



# LaTeX Template Documentation

A comprehensive guide to use this template

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# 1 How to use this L<sup>A</sup>T<sub>E</sub>X document template

This L<sup>A</sup>T<sub>E</sub>X document template from L<sup>A</sup>T<sub>E</sub>X@TUG<sup>1</sup> is based on KOMA script<sup>2</sup>. It provides an easy to use and easy to modify template. All settings are documented and many references to additional information sources are given.

## 1.1 Modify this template for your requirements

1. Put your desired PDF file name in the second line of file [Makefile](#)
  - replace “Projectname” with your filename
  - do not use any file extension like .tex or .pdf
2. OPTIONAL: Modify files in the folder `template/preamble` if necessary
  - following sections should give you an idea what to do and why
3. Modify [userdata.tex](#):
  - `\myauthor`, `\mytitle`, and so forth
4. Modify [main.tex](#):
  - your desired general document structure
5. replace file or fill your content in [introduction.tex](#)
  - you can rename [introduction.tex](#) but then you have to modify its include command in [main.tex](#) too
6. OPTIONAL: create further tex-files (similar to [introduction.tex](#)) for each chapter of your document
  - include them according to the example of introduction in [main.tex](#)
7. generate your document
  - with a L<sup>A</sup>T<sub>E</sub>X editor:

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<sup>1</sup><http://LaTeX.TUGraz.at>

<sup>2</sup><http://komascript.de/>

- select `main.tex` as the “main project file” or make sure to compile/run only `main.tex` (and not `introduction.tex` or similar)
- OR with GNU make: run `make pdf`

## 1.2 How to compile this document

If your system provides GNU make<sup>3</sup>, it is very easy to compile this document: `make pdf`

You can get a list of all other commands provided by the Makefile by invoking `make help`.

If you do not have GNU make, please stick to your usual compile method and notice the changes for Biber in section 2.4.

## 1.3 How to get rid of the template documentation

Simply remove the files `Template_Documentation.pdf` and `Template_Documentation.tex` (if it exists) in the main folder of this template.

## 1.4 What about modifying the template?

This template provides an easy to start L<sup>A</sup>T<sub>E</sub>X document template with sound default settings. You can modify each setting any time. It is recommended that you are familiar with the documentation of the command whose settings you want to modify.

It is recommended that for *adding* things to the preamble (newcommands, setting variables, defining headers, ...) you should use the file `main.tex`. There are comment lines which help you finding the right spot. This way you still have the chance to update your template folder from the template repository without losing your own added things.

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<sup>3</sup>[https://secure.wikimedia.org/wikipedia/en/wiki/Make\\_%28software%29](https://secure.wikimedia.org/wikipedia/en/wiki/Make_%28software%29)

The following sections describe the settings and commands of this template and gives a short overview of its features.

## 1.5 How to change the title page

This template comes with a variety of title pages. They are located in the folder `template`. You can switch to a specific title page by including corresponding title page file in the file `main.tex`.

Please note that you may not need to modify any title page document by yourself since all relevant information is defined in the file `userdata.tex`.

## 2 `preamble.tex` — Main preamble file

In file `preamble/preamble.tex` you will find the basic definitions related to your document. This template uses the KOMA script extension package of L<sup>A</sup>T<sub>E</sub>X.

There are comments added to the `\documentclass{}` definitions. Please refer to the great documentation of KOMA<sup>4</sup> for further details.

**What should I do with this file?** For standard purposes you might use the default values it provides. You must not remove its `include` command in `main.tex` since it contains important definitions. This file contains settings which are documented well and can be modified according to your needs. It is recommended that you fully understand each setting you modify in order to get a good document result.

### 2.1 `inputenc`: UTF8 as input charset

You are able and should use UTF8 character settings for writing these T<sub>E</sub>X-files.

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<sup>4</sup>`scrguide.pdf` for German users

## 2.2 babel: Language settings

The default setting of the language is American. Please change settings for additional or alternative languages used.

To set only parts of you document in a different language as the rest, use for example `\foreignlanguage{ngerman}{Beispieltext in deutscher Sprache}`. For using foreign language quotes, please refer to the `\foreignquote`, `\foreigntextquote`, or `\foreignblockquote` provided by `csquote` (see Section 4.8).

Please note that the default language of the document is the *last* language which is added to the package options.

## 2.3 scrpage2: Headers and footers

Since this template is based on KOMA script it uses its great `scrpage2` package for defining header and footer information. Please refer to the KOMA script documentation how to use this package.

