

Installing TeX/L^AT_EX on a Windows or Macintosh System

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1 Overview

TeX/L^AT_EX is a typesetting system that allows for easy creation of mathematical symbols and equations. TeX has become popular because it is both in the public domain and documents created with TeX are archival and thus don't change or become unloadable over time. It's now fairly easy to install a TeX/L^AT_EX system on your microcomputer and it even comes with various front-ends you can use so that you can customize your own TeX experience.

This document will go over installing a standard TeX/L^AT_EX system on a Windows or Macintosh microcomputer. A base TeX/L^AT_EX installation normally includes two parts: a TeX/L^AT_EX base system and a front-end system from which to easily use the TeX/L^AT_EX base. Additional information on how to add the isuthesis package to the installation will also be included.

2 Windows Installation

ProTeXt puts a complete public domain tex system on your Windows system for use with creating papers, writing document or making a thesis with TeX and L^AT_EX.

You can get a free copy of the ProTeXt CD-Rom from the Solution Center, 195 Durham Center, during normal business hours. You can also download ProTeXt from <http://www.tug.org> but it is kind of large so it might take a considerable amount of time to download.

2.1 Getting Started with ProTeXt

Take the ProTeXt CD-Rom and put it into your CD-Rom drive. Choose to install the English version of ProTeXt and click **Next**. After a little waiting, an initial PDF file should pop up. If it doesn't show up automatically, use Acrobat and open the protext-install-en.pdf file at the top level of the CD-Rom within the Install Folder.

ProTeXt uses a PDF file to guide you through a basic TeX installation. You actually click on links in the PDF file to install TeX on your machine. A standard Windows installation involves two main parts: a main TeX system (MikTeX) and a TeX interface or front-end (TeXnicCenter). We will be installing a few little extras as well. Let's start by installing MikTeX.

2.2 Installing MikTeX

Browse down into the PDF file until you see the line:

Click here to install MikTeX

and click that spot in the file. This will startup the MikTeX installation. You basically take most of the defaults and install a **Complete** TeX installation. So the proper responses to the prompts are: **Next, Next, Complete then Next*5**. At this point, write down the *Local Tree* information then press **Next, Next** and **Next**. You will then have a long wait while MikTeX creates a complete TeX installation. Go and get a sandwich. It takes about thirty minutes or more.

When the long wait is over, press **Next** followed by **Finish**. Your base TeX system is now installed. If you look under the Start Menu under Programs you should now find a TeX option. But wait, unless you want to use \LaTeX from the command line, you will probably want to install a front-end and a couple more things as well.

2.3 Installing a \LaTeX front end

2.3.1 Installing TeXnicCenter

Go back to your installation PDF file and browse down the file until you find:

Click here to install TeXnicCenter

and click that spot in the file.

This time simply take all the installation defaults, accept the terms and conditions, and click the box to make a desktop link for using TeXnicCenter.

ter. Click the **Finish** button when it pops up and TeXnicCenter has been installed. TeXnicCenter allows you to use all the major L^AT_EX functions by pressing buttons in a pleasant Windows environment. It also includes a rather simple text editor. Once you are finished with the installation, if you look under the Start Menu under Programs you should now find a TeXnicCenter option to use.

2.3.2 Installing WinShell

TeXnicCenter is a standard L^AT_EX front-end that a lot of people use but another popular choice is WinShell. If you would like to use that front-end rather than or in addition to TeXnicCenter, go to:

<http://www.winshell.de>

and click on the **Download WinShell** link. You will have the option of downloading from various sites— simply choose one of the self-installing WinShell31.exe downloads and click it to start the downloading. Once the download completes, double-click on the installer and once that starts click on the **Install** button then the **Run** button.

Basically take all the defaults by clicking **Next**, **Accept** the terms and conditions then click **Next**, **Next*2**, click to create a desktop icon then click **Next** and click **Finish** to exit the installer.

You should now have a complete version of WinShell available to you from under the Start Menu under Programs.

2.3.3 Other Windows Front-Ends/Editors

There are many other L^AT_EX front-ends or editors that you might use with a TeX base. For other front-ends you might try, take a look at the free editors section at the bottom of the following web page:

<http://www.emacswiki.org/cgi-bin/emacs-en/CategoryTex>

2.4 Installing Ghostscript/Ghostview

Ghostscript/Ghostview allow a standard TeX installation to show graphics when using the standard L^AT_EX compiler. If you are going to use the standard L^AT_EX compiler then go down a little further into the PDF file and install both of these packages. Just take the defaults and it should end up being very easy to install.

