

ClutT_EX manual
(Version 0.7.0)

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Chapter 1

About Clut \TeX

Clut \TeX is an automation tool for \LaTeX document processing. Basic features are,

- Does not clutter your working directory with “extra” files, like `.aux` or `.log`.
- If multiple runs are required to generate correct document, do so.
- Watch input files, and re-process documents if changes are detected¹.
- Run `MakeIndex`, `BIB \TeX` , `Biber`, if requested.
- Produces a PDF, even if the engine (e.g. `p \TeX`) does not suport direct PDF generation. If you want a DVI file, use `--output-format=dvi` option.

The unique feature of this program is that, auxiliary files such as `.aux` or `.toc` are created in an isolated location, so you will not be annoyed with these extra files.

¹needs an external program if you are on a Unix system

Chapter 2

How to use ClutT_EX

2.1 Installation

If you are using the latest T_EX Live, you should have ClutT_EX installed. If not, upgrade your copy of T_EX Live with `tlmgr update --all`.

If you want to install ClutT_EX manually, fetch an archive from GitHub¹, extract it, and copy `bin/cluttex` or `bin/cluttex.bat` to somewhere in your PATH.

2.2 Command-line usage

Usage:

```
cluttex -e ENGINE OPTIONS [--] INPUT.tex
```

Basic options:

-e, --engine=ENGINE Set which T_EX engine/format to use. ENGINE is one of the following: `pdflatex`, `pdftex`, `lualatex`, `luatex`, `luajittex`, `xelatex`, `xetex`, `latex`, `etex`, `tex`, `platex`, `eptex`, `ptex`, `uplatex`, `euptex`, or `uptex`. Required.

-o, --output=FILE Set output file name. Default: `JOBNAME.FORMAT`

--fresh Clean auxiliary files before run. Cannot be used in conjunction with `--output-directory`.

--max-iterations=N Set maximum number of run, for resolving cross-references and etc. Default: 3

--watch[=ENGINE] Watch input files for change. May need an external program to be available. See section 2.4 for details.

--color[=WHEN] Colorize messages. WHEN is one of `always`, `auto`, or `never`. If `--color` option is omitted, `auto` is used. If WHEN is omitted, `always` is used.

¹<https://github.com/minoki/cluttex>

`--includeonly=NAMEs` Insert `\includeonly{NAMEs}`.
`--make-depends=FILE` Write Makefile-style dependencies information to `FILE`.
`--engine-executable=COMMAND` The actual \TeX command to use.
`--tex-option=OPTION`, `--tex-options=OPTIONs` Pass extra options to \TeX .
`--dvipdfmx-option=OPTION`, `--dvipdfmx-options=OPTIONs` Pass extra options to `dvipdfmx`.
`--[no-]change-directory` Change to the output directory when run. May be useful with shell-escaping packages.
`-h`, `--help`
`-v`, `--version`
`-V`, `--verbose`
`--print-output-directory` Print the output directory and exit.
`--package-support=PKG1[,PKG2,...,PKGn]` Enable special support for shell-escaping packages. Currently supported packages are ‘`minted`’ and ‘`epstopdf`’.
`--check-driver=DRIVER` Check that the correct driver file is loaded for certain packages. `DRIVER` is one of `dvipdfmx`, `dvips`, or `dvisvgm`. Can only be used with `--output-format=dvi`.
`--config-file=FILE` Use the specified config file. See section 2.12.
Options for running auxiliary programs:
`--makeindex=COMMAND` Run `MakeIndex`.
`--bibtex=COMMAND` Run `BIB \TeX` .
`--biber[=COMMAND]` Run `Biber`. Default value for `COMMAND`: `biber`
`--makeglossaries[=COMMAND]` Run `makeglossaries`. Experimental.
 \TeX -compatible options:
`--[no-]shell-escape`
`--shell-restricted`
`--synctex=NUMBER` Generate Sync \TeX file. Note that `.synctex.gz` is created alongside the final `.pdf`. See section 2.3 for details.
`--[no-]file-line-error` Default: Yes
`--[no-]halt-on-error` Default: Yes
`--interaction=STRING` `STRING` is one of `batchmode`, `nonstopmode`, `scrollmode`, or `errorstopmode`. Default: `nonstopmode`
`--jobname=STRING`

`--fmt=FORMAT`

`--output-directory=DIR` Set output directory for \TeX engine. Auxiliary files are produced in this directory. Default: Based on the `temporary-directory` configuration.

`--output-format=FORMAT` Set output format. Possible values are `pdf` or `dvi`. Default: `pdf`

Long options, except \TeX -compatible ones, need two hyphens (e.g. `-synctex=1` is accepted, but not `--color`). Combining multiple short options, like `-Vepdflatex`, is not supported.

2.3 Sync \TeX

You can generate Sync \TeX data with `--synctex=1` option.

Although Clut \TeX has “Don’t clutter your working directory” as its motto, the `.synctex.gz` file is always produced alongside the PDF file. This is because Sync \TeX cannot find its data file if it’s not in the same directory as the PDF.

2.4 Watch mode

If `--watch` option is given, Clut \TeX enters *watch mode* after processing the document.

On Windows, a built-in filesystem watcher is implemented. On other platforms, an auxiliary program `fswatch`² or `inotifywait` needs to be installed. The auxiliary program will be detected automatically, but it could also be specified by the `ENGINE` argument.

2.5 MakeIndex and Bib \TeX

If you want to generate index or bibliography, using MakeIndex or Bib \TeX , set `--makeindex`, `--bibtex`, or `--biber` option. You need to explicitly specify the command name as an argument (e.g. `--makeindex=makeindex`, `--bibtex=bibtex`).

If you want to use Biber to process bibliography, the option to use is `--biber`, not `--bibtex=biber`.

