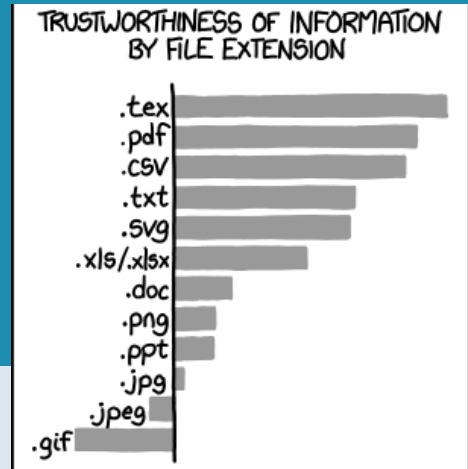


Introduction to LaTeX

Installing (or not?), LaTeX cycle, Help



<http://xkcd.com/1301/>

Contents

- Distribution/installation
- LaTeX cycle
- Getting help

Two approaches

Online

- Overleaf <https://www.overleaf.com/>
- Online LaTeX editor
- Internet connection needed
- Collaboration
- Easy to get started, no installation needed
- getting started on Overleaf:
https://www.overleaf.com/learn/how-to/Creating_a_document_in_Overleaf
- <https://www.nature.com/articles/514127a>

Local Installation

- Use your favorite IDE (LaTeX oriented)
- Installation takes time, can sometimes be painful
- Better performance, customization

Two approaches: considerations

- Privacy: private vs public
- Usability: ease-of-use (short-term) vs customization (long-term)
- Customization: data processing, convenience, practical workflow
- <https://tex.stackexchange.com/questions/193810/online-latex-editor-or-local-latex-editor#:~:text=The%20online%20compilers%20handle%20all,you%20more%20control%20and%20customisability.>

LaTeX Toolchain: What do you need?

A working installation of LaTeX typically comprises three main components:

- **LaTeX input editor:** a text editor with specific features that aid in writing LaTeX source files (such as syntax highlighting, macro menus) and aid in compiling LaTeX source files.
- **LaTeX distribution:** a collection of programs, fonts, configurations, necessary to process a LaTeX source file into a PDF output file.
- **PDF output viewer.**

Editor

- LaTeX input files (.tex) are ASCII files.
 - Highly portable
 - Can be edited on almost any text editor
 - LaTeX is meant to be device independent.
- A good editor for LaTeX has at least:
 - Syntax highlighting
 - A customizable shortcut for compiling documents
 - Easy-to-launch PDF viewer
- Specific editors geared toward LaTeX:
 - TeXStudio (all platforms - freeware)
 - TeXnicCenter (windows - freeware)
 - TeXworks (all platforms - freeware)
 - WinEdt (windows - shareware)
 - Kile (linux – freeware)

LaTeX distribution

- 2 major distributions:
- TeX Live (<https://tug.org/texlive/>)
 - +/- official distribution
 - Installers for Windows, macOS, Linux
 - Supported by TUG
 - Yearly release (march/april)
- MiKTeX (<https://miktex.org/>)
 - More Windows oriented, but also installers available for macOS, Linux
 - Easy installer / updater
 - 'one-person' project Christian Schenk

LaTeX distribution

- <https://latex-project.org/ftp.html>
- TeX Live:
 - Advisable to download the ISO image
 - Check the short Readme file, install the software following the detailed installation instructions.
 - Windows: run `install-tl-windows`
 - <https://www.latexbuch.de/install-latex-windows/>
 - Might take 3 hrs to install
- MiKTeX:
 - *Light* installation – basic installation + install packages when needed
 - *Full* installation

Update the LaTeX distribution



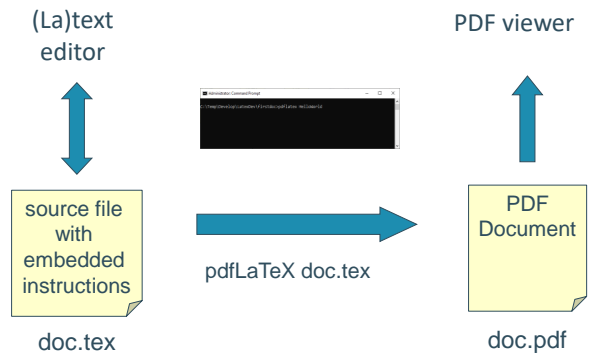
- <https://tex.stackexchange.com/questions/55437/how-do-i-update-my-tex-distribution#:~:text=TeX%20Live%20on%20Windows%20includes,button%20to%20run%20the%20process>.
- MiKTeX: use the admin console
- TeX Live: use the command line
 - `tlmgr update --all`

