

Finding, Installing and Using L^AT_EX Software

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1 What is L^AT_EX?

Basically, a L^AT_EX document is a text file that contains markup. As long as you like the default formatting, you will not need to format your document manually. A file is formatted as directed by the class file and packages that you use. I will give more details about class files and packages in the next module. L^AT_EX is a document preparation system based on the T_EX typesetting language. The engine converts the L^AT_EX document into T_EX commands, then T_EX does the typesetting work.

Figure 1: L^AT_EX Document: An Example

```
\documentclass{article}
\usepackage{color,graphicx,subfig,geometry,float}
...
\begin{document}
\maketitle

\section{What is \LaTeX?}
Basically, it is a document preparation system based on the \TeX typesetting
language. ...
```

Some strengths of L^AT_EX include: less focus on formatting and more on content; more consistent formatting; and superior and flexible equation presentation. In addition, T_EX is fast, stable, extensible, and free (distribution dependent). The article, Technical writing tools for engineers and scientists, by Wright discusses this topic.

- Use publisher Web site to view [Technical writing tools for engineers and scientists](#).
- When off-campus, UA students need [a proxied link to Technical writing tools for engineers and scientists](#).

2 Getting Software

2.1 T_EX Distribution

A T_EX distribution collection of software that supports the T_EX typesetting system. You cannot use L^AT_EX without installing a T_EX distribution. There are versions that are available as freeware, shareware, and commercial. A good starting point for more information about the software needed to create a L^AT_EX document is the [L^AT_EX Project Web page](#).

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The T_EX User Group (TUG) is a not-for-profit organization that supports T_EX users interests worldwide (*T_EX Users Group (TUG) home page, 2010*). A comprehensive list of options including hyperlinks to T_EX distributions is provided by the [TUG Web site](#).

There are different recommendations for different operating systems (OS) and expertise levels. Some Linux OS have a T_EX distribution as part of their install, such as Knoppix. If a T_EX distribution is not packaged with the Linux OS, T_EX Live is often recommended.

2.2 Front End or Editor

You don't have to install a T_EX front end or editor; however, it is much easier to create L^AT_EX documents if you do. An T_EX editor will call necessary commands, such as latex and pdflatex. Many of them have auto-complete of markup commands and have a spell checker. Users will post their favorite T_EX editors on blogs, [forums](#), and [Wikipedia](#). Many T_EX editors can be downloaded from the [TUG Web site](#). A few T_EX editors will be discussed in this document.

3 Installing Software

3.1 T_EX Distributions

A T_EX distribution must be installed prior to any T_EX editors. The distribution contains all the software that you need to create a L^AT_EX document. There are installation options with each distribution, where most are straight forward. Most OS are discussed in this section. [For additional information about installing, go to the resource tab on the library guide.](#)

3.1.1 Windows

For Windows, you can choose between two T_EX distributions: T_EX Live and MikT_EX. Since both function well, the biggest factor in this decision is hard drive space. If you want to use less hard drive space and install packages when you need them, pick MikT_EX. If you want to install everything at the repository, pick T_EX Live.

Every available package will never be available at any single repository. Regardless of T_EX distribution, you must install class files, packages, and bibliographic style files manually from time to time.

3.1.2 Mac

The MacT_EX install is straight forward using MacT_EX-*{Year}*.mpkg. [Remove any previous versions because they are very large \(directions\).](#)

3.1.3 Linux

If you want the latest version of T_EX Live, install it from the TUG Web site. If the latest version is not necessary, install the version packaged with the Linux distribution.

If you install T_EX Live from the Web site, it is better to download a T_EX editor. Often, installing an T_EX editor packaged with the OS will install the T_EX Live that is packaged with the OS too. You won't be able to rely on the OS to update your T_EX distribution when you install from the TUG Web site as well. You will need to use *tlmgr* to update your packages periodically. To use *tlmgr* in this case, it is likely that the bin directory for your distribution will need added to the PATH environment variable for the OS.

3.2 Front End or Editor

T_EX editors will either detect or will need supplied a path to the T_EX distribution in order to compile L^AT_EX documents. This fact is why it is important to install the T_EX distribution first.