2.6 For writing a large document

When writing a large document with \LaTeX , you usually split the \TeX files with `\include` command. When doing so, `\includeonly` can be used to eliminate processing time. But writing `\includeonly` in the \TeX source file is somewhat inconvenient. After all, `\includeonly` is about *how* to process the document, not about its content.

Therefore, Clut \TeX provides an command-line option to use `\includeonly`. See section 2.7 for example.

Tips: When using `includeonly`, avoid using `--makeindex` or `--biber`.

²<http://emcrisostomo.github.io/fswatch/>

Another technique for eliminating time is, setting `--max-iterations=1`. It stops Clut \TeX from processing the document multiple times, which may take several extra minutes.

2.7 Using Makefile

You can create Makefile to avoid writing Clut \TeX options each time. Example:

```
main.pdf: main.tex chap1.tex chap2.tex
    cluttex -e lualatex -o $@ --makeindex=mendex $<

main-preview.pdf: main.tex chap1.tex chap2.tex
    cluttex -e lualatex -o $@ --makeindex=mendex --max-iterations=1 $<

chap1-preview.pdf: main.tex chap1.tex
    cluttex -e lualatex -o $@ --max-iterations=1 --includeonly=chap1 $<

chap2-preview.pdf: main.tex chap2.tex
    cluttex -e lualatex -o $@ --max-iterations=1 --includeonly=chap2 $<
```

With `--make-depends` option, you can let Clut \TeX infer sub-files and omit them from Makefile. Example:

```
main.pdf: main.tex
    cluttex -e lualatex -o $@ --make-depends=main.pdf.dep $<

-include main.pdf.dep
```

After initial `make` run, `main.pdf.dep` will contain something like this:

```
main.pdf: ... main.tex ... chap1.tex chap2.tex
```

Note that `--make-depends` option is still experimental, and may not work well with other options like `--makeindex`.

2.8 Default output directory

The auxiliary files like `.aux` are generated somewhere in the temporary directory, by default. The directory name depends on the following three parameters:

- The absolute path of the input file
- `--jobname` option
- `--engine` option

On the other hand, the following parameters doesn't affect the directory name:

- `--includeonly`
- `--makeindex`, `--bibtex`, `--biber`, `--makeglossaries`

If you need to know the exact location of the automatically-generated output directory, you can invoke Clut_{TEX} with `--print-output-directory`. For example, `clean` target of your Makefile could be written as:

```
clean:
    -rm -rf $(shell cluttex -e pdflatex --print-output-directory main.tex)
```

Clut_{TEX} itself doesn't erase the auxiliary files, unless `--fresh` option is set. Note that, the use of a temporary directory means, the auxiliary files may be cleared when the computer is rebooted.

2.9 Aliases

Some Unix commands change its behavior when it is called under a different name. There are several examples in _{TEX} Live:

- `extractbb` and `dvipdfmx` are aliases for `xdvipdfmx`.
- `repstopdf` is an alias for `epstopdf`.

If Clut_{TEX} is called as `cl<ENGINE>`, the `--engine` option is set accordingly. For example, `cllualatex` is an alias for `cluttex --engine lualatex` and `clxelatex` for `cluttex --engine xelatex`.

2.10 Support for minted and epstopdf

In general, packages that execute external commands (shell-escape) don't work well with `-output-directory`. Therefore, they don't work well with Clut_{TEX}.

However, some packages provide a package option to let them know the location of `-output-directory`. For example, `minted` provides `outdir`, and `epstopdf` provides `outdir`.

Clut_{TEX} can supply them the appropriate options, but only if it knows that the package is going to be used. To let Clut_{TEX} what packages are going to be used, use `--package-support` option.

For example, if you want to typeset a document that uses `minted`, run the following:

```
cluttex -e pdflatex --shell-escape --package-support=minted document.tex
```

2.11 Check for driver file

Clut_{TEX} can check that the correct driver file is loaded when certain packages are loaded. Currently, the list of supported packages are `graphics`, `color`, `expl3`, `hyperref`, and `xy`.

The check is always done with PDF mode. To check the driver with DVI mode, use `--check-driver` option.

2.12 Customization via a configuration file

Some behavior of Clut_T_EX can be customized via a configuration file.

The configuration file for Clut_T_EX is looked for in the following order:

1. `--config-file` command-line option.
2. `CLUTTEX_CONFIG_FILE` environment variable.
3. (Unix only) `$XDG_CONFIG_HOME/cluttex/config.toml`
4. (Unix only) `$HOME/.config/cluttex/config.toml`
5. (Windows only) `%APPDATA%\cluttex\config.toml`

The configuration file for Clut_T_EX must be written in TOML³ format.

Available keys are:

temporary-directory (string) The location to create auxiliary files. The default value for `--output-directory` will be somewhere under **temporary-directory**. If omitted, somewhere in the temporary directory will be used.

color.{type,execute,warning,diagnostic,information} (table) Set the colors for messages from Clut_T_EX. The table may have the following keys: **fore** (color string), **back** (color string), **bold** (boolean), **dim** (boolean), **underline** (boolean), **blink** (boolean), **reverse** (boolean), **italic** (boolean), **strike** (boolean). A color string is one of the following: **default**, **black**, **red**, **green**, **yellow**, **blue**, **magenta**, **cyan**, **white**, **brightblack**, **brightred**, **brightgreen**, **brightyellow**, **brightblue**, **brightmagenta**, **brightcyan**, **brightwhite**.

An example configuration file might look like:

```
# The actual output directory will be something like
# "/home/user/.cache/cluttex/cluttex-<hash>"
temporary-directory = "/home/user/.cache/cluttex"

[color]
type = { reverse = true }
error = { fore = "brightred", back = "brightwhite" }
```

³<https://toml.io/en/>