LaTeX workflow

- Describe how you want your output to look like
 - Put text and instructions in `.tex` file
 - Logical directions (ex. `\section`)
 - Visual directions (ex. bold `\textbf{}`)
- Let LaTeX use the `.tex` source input file to process the `.pdf` output file.
 - LaTeX figures out what looks best given your directions (constraints).
- Applaud the result

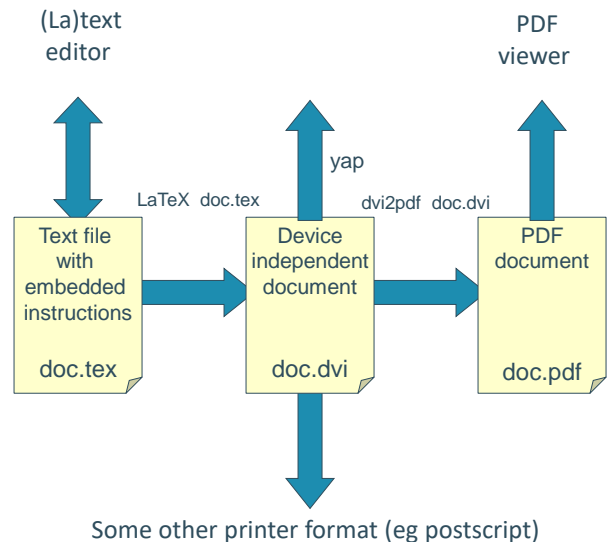
pdfLaTeX cycle (2 step)

- Two step process (pdfLaTeX)
 - Creation of source .tex file
 - Processing of the input file with LaTeX directly to .pdf



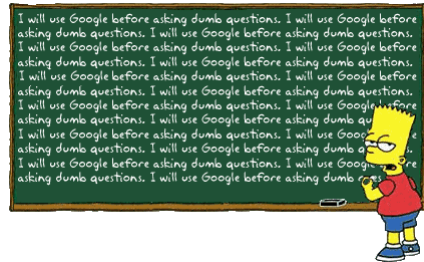
LaTeX cycle: 3 step

- Three step process
 - Creation of input file
 - Processing of the input file with TEX (Compiling the file to .dvi)
 - Conversion of .dvi file to something printable or readable (.ps or .pdf)



Help

- Learn by example, practice
- Get example code



- <https://overleaf.com/learn>
- <https://en.wikibooks.org/wiki/LaTeX>
- <https://nl.wikibooks.org/wiki/LaTeX>
- **Scott Pakin's Visual LaTeX faq**
<https://www.ctan.org/pkg/visualfaq>

Help

- Forum
 - <https://tex.stackexchange.com/>
 - <https://latex.org/forum/>
 - <https://texblog.net/>
 - <https://texblog.org/>
- CTAN (Comprehensive TeX Archive Network)
 - home of almost all the LaTeX packages and tools you will ever need.
<https://www.ctan.org/>
 - Check the information TeXFAQ
<https://texfaq.org/>
- Tex User Group (<https://tug.org/index.html>)

Books + Tutorials

- Books
 - George Graetzer: Practical LaTeX (<https://link.springer.com/book/10.1007/978-3-319-06425-3>)
 - George Graetzer: More Math into LaTeX (<https://link.springer.com/book/10.1007/978-3-319-23796-1>)
- The Not So Short Introduction to LaTeX2e (Tobias Oetiker)
 - <https://tobi.oetiker.ch/lshort/lshort.pdf>
- LaTeX for Complete Novices, Nicola Talbot
 - <https://www.dickimaw-books.com/latexresources.html>
- Silmaril consultants
 - <http://latex.silmaril.ie/formattinginformation/index.html>
- Getting to Grips with LaTeX
 - <https://www.andy-roberts.net/latex/>

KU Leuven - templates

- Faculteit Industriële Ingenieurswetenschappen
<https://iiw.kuleuven.be/studeren/masterproef/templates-latex>
- Faculteit Ingenieurswetenschappen
<https://eng.kuleuven.be/docs/kulemt/readme>
Arenberg Doctoral School
<https://people.cs.kuleuven.be/~wannes.meert/adsphd/>
- Faculteit Economie en Bedrijfswetenschappen
<https://feb.kuleuven.be/studentenportaal/ppe/masterproeven/vormvoorschriften>