

How to set up your computer to start using \LaTeX

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Thank you for your interest in \LaTeX typesetting system and this article will help you to get you ready for starting to use \LaTeX on your computer.

Although I would like to write a continuous text on how to install everything on different kinds of OSes (Operating Systems), I believe, that it is not necessary to duplicate any content, if it can be found in a better shape elsewhere. Therefore, I suggest you reading chapters of the book called \LaTeX hosted on the website called wikibooks.org. You can find an on-line version of the [book](https://secure.wikimedia.org/wikibooks/en/wiki/LaTeX)¹ or the [PDF](http://upload.wikimedia.org/wikipedia/commons/2/2d/LaTeX.pdf)² version of it, which I think is much more suitable for reading or printing.

¹The URL is <https://secure.wikimedia.org/wikibooks/en/wiki/LaTeX>

²The URL is <http://upload.wikimedia.org/wikipedia/commons/2/2d/LaTeX.pdf>

The list of the needed software is already there and if somebody feels very comfortable with his system, no specific directions should be necessary for them.

1 Software from the Department of Chemistry

Computer Office is already providing images for deploying the whole OS and necessary software for Chemistry Department members. As far as I was informed, there are images for Linux and Windows systems. For Macs, there might be customized installers as well available on <http://www.google.co.uk>.

2 L^AT_EX distribution installation

You need either of these:

- “T_EX Live” L^AT_EX distribution which is available for Linux/Mac/Windows, but should be preferred on Linux machines.
- “MacT_EX” L^AT_EX distribution which is available for Mac machines only and should be the preferred option on these machines.
- “MiK_TE_X” L^AT_EX distribution which is available for Windows machines only and should be the preferred option on these machines.

2.1 Notes for Linux users

Use your Linux Distribution package manager whenever you can and install “T_EX Live” only from there. If you do not know how to do it, please refer to your Distribution Wikipedia and search it for ‘LaTeX’ or ‘TeX Live’.

Here is a list of most popular distributions and links to their Wikipedia Pages:

.deb based [Debian](#)¹, [Ubuntu](#)², and for distributions, which are derived from these two, the same wiki pages can be used. However, for full installation of T_EX Live you can try these terminal commands (issue them as root):

```
aptitude update
aptitude install texlive-full
```

.rpm based For Fedora, RedHat, CentOS and openSUSE distributions, use your package manager and install the full T_EX Live distribution. The following command executed in terminal as root should work:

¹The URL is <http://wiki.debian.org/Latex>

²The URL is <https://help.ubuntu.com/community/LaTeX>

```
yum install texlive-full
```

ArchLinux and derivatives The following instruction should work on ArchLinux and Chackra distributions. Both use pacman as their packages manager, so the following commands executed as root user will suffice:

```
pacman -S texlive-most texlive-lang
```

NB the second package texlive-lang is for the different languages support and if you use only English language, then you are free to install only the texlive-most package

Archlinux has a very good wiki article: https://wiki.archlinux.org/index.php/TeX_Live.

Gentoo and derivatives This applies for Gentoo, Funtoo, Sabayon distributions. Things which work will definitely work on the other two distributions, so we will analyse only Gentoo. For checking the list of functionality for texlive distribution, enter:

```
equery uses texlive
```

and you will get the list of available use flags. You will have to enable the needed flags in the /etc/portage/package.use and then just emerge the packages:

```
emerge -av texlive
```

In order to get a newer version of T_EX Live, just unmask the needed packages via /etc/portage/package.Gentoo has a very good [Wiki](#)¹ page documenting the installation.

Others Install the T_EX Live distribution via your distributions packet manager. If you do not know how to do that, ask in the forums on your distribution web page.

2.2 Notes for Mac users

For easier experience, just install the full MacT_EX installation which can be found on the following [website](#)².

2.3 Notes for Windows users

For easier experience, download MiK_TE_X installation files from [their website](#)³. There are mainly 2 wise options to select:

Install everything Although this might be very convenient as one will not have to worry about missing packages, but it takes space. On the other hand, slightly more than 1GB of occupied space on modern computers will not make a difference.

¹The URL is <http://www.gentoo.org/proj/en/tex/texlive-migration-guide.xml>

²The URL is <http://www.tug.org/mactex/>

³The URL is <http://miktex.org/2.9/setup>

Install a base system This is the alternative, which would take less space. What is more, one can select an option where necessary packages could be installed on the fly without any user intervention.