2.5 Finishing Up

Viola! All the major installations for using TeX and L^AT_EX on a Windows system are now complete. You might add the isuthesis style files or a spelling checker for L^AT_EX a little later on but other than that your TeX system is ready to go.

2.6 Adding isuthesis or your own style files

To add the isuthesis style files to your TeX installation, go to the following URL:

<http://css.ait.iastate.edu/TeX/>

and click on the *isuthesis* link followed by the *isuthesis package* link. Save all the files in the **isuthesis folder** as well as the `fullpage.sty` and the `muticol.sty` files to a folder on your desktop named **isuthesis**. You can do this by right-clicking on each style file and downloading it to a selected folder on your desktop.

Next go to the following location on the C drive:

`C:\texmf\tex\latex\`

This should be the location where the local texmf tree as created by ProTeXt. If it's not, use the location given by ProTeXt. **Move the isuthesis folder from your desktop into the latex folder.**

Now you just need to rebuild your tex system since you've added some additional style files. Go under **Start** → **Programs** → **MikTeX** → **MikTeX Options** and under the **General** tab click on the **Refresh** button. This will probably take a little while to complete. Click **OK** once completed to finish.

You now have installed the isuthesis package. You can download the thesis template files from:

<http://css.ait.iastate.edu/TeX/>

by clicking on the *isuthesis* link and then clicking on the *standard isuthesis template* link. Save all the files listed there to a single folder then compile the **thesis.tex** file with L^AT_EX.

2.7 Adding a Spelling Checker

A normal spelling checker will have trouble working with L^AT_EX due to all the L^AT_EX commands in a L^AT_EX file. So you normally have to install a special

spelling checker that knows about TeX and L^AT_EX commands. TeXnicCenter comes with a spelling checker already installed but if you are using WinShell then you need to install your own spelling checker. Two free spelling checkers for the Windows version of L^AT_EX are 4Spell and GNU Aspell.

2.7.1 Installing 4Spell

You can download 4Spell on the Web at:

<http://4tex.ntg.nl/4tex5/download/4Spell/>

You will need to download and unzip both **4spell.zip** and **us.zip** from this web site. Unzip and extract the two files and place the **4spell Folder** somewhere on your system where you can find it and place the **us.dic** file *from the US folder* inside of the **4spell Folder** in a folder there named **4spell**.

To initialize 4spell, run the program **4spell.exe** in the **4spell Folder**. Click the **Select Language** button and choose the **English (American)[US]** option. 4spell should now be configured for correct use.

To use 4spell, click the **Select File** button and choose the file that you want to spell check. The file will open inside of 4spell. Then click on the **Check Spelling** button.

To add 4spell as an option to Winshell, start Winshell then pull down under **Options** → **User Programs** and choose **Tool1**. Click the **Browse** button and find the **4spell.exe** program on your system then click **Open**. Next change the *cmd - Line* option to **%pc**. Finally uncheck all the boxes in the lower righthand corner named: LaTeX first, PDFLatex first, and DVIPS first; then click the **OK** button. After this setup, you can enter **CTRL/Shift/F1** at any time within WinShell to bring up 4spell.

2.7.2 GNU Aspell

GNU Aspell works very nicely with WinShell and actually allows you to use the *Spell Check* button within WinShell. You can download GNU ASpell on the Web from:

<http://aspell.net/win32/>

Download both the **Full Installer** and the **English** dictionary. Once you have it downloaded, double-click the **Full Installer** and take all the defaults for installation. Next install the **English** dictionary taking all the defaults for this one as well.

You should now have Aspell properly installed and be able to click on the **Spell Check** button within WinShell which looks like a checkmark to start Aspell.

3 Macintosh Installation

It's fairly easy to download and install a full TeX/L^AT_EX system on your Macintosh. The TeX base system is simple to install using the i-Installer application and then you can choose either iTeXMac or TeXShop as your front-end. There is also a MacTeX package that comes from the TeX Users Group (TUG) which is extra easy to install as it comes as a standard Macintosh package and it includes a standard front-end with it.

3.1 Installing the MacTeX Package

The MacTeX package provides a very easy way to install a TeX base on your Macintosh including a standard Macintosh front-end (TeXShop). Simply go to:

<http://www.tug.org/mactex/>

and click on the image to download your installation. The package installs like any other normal Macintosh package so simply double-click on the **MacTeX.dmg** icon then double-click the **MacTeX-2007.mpkg** icon to begin installation. Take the default options for a complete TeX installation and a full TeX installation should be created for you in about thirty minutes. Quick, easy and mostly painless except for the download time.