## 2.4 References

This template is using `biblatex` and `Biber` instead of `BIBTEX`. This has following advantages:

- better documentation
- Unicode-support like German umlauts (ö, ä, ü, ß) for references
- flexible definition of citation styles
- multiple bibliographies e. g. for printed and online resources
- cleaner reference definition e. g. inheriting information from `Proceedings` to all related `InProceeings`
- modern implementation

In short, `biblatex` is able to handle your `bib`-files and offers additional features. To get the most out of `biblatex`, you should read the very good package documentation. Be warned: you'll probably never want to change back to `BIBTEX` again.

Take a look at the files `references-bibtex.bib` and `references-biblatex.bib`: they contain the three references `tagstore`, `Voit2009`, and `Voit2011`. The second file is optimized for `biblatex` and takes advantage of some features that are not possible with `BIBTEX`.

This template is ready to use `biblatex` with `Biber` as reference compiler. You should make sure that you have installed an up to date binary of `Biber` from its homepage<sup>5</sup>.

### 2.4.1 Example citation commands

- `cite` [[Eij08](#)] and `cite` [[Bri93](#); [Eij08](#)].
- `citet` Eijkhout [[Eij08](#)] and `citet` Bringhurst [[Bri93](#)]; Eijkhout [[Eij08](#)].
- `autocite` [[Eij08](#)] and `autocite` [[Bri93](#); [Eij08](#)].
- `autocites` [[Eij08](#)] and `autocites` [[Bri93](#); [Eij08](#)].
- `citeauthor` Eijkhout and `citeauthor` Bringhurst; Eijkhout.
- `citetitle` *TEX by Topic, a TEXnician's Reference* and `citetitle` *The Elements of Typographic Style; TEX by Topic, a TEXnician's Reference*.
- `citeyear` 2008 and `citeyear` 1993; 2008.
- `textcite` Eijkhout [[Eij08](#)] and `textcite` Bringhurst [[Bri93](#)]; Eijkhout [[Eij08](#)].
- `smartcite`<sup>6</sup> and `smartcite`<sup>7</sup>.
- `footcite`<sup>8</sup> and `footcite`<sup>9</sup>.
- `footcite` with page<sup>10</sup> and `footcite` with page<sup>11</sup>.
- `fullcite` Victor Eijkhout. *TEX by Topic, a TEXnician's Reference*. document revision 1.2. May 2008. URL: <http://www.eijkhout.net/texbytopic/texbytopic.html> and `fullcite` Robert Bringhurst. *The Elements of Typographic Style*. first edition. 1993; Victor Eijkhout. *TEX by Topic, a TEXnician's Reference*. document revision 1.2. May 2008. URL: <http://www.eijkhout.net/texbytopic/texbytopic.html>.

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<sup>5</sup><http://biblatex-biber.sourceforge.net/>

<sup>6</sup>[Eij08](#).

<sup>7</sup>[Bri93](#); [Eij08](#).

<sup>8</sup>[Eij08](#).

<sup>9</sup>[Bri93](#); [Eij08](#).

<sup>10</sup>[Eij08](#), p.42.

<sup>11</sup>compare [Eij08](#), p. 42.

Please note that the citation style as well as the bibliography style can be changed very easily.

### 2.4.2 Manual compiling with Biber

To generate a document using Biber, you can stick to following example:

```
pdflatex main.tex
biber main
pdflatex main.tex
pdflatex main.tex
```

Using the Makefile which comes with this template, you simply have to call `make pdf` in order to get the resulting document.

In the file `preamble/preamble.tex` you can modify the template defaults for references such as changing the citation style or adding your own reference file(s). Look out for `\usepackage[...]{biblatex}` to modify its options.

### 2.4.3 Using this template with BibTeX

If you do not want to use Biber and biblatex, you have to change several things:

- in `preamble/preamble.tex`
  - remove the `\usepackage` command of `biblatex`
  - remove the `\addbibresource{...}` command
- in `main.tex`
  - replace `\printbibliography` with the usual `\bibliographystyle{yourstyle}` and `\bibliography{yourbibfile}`
- if you are using GNU make: modify Makefile
  - replace `BIBTEX_CMD = biber` with `BIBTEX_CMD = bibtex`
- Use the reference file `references-bibtex.bib` instead of `references-biblatex.bib`



## 2.5 Miscellaneous packages

There are several packages included by default. You might want to activate or deactivate them according to your requirements:

**graphicx** The widely used package to use graphical images within a  $\text{\LaTeX}$  document.

**pifont** For additional special characters available by `\ding{}`

**ifthen** For using if/then/else statements for example in macros

**eurosym** Using the character for Euro with `\officialeuro{}`

**xspace** This package is required for intelligent spacing after commands

**xcolor** This package defines basic colors. If you want to get rid of colored links and headings please change it to `{o,o,o}`.