3 Editing a .tex file

Mainly there are two choices:

- Integrated Development Environment [IDE](#)¹
- Just a text editor.

While IDEs generally will provide a user with much more integrated environment, this does not necessarily mean, that producing \LaTeX documents with an IDE is generally faster. There are many very powerful text editors, which might have a steep learning curve, but once mastered, they are very fast. What is more, some text editors might be better in some tasks than other, so there is no such thing as “the best” IDE or text editor for \LaTeX .

The most important projects are mentioned bellow:

VIM & Emacs VIM is the best editor, in my opinion. It is very fast, lightweight and it can be customized a lot. Although it has a steep learning curve, it is very rewarding afterwards and reading any of the books on VIM would help a lot.

This being said, everybody admit, that Emacs is also good, and many argue that it is better than VIM. This has much to do with so-called [editor wars](#)².

Since both are very advanced editors, you will find that they have very powerful \LaTeX plug-ins, which might make the work faster than with most of the IDEs.

LyX This is a project, that aims the user to give a word-processor, which would use \LaTeX internally. Although one can achieve really good results with it, technically you do not write \LaTeX and it will not help you at all with \LaTeX if you want to learn it. However, since it does a lot of automatic things, it might be a very good reference tool for searching hints how to achieve some things with \LaTeX (eg. searching for symbols, remembering commands).

That said, I have to insist on you that **YOU DO NOT USE THIS WORD PROCESSOR, OTHER THAN FOR REFERENCE!** The reason is because publishers do not accept LyX files and once you export them to \LaTeX it becomes a mess. What is more, it will be easier to collaborate with colleagues if you use \LaTeX . And sometimes, it tries to do more, than you want, or ask him to do and then you get errors, and spend so much precious time debugging instead of writing your thesis.

¹The URL is https://secure.wikimedia.org/wikipedia/en/wiki/Integrated_development_environment

²The URL is http://en.wikipedia.org/wiki/Editor_war

TeXShop This is probably the first good \LaTeX IDE for Mac, which was highly successful when it first came out. However, it is still being widely used and most of Mac people will suggest it first.

TeXnicCenter \TeX nicCenter is probably the best choice for Windows users, as it has a lot of functionality. If you choose this IDE, then you won't have to worry about anything as there are a lot of resources on the internet on how to get various features working and etc.

TeXworks A cross-platform IDE which was inspired by **TeXShop**. Note, that it is very useful as it comes with every \LaTeX distribution by default (except for \TeX Live). Thus you can start using it very quickly.

TeXMaker A good cross-platform IDE using Qt toolkit. This might be an alternative to TeXworks, although there are better alternatives listed above, so it is here just for completeness.

Other projects, which can be still very well used to achieve good results, but are somewhat less popular:

Kile This is an IDE for Linux, mostly suited for KDE users.

Geany This is an IDE for Linux, built with the GTK+ widget set and might be the primary choice for those people who want an IDE, but don't want to install Qt, or have other strong opinions towards the Qt library.

Others There are probably more ways to create `.tex` documents than I have mentioned here and if you feel, that none of the solutions works for you, please research the web and you'll find alternatives.

4 Bibliography management

Bibliography in \LaTeX can be managed in several ways and information on how it is done is given in the Bibliography Tutorial. Here I will just flick through different software which can act as a front-end to Bib \TeX . Those front-ends can be categorized as follows:

\LaTeX IDEs Some \LaTeX IDEs are known to be able to manage `.bib` files (native Bib \TeX format), however, to check whether your is capable of doing that, you should refer to the documentation of the software you use or just quick-check on web-search engines like [Google](http://www.google.co.uk)¹, [Bing](http://www.bing.co.uk)² or others.

¹The URL is <http://www.google.co.uk>

²The URL is <http://www.bing.co.uk>

Text Editor You can manage the bibliography manually, by using just your text editor. For this job I would suggest only the more advanced one like VIM or Emacs, however, you can create the .bib file with anything you want, as long as it supports ASCII encoding (which should be the case for all text editors). The templates can be found on the [L^AT_EX wikibook](https://secure.wikimedia.org/wikibooks/en/wiki/LaTeX/Bibliography_Management#Standard_templates)¹.

