



L^AT_EX *with* Tears

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What is L^AT_EX ?

- Document markup language
 - L^AT_EX is a wrapper around T_EX, which is more obviously a programming language
 - CTAN is a tremendous resource for help and extensions
 - Let L^AT_EX handle formatting and fonts!!!
- Permits separation of content and design
- Different document classes for different purposes: article, letter, book.
- Works with BibTeX

Why (or why not) L^AT_EX?

- Advantages
 - Text files \implies document corruption not an issue
 - Pure focus on document creation, designed for math
 - Good document design by default
 - Truly cross-platform
- Disadvantages
 - *Big* startup costs
 - Publishers may or may not want the format
 - L^AT_EX is not appropriate for true desktop publishing
 - Need to compile document to view it
 - Some tasks (e.g. table design) can be tedious
 - Document appearance can be hard to modify

Creating a Document

- Create ASCII file with appropriate markups
- Compilation is multi-step process
 - Compile the file using latex.exe (often multiple passes to resolve cross-references).
 - MikTeX's texify.exe provides single pass compilation
 - This creates a .dvi file for which a dvi viewer (e.g. MikTeX's yap.exe) is necessary
 - Can print directly from dvi viewer or by converting the file to postscript with dvips.
 - SWP does all this “under the hood”
- Pdflatex and ps2pdf (from Ghostscript) can be used to create a pdf file. Multiple routes to pdf can be confusing.

L^AT_EX Options under Windows

	Advantages	Disadvantages
Scientific Workplace	Simple Great equation editor Handles Windows formats	Costly Opaque Slow Clumsy Mediocre support (e.g. €)
PCTeX	Fonts Utilities	Costly Need to know L ^A T _E X A bit opaque
MikTeX	Free Utilities	Need to know L ^A T _E X Must piece things together

A Complete L^AT_EX Installation

- MikTeX
- Ghostscript and Ghostview
- A text editor which understands L^AT_EX
 - Emacs (free)
 - Xemacs (free)
 - WinEdt (commercial)
- Plan on using the Windows command shell
- Make sure that MikTeX, Ghostview, and Ghostscript directories are in the path.

MikTeX hints

- Set up a “localtexmf” directory.
 - This is where you keep style files you’ve added, apart from the main distribution
- Be sure to run “initexmf -u” after installing new style files
- Make sure to install Ghostview and Ghostscript
- Wmf graphics are *not* adequately supported in MikTeX.

Scientific Workplace Hints

- In Tools|User Setup|Edit|Enter, set “Action” to “ignore”. This prevents excess space from appearing in the typeset document.
- In the View menu, make sure “invisibles” is checked. This enables you to see skips which SWP has inserted. (SWP inserts “\bigskip” commands, which add space to the typeset document.)

MikTeX and Scientific Workplace

- You can edit the same document in both (simultaneously!)
- MikTeX
 - must have access to tcilatex.tex
 - cannot handle .wmf graphics
- SWP must be able to find MikTeX style files
 - You can edit `\swp35\TCITeX\TrueTeX\truetex.ini` to include MikTeX paths
- SWP detects file changes automatically (as do many editors)

Examples

- **test1.tex** illustrates a simple tex document created from scratch in a text editor
- **test2.tex** illustrates the same document created from scratch in SWP
- **Graphtest.tex** illustrates different graphics file formats

Creating a .pdf file

- Create the dvi file by running “latex fn”
- Create a .ps file by running “dvips -Ppdf -tletter fn”
 - The “-Ppdf” option controls fonts. For Prosper class, use “-Pcmz”
 - The “-tletter” option controls paper size
- Create a .pdf file by running “ps2pdf fn.ps fn.pdf”
- Here is a Windows batch file:

```
rem this file is for standard letter –size documents, not slides
texify %1.tex
dvips – tletter –Ppdf %1
call ps2pdf %1.ps %1.pdf
```