**ulem** This package offers strikethrough command `\sout{foobar}`.

**framed** Create framed, shaded, or differently highlighted regions that can break across pages. The environments defined are

- **framed**: ordinary frame box (`\fbox`) with edge at margin
- **shaded**: shaded background (`\colorbox`) bleeding into margin
- **snugshade**: similar
- **leftbar**: thick vertical line in left margin

**eso-pic** For example on title pages you might want to have a logo on the upper right corner of the first page (only). The package `eso-pic` is able to place things on absolute and relative positions on the whole page.

**enumitem** This package replaces the built-in definitions for `enumerate`, `itemize` and `description`. With `enumitem` the user has more control over the layout of those environments.

**todonotes** This package is *very* handy to add notes<sup>12</sup>. Using for example `\todo{check}` results in something like this in the document. Do read the great package documentation for usage of other very helpful commands such as `\missingfigure{}` and `\listoftodos`. The latter one creates an index of all open todos which is very useful for getting an overview of open issues. The package `todonotes` require the packages `ifthen`,

check

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<sup>12</sup>`todonotes` replaced the `fixxme`-command which previously was defined in the `preamble.mycommands.tex` file.

xkeyval, xcolor, tikz, calc, and graphicx. Activate `\listoftodos` in `main.tex`.

**units** For setting correctly typesetted units and nice fractions with `\unit[42]{m}` and `\unitfrac[100]{km}{h}`.

### 3 mycommands.tex — various definitions

In file `template/preamble_mycommands.tex` many useful commands are being defined.

**What should I do with this file?** Please take a look at its content to get the most out of your document.

One of the best advantages of  $\text{\LaTeX}$  compared to WYSIWYG software products is the possibility to define and use macros within text. This empowers the user to a great extent. Many things can be defined using `\newcommand{}` and automates repeating tasks. It is recommended to use macros not only for repetitive tasks but also for separating form from content such as CSS does for XHTML. Think of including graphics in your document: after writing your book, you might want to change all captions to the upper side of each figure. In this case you either have to modify all `\includegraphics` commands or you were clever enough to define something like `\myfig`<sup>13</sup>. Using a macro for including graphics enables you to modify the position caption on only *one* place: at the definition of the macro.

Following section describes some macros that came with this document template from  $\text{\LaTeX@TUG}$  and you are welcome to modify or extend them or to create your own macros!

#### 3.1 myfig — including graphics made easy

The classic: you can easily add graphics to your document with `\myfig`:

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<sup>13</sup>See below for a detailed description

```

\myfig{flower}%% filename w/o extension in directory "figures"
    {width=0.7\textwidth}%% maximum width/height, aspect ratio will be kept
    {This flower was photographed at my home town in 2010}%% caption
    {Home town flower}%% optional (short) caption for list of figures
    {fig:flower}%% label

```

There are many advantages of this command (compared to manual figure environments and includegraphics commands:

- consistent style throughout the whole document
- easy to change; for example move caption on top
- much less characters to type (faster, error prone)
- less visual clutter in the T<sub>E</sub>X-files

## 3.2 myclone — repeat things!

Using `\myclone[42]{foobar}` results the text “foobar” printed 42 times. But you can not only repeat text output with `myclone`. Default argument for the optional parameter “number of times” (like “42” in the example above) is set to two.

## 4 typographic\_settings.tex — Typographic finetuning

The settings of file `template/preamble_typographic_settings.tex` contain typographic finetuning related to things mentioned in literature. The settings in this file relates to personal taste and most of all: *typographic experience*.

**What should I do with this file?** You might as well skip the whole file by excluding the `\input{template/preamble_typographic_settings.tex}` command in `main.tex`. For standard usage it is recommended to stay with the default settings.

## 4.1 French spacing

**Why?** see Bringhurst [Bri93, p. 28, p. 30]: ‘2.1.4 Use a single word space between sentences.’

**How?** see Eijkhout [Eij08, p. 185]:

```
\frenchspacing %% Macro to switch off extra space after punctuation.
```

Note: This setting might be default for KOMA script.

## 4.2 Font

This template is using the Palatino font (package mathpazo) which results in a legible document and matching mathematical fonts for printout.

It is highly recommended that you either stick to the Palatino font or use the L<sup>A</sup>T<sub>E</sub>X default fonts (by removing the package mathpazo).

Choosing different fonts is not an easy task. Please leave this to people with good knowledge on this subject.

One valid reason to change the default fonts is when your document is mainly read on a computer screen. In this case it is recommended to switch to a font which is sans-serif like this. This template contains several alternative font packages which can be activated in this file.

## 4.3 Text figures

... also called old style numbers such as 0123456789. (German: “Mediävalziffern<sup>14</sup>”)

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<sup>14</sup>[https://secure.wikimedia.org/wikibooks/de/wiki/LaTeX-W%C3%B6rterbuch:\\_Medi%C3%A4valziffern](https://secure.wikimedia.org/wikibooks/de/wiki/LaTeX-W%C3%B6rterbuch:_Medi%C3%A4valziffern)

**Why?** see Bringhurst [Bri93, p. 44f]:

‘3.2.1 If the font includes both text figures and titling figures, use titling figures only with full caps, and text figures in all other circumstances.’

