

Dokumente mit LaTeX erstellen

PC-Treff-BB VHS Aidlingen

Doris Schwarzmaier

Agenda

- Motivation
- Werkzeuge
- Howto
- Demo
- links

Motivation

- Zuverlässiges stabiles Ergebnis
 - Wysiwyg – meist eher Überraschung
 - Ansicht während der Eingabe stimmt nicht mit der Ausgabe des fertigen Dokuments überein
 - Windows: gerendert wird über den aktiven Druckertreiber
 - **Textverarbeitungssysteme** z.B. Microsoft Office, LibreOffice, ...
- Trennung von Textinhalt und Layout
 - Layout unabhängig von zufälliger Konfiguration
 - Ändern von Text führt zu überraschender Änderung der Ansicht
 - Umgang mit großen Inhalten, z.B. Diplomarbeit, wissenschaftliche Abhandlungen
- Qualität
 - Typografisch korrekt
 - Einbettung wissenschaftlicher Formeln, z.B. Mathematik
 - belastbare Referenzierungen

TeX I

- **Textsatzsystem**
 - Donald Knuth 1977-1986
 - Fertig per Definition
 - Weiterentwicklung über plugins
 - Aktuell: Januar 2021
 - Wysiwyaf – what you see is what you asked for
- Komandozeilenprogramme
 - Konvertiert zu DVI (Device Independent Fileformat)
 - Von dort zu PDF,...

TeX II

- Basis
 - TeX
 - MiKTeX für MS Windows
 - MacTeX für Mac
- Spezialfunktionen / Konverter
 - LaTeX (Leslie Lamport 1980)
 - PdfTeX, LuaTeX
 - MusiXTeX
 - BiTeX: Bibliografisch korrekte Referenzen
- Erweiterbar über Pakete
 - Comprehensive TeX Archive Network <https://ctan.org/>

Getting started

- Download TeX Live
 - <file:///home/dsc/Programme/install-tl-unx.tar.gz>
- perl install-tl
 - Mehrere Stunden (ca. 30 min)
- PATH ergänzen in .bashrc
 - `PATH=$PATH:/usr/local/texlive/2025/bin/x86_64-linux`
 - `export PATH`

