texlive-pkgassist

User manual / Version 0.1.1 / Ruilin Mao

Build a document

Add the unpacked directory containing `tlpa`, `tlpa.cmd` and `texlive-pkgassist.lua` to your `PATH`. Run `tlpa` from your project directory using the `texlua` from your TeX Live installation. You can also invoke the Lua script directly with `texlua`. Save this document as `main.tex`.

```
\documentclass{article}
\usepackage{subcaption}
\begin{document}
A minimal example.
\end{document}
```

Compile it using the personal TeX tree for new packages.

```
tlpa --tree user --preflight main.tex
```

If `subcaption.sty` is missing, the preflight searches the configured TeX Live repository, finds the provider `caption`, and installs it. When the engine succeeds, the output is `main.pdf` in the working directory. With all required files present, this example compiles offline.

Choose where packages go

`--tree user` Install relocatable packages into `TEXMFHOME`. The first package-manager operation initializes this tree if necessary. `--usermode` is an alias. Preinstall any required executable tools.

`--tree system` Install into the current TeX Live installation. On Windows, if `tlmgr` reports that the installation is read-only, the script requests authorization for the install command using PowerShell and UAC. Cancelling stops the build. On Linux and macOS, the error gives the command an administrator can run. Compilation continues with the privileges of the original process after a successful install.

`--tree auto` The default tries the system tree first. On the recognized read-only error, it retries package installation in the user tree. Executable tools require a writable installation or prior provisioning.

Use a repository matching the year of your upstream TeX Live or MacTeX. For a TeX installation managed by a Linux distribution, use its package manager to provision system packages.

Control the build

`--engine` accepts `pdflatex` (the default), `lualatex`, `xelatex` and `latex`. The last produces DVI with the default format. Quote paths containing spaces. On Windows, the document path cannot contain a percent sign, an exclamation mark or a double quote.

`--preflight` scans the main document up to `\begin{document}` for literal `\documentclass`, `\usepackage` and `\RequirePackage` declarations. A single query finds providers for missing names, and one install command fetches the packages with unique matches. A declaration inside a conditional branch can cause an unused package to be installed. Files loaded through macros or included documents can still be recovered when the engine reports them missing.

`--latexmk` lets latexmk manage repeated runs, bibliographies and changes to input files. In single-engine mode, a successful run requesting Biber also triggers a switch to latexmk. Missing Biber and latexmk executables can be installed into a writable TeX Live installation. Their runtime dependencies, such as the Perl modules used by latexmk, must be available.

```
tlpa --latexmk --preflight thesis.tex
```

Map fonts and tools

Use `--font` when the name reported by fontspec differs from the TeX Live package name. Add the following options to a command to install `libertinus-fonts` when fontspec reports that Libertinus Serif is missing.

```
--engine lualatex --font "Libertinus Serif=libertinus-fonts"
```

Fonts available only from an operating system or a font vendor must be installed through that provider.

`--require-tool makeindex=makeindex` checks for `makeindex` on the executable search path before compiling. If absent, the right-hand name specifies the TeX Live package to install. The project's build rules control when to run the tool. Both mapping options may be repeated.

Diagnose a failed build

The script prints engine and package-manager output and exits with a nonzero status on failure. If several runtime packages provide the same file, inspect the candidates and install the intended one. If the file remains missing after installation, check that the engine and `tlmgr` belong to the same installation. Run `kpsewhich subcaption.sty`, substituting the missing filename, to see which copy TeX can locate.

Use `--help` for the option list and `--version` for the release identifier. Copyright © 2026 Ruilin Mao. Distributed under the MIT License.