3.2 Installing with i-Installer

i-Installer provides a fairly simple way to install complicated package systems onto your Macintosh with relative ease. You can download i-Installer from the Web at the following URL:

<http://ii2.sourceforge.net/tex-index.html>

Click on the **II2.dmg** link that is about halfway down the page. Complete and install a basic installation of the i-Installer package taking all the defaults. The i-Installer package should end up in the Utilities Folder within your Applications folder on your Macintosh.

Next startup i-Installer and pull down under **i-Package** → **Known Packages i-Directory**. Choose the **Gerben's i-Directory TUG i-Directory** on the left and select the **TeX** package on the right. Next click on **Open i-Package** and then click on the **Install and Configure** button. Choose a **Basic** installation and take the other defaults. At this point take a break for a sandwich and when you come back your base TeX/L^AT_EX system should be installed.

3.3 Installing a Macintosh Front-End

There are two main competing front-ends to choose from on the Macintosh: iTeXMac and TeXShop. I would recommended either one or both. TeXShop seems to work better on Intel-based Macintosh systems than iTeXMac but either front-end is good.

3.3.1 Installing iTeXMac

iTeXMac can be obtained and downloaded from:

<http://itexmac.sourceforge.net/>

Simply download and extract the application then take the iTeXMac application and place it into your **Applications** folder. You might then make an alias for the application that you can place in your Dock.

Once you startup iTeXMac, simply pull down under **File** → **New** to create a new L^AT_EX document. Then compile your document by going under **TeX** to **Typeset**. iTeXMac primarily uses pdflatex and thus by default creates a PDF file as a result.

3.3.2 Installing TexShop

TexShop can be obtained and downloaded from:

<http://www.uoregon.edu/~koch/texshop/>

Simply download and extract the application then take the TeXShop application and place it into your **Applications** folder. You might then make an alias for the application that you can place in your Dock.

Once you startup TeXShop, simply pull down under **File** → **New** to create a new L^AT_EX document. Click the **Typeset** button to compile your document with L^AT_EX. TeXShop primarily uses pdflatex and thus by default creates a PDF file as a result.

3.3.3 Other Macintosh Front-Ends/Editors

There are many other L^AT_EX front-ends or editors that you might use with a TeX base. For other front-ends you might try, take a look at the the following two web pages:

<http://www.esm.psu.edu/mac-tex/frontends.shtml>

<http://www.emacswiki.org/cgi-bin/emacs-en/CategoryTex>

3.4 Adding isuthesis or your own style files

To add the isuthesis style files to your TeX installation, go to the following URL:

<http://css.ait.iastate.edu/TeX/>

and click on the *isuthesis* link followed by the *isuthesis package* link. Save all the files in the **isuthesis folder** as well as the `fullpage.sty` and the `muticol.sty` files to a folder on your desktop named **isuthesis**. You can do this by ctrl-clicking on each style file and downloading it to a selected folder on your desktop.

Next open up your **Library** folder, then open up your **texmf** folder and finally open up your **mylocal** folder. If you don't have a *mylocal* folder, create a *mylocal* folder inside your **texmf** folder. Click and drag your **isuthesis** folder to be inside your **mylocal** folder.

iTeXMac and TeXShop may have additional locations where you can put your local style files. Check the iTeXMac and TeXShop help files for more information on where your local style files could also be located.

You now have installed the isuthesis package. You can download the thesis template files from:

<http://css.ait.iastate.edu/TeX/>

by clicking on the *isuthesis* link followed by the *standard isuthesis template* link. Save all the files listed there to a single folder then compile the **thesis.tex** file with L^AT_EX.

3.5 More Macintosh Information

Both iTeXMac and TeXShop come with a spelling checker built-in so there is no need for an external spelling checker. A really good resource for additional

Macintosh Tex/L^AT_EX information is the Penn State Macintosh Web site which is located at:

<http://www.esm.psu.edu/mac-tex/>

Textures is a commercial Macintosh-only TeX application. It is available from:

<http://www.bluesky.com/>

It includes a external interactive editor interface for L^AT_EX so that as you are typing in L^AT_EX commands you can actually immediately see what the result of your commands will look like. Textures is one of the most respected and impressive TeX products and is also one of the most expensive.

4 For Additional Information

Additional information on Tex and L^AT_EX use at ISU is available on the Web at:

<http://css.ait.iastate.edu/TeX/>

Try the *Classes* link for information on how to use TeXnicCenter, iTeXMac or TeXShop from the “Introduction to L^AT_EX” class handout notes. There are also two online full length L^AT_EX classes to view from the *Classes* page which if you are in a hurry is a great way to get started with L^AT_EX. Also try the *FAQ* link for a set of stock questions and answers regarding L^AT_EX.