Installation

```

===== TeX Live installation procedure =====
=====> Letters/digits in <angle brackets> indicate <-----
=====> menu items for actions or customizations <-----
= help> https://tug.org/texlive/doc/install-tl.html <-----

Detected platform: GNU/Linux on x86_64

<B> set binary platforms: 1 out of 15

<S> set installation scheme: scheme-full

<C> set installation collections:
  48 collections out of 41, disk space required: 8890 MB (free: 51GB)

<D> set directories:
  TEXDIR (the main TeX directory):
    /usr/local/texlive/2025
  TEXMFLOCAL (directory for site-wide local files):
    /usr/local/texlive/texmf-local
  TEXMFSYSVAR (directory for variable and automatically generated data):
    /usr/local/texlive/2025/texmf-var
  TEXMFSYSCONFIG (directory for local config):
    /usr/local/texlive/2025/texmf-config
  TEXMFVAR (personal directory for variable and automatically generated data):
    ~/.texlive2025/texmf-var
  TEXMFCONFIG (personal directory for local config):
    ~/.texlive2025/texmf-config
  TEXMFHOME (directory for user-specific files):
    ~/.texmf

<O> options:
  [ ] use letter size instead of A4 by default
  [ ] allow execution of restricted list of programs via \write18
  [X] create all format files
  [X] install macro/font doc tree
  [X] install macro/font source tree
  [ ] create symlinks to standard directories

<V> set up for portable installation

Actions:
<I> start installation to hard disk
<P> save installation profile to 'texlive.profile' and exit
<Q> quit

Enter command:

dscgaladriel6:~/Daten/privat/PC-Treff/LaTeX$ latex small2e
This is pdfTeX, Version 3.141592653-2.6-1.40.22 (TeX Live 2022/dev/Debian) (preloaded format=latex)
 restricted \write18 enabled.
entering extended mode
(/usr/share/texlive/texmf-dist/tex/latex/base/small2e.tex
LaTeX2e <2021-11-15> patch level 1
L3 programming layer <2022-01-21>
(/usr/share/texlive/texmf-dist/tex/latex/base/article.cls
Document Class: article 2021/10/04 v1.4n Standard LaTeX document class
(/usr/share/texlive/texmf-dist/tex/latex/base/size10.clo)
(/usr/share/texlive/texmf-dist/tex/latex/l3backend/l3backend-dvips.def)
(/small2e.aux) (/usr/share/texlive/texmf-dist/tex/latex/base/omscar.def)
Output written on small2e.dvi (1 page, 1864 bytes).
Transcript written on small2e.log.
dscgaladriel6:~/Daten/privat/PC-Treff/LaTeX$

--: sudo perl -- Konsole
Datei Bearbeiten Ansicht Lesezeichen Module Einstellungen Hilfe
Installing [4848/4871, time/total: 27:03/27:06]: zed-csp [237k]
Installing [4849/4871, time/total: 27:03/27:06]: zennote [59k]
Installing [4850/4871, time/total: 27:03/27:06]: zhlineskip [28]
Installing [4851/4871, time/total: 27:03/27:06]: zhlpsum [692]
Installing [4852/4871, time/total: 27:04/27:06]: zhmetrics [67]
Installing [4853/4871, time/total: 27:04/27:06]: zhmetrics-upd [1]
Installing [4854/4871, time/total: 27:04/27:06]: zhnumber [310]
Installing [4855/4871, time/total: 27:04/27:06]: zhspacing [178]
Installing [4856/4871, time/total: 27:05/27:07]: ziffer [3k]
Installing [4857/4871, time/total: 27:05/27:07]: zittie [347k]
Installing [4858/4871, time/total: 27:05/27:07]: zlmst [233k]
Installing [4859/4871, time/total: 27:05/27:07]: zootaxa-bst [1]
Installing [4860/4871, time/total: 27:05/27:07]: zref [686k]
Installing [4861/4871, time/total: 27:06/27:08]: zref-check [16]
Installing [4862/4871, time/total: 27:06/27:07]: zref-clever [15]
Installing [4863/4871, time/total: 27:06/27:07]: zref-vario [72]
Installing [4864/4871, time/total: 27:07/27:08]: zugferd [423k]
Installing [4865/4871, time/total: 27:07/27:07]: zugferddate [24]
Installing [4866/4871, time/total: 27:07/27:07]: zugferdlayout [1]
Installing [4867/4871, time/total: 27:07/27:07]: zx-calculus [1]
Installing [4868/4871, time/total: 27:08/27:08]: zxjafbfont [3k]
Installing [4869/4871, time/total: 27:08/27:08]: zxjafont [173k]
Installing [4870/4871, time/total: 27:08/27:08]: zxjatype [144k]
Installing [4871/4871, time/total: 27:08/27:08]: zztex [147k]
Time used for installing the packages: 27:08
running mktexlsr /usr/local/texlive/2025/texmf-dist ...
mktexlsr: Updating /usr/local/texlive/2025/texmf-dist/ls-R...
mktexlsr: Done.
writing fntutil.cnf to /usr/local/texlive/2025/texmf-dist/web2c
writing updmap.cfg to /usr/local/texlive/2025/texmf-dist/web2c/
writing language.dat to /usr/local/texlive/2025/texmf-var/tex/g
writing language.def to /usr/local/texlive/2025/texmf-var/tex/g
writing language.dat.lua to /usr/local/texlive/2025/texmf-var/t
running mktexlsr /usr/local/texlive/2025/texmf-var /usr/local/t
mktexlsr: Updating /usr/local/texlive/2025/texmf-config/ls-R...
mktexlsr: Updating /usr/local/texlive/2025/texmf-dist/ls-R...
mktexlsr: Updating /usr/local/texlive/2025/texmf-var/ls-R...
mktexlsr: Done.
running updmap-sys --nohash ...done
re-running mktexlsr /usr/local/texlive/2025/texmf-var /usr/local
mktexlsr: Updating /usr/local/texlive/2025/texmf-config/ls-R...
mktexlsr: Updating /usr/local/texlive/2025/texmf-var/ls-R...
mktexlsr: Done.
setting up ConTeXt caches: running mtxrun --generate ...done
running context --luaotfplata --generate ...done
running mtxrun --script fonts --reload ...done
running context --luajit --generate ...done
pre-generating all format files, be patient...
running fntutil-sys --no-error-if-no-engine=luametatex, luajitb

The following environment variables contain the string "tex"
(case-independent). If you're doing anything but adding personal
directories to the system paths, they may well cause trouble somewhere
while running TeX. If you encounter problems, try unsetting them.

Please ignore spurious matches unrelated to TeX. (To omit this check,
set the environment variable TEXLIVE_INSTALL_ENV_NOCHECK.)

TEXLIVE_INSTALL_NO_DISKCHECK=1

Welcome to TeX Live!
See /usr/local/texlive/2025/index.html for links to documentation.

The TeX Live web site (https://tug.org/texlive/) provides all updates
and corrections. TeX Live is a joint project of the TeX user groups
around the world; please consider supporting it by joining the group
best for you. The list of groups is available on the web
at https://tug.org/usergroups.html.

Add /usr/local/texlive/2025/texmf-dist/doc/man to MANPATH.
Add /usr/local/texlive/2025/texmf-dist/doc/info to INFOPATH.
Most importantly, add /usr/local/texlive/2025/bin/x86_64-linux
to your PATH for current and future sessions.

Logfile: /usr/local/texlive/2025/install-tl.log
dscgaladriel6:~/Programme/TeXLive/install-tl-20250613$

```

Dokument erstellen

- Rahmenarbeit
 - Auswahl Vorlage
 - Konfiguration
 - Packages
 - Zu einem beliebigen Zeitpunkt: vor, nach, später, zwischendurch...
- Texteingabe in einem normalen Texteditor
 - Ideal: Syntaxunterstützung (z.B. Kate, emacs)
- Aufruf Konvertierung in der Kommandozeile
 - Latex2pdf...

LyX

- Studienarbeit 1995 Matthias Ettrich
- Einfaches (?) Editierwerkzeug
 - Eigene Syntax
 - TeX eingebettet
 - Eigene Konfiguration zusätzlich
- Ergebnis auf Knopfdruck
 - Renderer wählbar

overleaf – Nachträglich hinzugefügt!

- Online Dienst zum Erstellen von Dokumenten
 - Anmeldung erforderlich
 - Kostenlos: nur 1 Autor
 - Kostenpflichtig: Collaboration, mehrere Autoren editieren gleichzeitig
- Vorbereitete Vorlagen
- Beeindruckende Demos ohne Anmeldung sichtbar
- Produktiv genutzt von Niko Rudolph für Bachelor
- <https://www.overleaf.com/>

links

- <https://de.wikipedia.org/wiki/TeX>
- <https://www.tug.org/>
- <https://ctan.org/>
- <https://de.wikipedia.org/wiki/LyX>
- <https://www.lyx.org/WebDe.Home>
- <https://www.overleaf.com/>