BibT_EX GUIs This is the third category and probably the most suited for the job. There are wonderful bibliography managers, which can export the database as .bib files and, thus, can be easily used with L^AT_EX. The list of software can be found either on [Wikipedia](https://secure.wikimedia.org/wikipedia/en/wiki/Comparison_of_reference_management_software)² or [L^AT_EX wikibook](https://secure.wikimedia.org/wikibooks/en/wiki/LaTeX/Bibliography_Management#Helpful_Tools)³.

5 PDF viewers

Good PDF viewers are different across different platforms. I believe, that you might want say, that Adobe's PDF viewer is very good, but the truth is that it is slow and not as reliable as others, so please be sure, that you check, or at least are aware of alternatives.

A much better alternative might look **Foxit** PDF reader, which is available for both Linux and Windows operating systems. However, by no means it is the best solution and one should research a bit before settling down with the most appealing PDF viewer.

5.1 On Linux

Linux users have a huge variety of PDF viewers to select from. One should search distribution's repositories, but just to mention a few:

IDE's viewer If you will be using a fully-fledged IDE for L^AT_EX (like T_EXworks or similar), then it is very likely that you will not need another PDF viewer for monitoring the changes to the .tex file.

Evince Default PDF viewer for GNOME. Supports SyncT_EX, which is very useful for improving the user experience and document creating.

Okular Default PDF viewer for KDE. Like Evince, supports SyncT_EX and might be more feature-full than the former.

mupdf This is a PDF rendering library with a very minimalistic viewer. Although it might be very minimalistic, it is very fast and reliable. This library is cross-platform, so the viewer might be available on other platforms as well.

¹The URL is https://secure.wikimedia.org/wikibooks/en/wiki/LaTeX/Bibliography_Management#Standard_templates

²The URL is https://secure.wikimedia.org/wikipedia/en/wiki/Comparison_of_reference_management_software

³The URL is https://secure.wikimedia.org/wikibooks/en/wiki/LaTeX/Bibliography_Management#Helpful_Tools

zathura and **apv** These are minimalistic and very fast VIM-like PDF viewers.

5.2 On Mac

Your IDE is very likely to be bundled with some custom PDF viewer and thus you might not need an extra one. However if you need SyncTeX support, which improves the user experience a lot, keep in mind, that not all IDE PDF viewer support it. In case you wanted the support in an external viewer, you should definitely check out **Skim** PDF viewer.

A good choice just to preview files is the native program called **Preview**.

5.3 On Windows

The best choice would be a **Sumatra** PDF viewer. It is based on very stable and fast MuPDF rendering library and it supports lots of other features, of which the most important one is SyncTeX. This viewer launches immediately, which is very useful if you close and open the PDF files often.

Other good alternatives either need to be paid for or they are not as reliable/feature-complete as the **Sumatra** PDF viewer.

6 Other useful software & links

Here is a list of very useful internet resources on L^AT_EX typesetting system:

- [CUED L^AT_EX website](#)¹ very good resource for some L^AT_EX related matters;
- [PracTeX journal](#)² is a very good place for novel uses of L^AT_EX and one can find very interesting tutorials there;
- [stackoverflow archive](#)³ of answers to various L^AT_EX related questions.
- [Good L^AT_EX practices](#)⁴ on **stackoverflow**.
- The aforementioned [L^AT_EX wikibook](#)⁵
- [CTAN L^AT_EX repository](#)⁶. This is the major database of packages and document classes. If you do not find what you want here, probably it does not exist (yet).
- [The L^AT_EX font catalogue](#)⁷. A very good place to know how to get fonts working.

¹The URL is <http://www.eng.cam.ac.uk/help/tpl/textprocessing/>

²The URL is <http://tug.org/pracjourn/2010-2/toc.html>

³The URL is <http://stackoverflow.com/questions/tagged/latex>

⁴The URL is <http://stackoverflow.com/questions/193298/best-practices-in-latex/196724>

⁵The URL is <https://secure.wikimedia.org/wikibooks/en/wiki/LaTeX>

⁶The URL is <http://www.ctan.org/>

⁷The URL is <http://www.tug.dk/FontCatalogue/>

- [T_EXamples page](#)¹. A good resource on TikZ graphics package usage. It contains a lot of examples and might be the best way to start learning it just by examining everything.
- [Metapost related links](#)². This is yet another way to produce good quality scalable graphics. This library is based on the MetaFont library by Donald Knuth (the T_EX father).

¹The URL is <http://www.texample.net/>

²The URL is <http://www.tug.org/metapost.html>