

Clut \TeX manual
(Version 0.5.1)

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Contents

1	About Clut_TE_X	2
2	How to use Clut_TE_X	3
2.1	Installation	3
2.2	Command-line usage	3
2.3	Sync _T E _X	5
2.4	Watch mode	5
2.5	MakeIndex and BiB _T E _X	5
2.6	For writing a large document	5
2.7	Using Makefile	6
2.8	Default output directory	6
2.9	Aliases	7
2.10	Support for <code>minted</code> and <code>epstopdf</code>	7
2.11	Check for driver file	7

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 support 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 Clut \TeX

2.1 Installation

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

If you want to install Clut \TeX 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 \TeX 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` 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 .
`--dvi-pdfmx-option=OPTION, --dvi-pdfmx-options=OPTIONS` Pass extra options to `dvi-pdfmx`.
`--[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 `dvi-pdfmx`, `dvips`, or `dvisvgm`. Can only be used with `--output-format=dvi`.

Options for running auxiliary programs:

`--makeindex=COMMAND` Run MakeIndex.
`--bibtex=COMMAND` Run $\text{BIB}\TeX$.
`--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 $\text{T}_{\text{E}}\text{X}$ engine. Auxiliary files are produced in this directory. Default: somewhere in the temporary directory.

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

Long options, except $\text{T}_{\text{E}}\text{X}$ -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 $\text{T}_{\text{E}}\text{X}$

You can generate Sync $\text{T}_{\text{E}}\text{X}$ data with `--synctex=1` option.

Although Clut $\text{T}_{\text{E}}\text{X}$ 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 $\text{T}_{\text{E}}\text{X}$ 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 $\text{T}_{\text{E}}\text{X}$ 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.

2.5 MakeIndex and Bib $\text{T}_{\text{E}}\text{X}$

If you want to generate index or bibliography, using MakeIndex or Bib $\text{T}_{\text{E}}\text{X}$, 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 $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$, you usually split the $\text{T}_{\text{E}}\text{X}$ files with `\include` command. When doing so, `\includeonly` can be used to eliminate processing time. But writing `\includeonly` in the $\text{T}_{\text{E}}\text{X}$ source file is somewhat inconvenient. After all, `\includeonly` is about *how* to process the document, not about its content.

Therefore, Clut $\text{T}_{\text{E}}\text{X}$ provides an command-line option to use `\includeonly`. See section 2.7 for example.

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

Another technique for eliminating time is, setting `--max-iterations=1`. It stops Clut $\text{T}_{\text{E}}\text{X}$ from processing the document multiple times, which may take several extra minutes.

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

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 `outputdir`, 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.