3.2.1 T_EXstudio

T_EXstudio works well on Windows, Mac, and Linux OS. On Windows, the install is straight forward and T_EXstudio automatically detects a MiK_TE_X install, which eliminates the need to manually add the path for each command in T_EXstudio. However, it is possible that the DVI viewer might need configured via *Options* from the main menu.

If you installed the T_EX Live packaged with your Linux Distribution, T_EXstudio can be installed using the software center or package manager that comes with the OS. If T_EXstudio is not available via this method, you could use its predecessor T_EXmaker. [Additional information about T_EX studio can be found on the resources tab of the library guide.](#)

3.2.2 T_EXShop

T_EXShop is only available for the Mac OS and is part of the MacT_EX install. Spell check is configured with the initial install. If you rather use CocoAspell, it is part of the MacT_EXtras and you can configure it to be used with T_EXShop. For more information, use T_EXShop Help.

4 Downloading Packages

Packages extend the basic L^AT_EX commands ([Kopka & Daly, 2004](#)). Often, they are .sty files, but other necessary files might accompany them. Many publishers offer a class file and it is usually based on an existing L^AT_EX class. The class file contains global processing information for the document ([Kopka & Daly, 2004](#)). For simplicity, “package” will refer to all of these files.

4.1 Installing Files Manually

If you want to install a package that is not in the package repository for your T_EX distribution, install the package manually.

4.1.1 Getting the Files

Most packages can be downloaded from the [Comprehensive T_EX Archive Network \(CTAN\)](#). It is the authoritative archive of this material. To find packages, search by filename or keyword and download the material. If it is a publisher class file that you seek, check the guide to authors Web pages for the journal. Sometimes the publisher has a more up-to-date copy.

4.1.2 Installing the Files

Always read the documentation with the package because it might provide package specific instructions for installation. In some cases, a zip file is provided containing all the necessary files.

In other cases, there will be an .ins and .dtx file only. A T_EX editor can be used to run either the latex or pdflatex command on the .ins file to generate the necessary installation files. Before running, ensure the .ins and .dtx

files are in the same directory. Using latex or pdflatex and the .dtx file will generate the documentation for the package.

With all the necessary files acquired, put them in the proper directory. Create a directory for the package in {local T_EX directory}\tex\latex. Most files like .sty, .cls, and .clo files are copied into this directory. If there are .bst files, create a directory for the package in {local T_EX directory}\bibtex\bst.

For MikT_EX and T_EX Live, always refresh the database after installing packages or you will receive an error. To refresh the filename database, use the MiKT_EX Console or the T_EX Live Manager (for Windows). For T_EX Live on Linux, use “texhash” or “mktexlsr” commands to update the file name database with administrator privileges.

For MacT_EX, refreshing the filename database is not necessary – just place the files in the appropriate directory. When installing packages manually the first time, the user must create the directory tree in the Library folder in the user’s home directory.

For more information about manually installing packages with respect to OS, go to the library guide.

5 Documentation and Help

5.1 Help using L^AT_EX

Much L^AT_EX documentation can be found on the Web. The TUG Web site, [TeX Resources on the Web](#), provides recommendations of good Web sites and books about using L^AT_EX.

Several books are available through our library using [UA Libraries Catalog](#). Some books will be located in the library and others will be online books. [Safari Technical Books](#) is particularly helpful and it allows full-text searching.

What if I am not a UA student, faculty, or staff?

Unfortunately, you can’t use UA e-books, but there are many free resources out there on the web.

5.2 Help with Packages

Individual packages have documentation, where much can be found on [CTAN](#). Documentation files could be in various formats. When packages are documented well, it is obvious which file is the documentation file. There are a few packages that are not documented well, but you might find comments embedded within the package file itself.

In addition to standard documentation, many error messages can be solved by viewing blogs or wikis. The information is not always correct, so be critical. Often these sources can either provide a solution or enough insight to find the answer elsewhere.

References

- Kopka, H., & Daly, P. W. (2004). *Guide to L^AT_EX* (4th ed.). Boston: Addison-Wesley. Retrieved from <http://proquest.safaribooksonline.com/9780321617736>
- T_EX Users Group (TUG) home page. (2010, December). Retrieved from <http://www.tug.org>