – an explanation how updates from CTAN to \TeX\ Live are done.
Thanks

Karl Berry
for great enthusiasm and perpetual support (and critical voices)
Thanks

Karl Berry
for great enthusiasm and perpetual support (and critical voices)

TUG
for financial support when my laptop broke
Thanks

Karl Berry
for great enthusiasm and perpetual support (and critical voices)

TUG
for financial support when my laptop broke

Your Attention