**How?** Quoted from Wikibooks<sup>15</sup>:

Some fonts do not have text figures built in; the `textcomp` package attempts to remedy this by effectively generating text figures from the currently-selected font. Put `\usepackage{textcomp}` in your preamble. `textcomp` also allows you to use decimal points, properly formatted dollar signs, etc. within `\oldstylenums{}`.

...but proposed L<sup>A</sup>T<sub>E</sub>X method does not work out well. Instead use: `\usepackage{hfoldsty}` (enables text figures using additional font) or `\usepackage[sc,osf]{mathpazo}` (switches to Palatino font with small caps and old style figures enabled).

## 4.4 `myacro` — Abbreviations using small caps

**Why?** see Bringhurst [Bri93, p. 45f]: ‘3.2.2 For abbreviations and acronyms in the midst of normal text, use spaced small caps.’

**How?** Using the predefined macro `\myacro{}` for things like UNO or UNESCO using `\myacro{UNO}` or `\myacro{UNESCO}`.

## 4.5 Colorized headings and links

This document template is able to generate an output that uses colorized headings, captions, page numbers, and links. The color named ‘DispositionColor’ used in this document is defined near the definition of package

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<sup>15</sup>[https://secure.wikimedia.org/wikibooks/en/wiki/LaTeX/Formatting#Text\\_figures\\_.28.22old\\_style.22\\_numerals.29](https://secure.wikimedia.org/wikibooks/en/wiki/LaTeX/Formatting#Text_figures_.28.22old_style.22_numerals.29)

color in the preamble (see section 2.5). The changes required for headings, page numbers, and captions are defined here.

Settings for colored links are handled by the definitions of the hyperref package (see section 5).

## 4.6 No figures or tables below footnotes

L<sup>A</sup>T<sub>E</sub>X places floating environments below footnotes if b (bottom) is used as (default) placement algorithm. This is certainly not appealing for most people and is deactivated in this template by using the package footmisc with its option bottom.

## 4.7 Spacings of list environments

By default, L<sup>A</sup>T<sub>E</sub>X is using vertical spaces between items of enumerate, itemize and description environments. This is fine for multi-line items. Many times, the user does just write single-line items where the larger vertical space is inappropriate. The enumitem package provides replacements for the pre-defined list environments and offers many options to modify their appearances. This template is using the package option for noitemsep which minimizes the vertical space between list items.

## 4.8 enquote — Correct quotation marks

*Never* use quotation marks found on your keyboard. They end up in strange characters or false looking quotation marks.

In L<sup>A</sup>T<sub>E</sub>X you are able to use typographically correct quotation marks. The package enquote offers you with \enquote{foobar} a command to get correct quotation marks around “foobar”. Please do check the package options in order to modify its settings according to the language used<sup>16</sup>.

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<sup>16</sup>most of the time in combination with the language set in the options of the babel package

`csquotes` is also recommended by `biblatex` (see Section 2.4).

## 4.9 Line spread

If you have to enlarge the distance between two lines of text, you can increase it using the `linespread` command. By default, it is deactivated (set to 100 percent). Modify only with caution since it influences the page layout and could lead to ugly looking documents.

## 4.10 Optional: Lines above and below the chapter head

This is not quite something typographic but rather a matter of taste. KOMA Script offers a [method to add lines above and below chapter head](#) which is disabled by default. If you want to enable this feature, remove corresponding comment characters from the settings.

## 4.11 Optional: Chapter thumbs

This is not quite something typographic but rather a matter of taste. KOMA Script offers a [method to add chapter thumbs](#) (in combination with the package `scrpage2`) which is disabled by default. If you want to enable this feature, remove corresponding comment characters from the settings.

# 5 pdf\_settings.tex — Settings related to PDF output

The file `template/preamble_pdf_settings.tex` basically contains the definitions for the [hyperref package](#) including the [graphicx package](#). Since these settings should be the last things of any  $\text{\LaTeX}$  preamble, they got their own  $\text{\TeX}$  file which is included in `main.tex`.

**What should I do with this file?** The settings in this file are important for PDF output and including graphics. Do not exclude the related `input` command in `main.tex`. But you might want to modify some settings after you read the [documentation of the `hyperref` package](#).

## References

- [Bri93] Robert Bringhurst. *The Elements of Typographic Style*. first edition. 1993.
- [Eij08] Victor Eijkhout. *T<sub>E</sub>X by Topic, a T<sub>E</sub>Xnician's Reference*. document revision 1.2. May 2008. URL: <http://www.eijkhout.net/texbytopic/texbytopic.html>.