

## Obtaining a L<sup>A</sup>T<sub>E</sub>X Environment for Your Personal Computer

Installing a working L<sup>A</sup>T<sub>E</sub>X system on your Windows PC is a little involved. One thing to remember is that L<sup>A</sup>T<sub>E</sub>X is *not* a word processing program, rather it is a *mark-up language*, similar in spirit to HTML. The user types code into a file, compiles the code under L<sup>A</sup>T<sub>E</sub>X, which then formats and produces the actual document. Therefore, a working L<sup>A</sup>T<sub>E</sub>X environment consists of at least two components:

- a L<sup>A</sup>T<sub>E</sub>X compiler
- a reasonably nice text editor designed to interface nicely with L<sup>A</sup>T<sub>E</sub>X.

In addition, if you wish to have the ability to manipulate images and graphics, you need two additional components:

- a PostScript-to-pdf converter
- a PostScript viewer.

There are lots of options for these components. In this handout I will describe how to install only one such system. The environment I will describe is my personal favorite, and I'm not alone on this. Even better, it's dirt cheap.

NOTE: As I said, there are many different L<sup>A</sup>T<sub>E</sub>X engines and text editors out there. For the purposes of our workshops as we learn together, please use MiK<sub>T</sub>E<sub>X</sub> for your L<sup>A</sup>T<sub>E</sub>X engine. When it comes to the text editor, I *strongly* recommend WinEdt (not free) or TeXnicCenter (free). I prefer WinEdt, but for no good reason: TeXnicCenter is just as nice.

NON-WINDOWS USERS: Unfortunately nothing in this handout will apply to you, and I won't be very helpful either. The only thing I can tell you is where to find the standard Mac version of L<sup>A</sup>T<sub>E</sub>X. Go to [www.tug.org/mactex/](http://www.tug.org/mactex/) and figure things out for yourself. (If you use Linux then you are probably capable of doing all this on your own.)

### Before We Start...

Make sure that your computer has a reliable, fast connection to the internet. Also, make sure you have blocked out at least an hour or so to do all of this. But most importantly:

**The order in which you install these programs really, REALLY matters!**

Installing out of the order I outline below will result in a non-functioning system riddled with bugs. In brief, the order in which we will install these packages is:

1. Ghostscript (PostScript-to-pdf converter)
2. Ghostview (PostScript viewer)
3. MiK<sub>T</sub>E<sub>X</sub> (our L<sup>A</sup>T<sub>E</sub>X engine)
4. WinEdt or TeXnicCenter (your L<sup>A</sup>T<sub>E</sub>X editor of choice).

## 1. Installing Ghostscript

This part will be relatively straightforward. Go to

[www.ghostscript.com/download/gsdnld.html](http://www.ghostscript.com/download/gsdnld.html)

and download the GNU Public License version of Ghostscript 9.19 appropriate for your machine. For instance, if you run 32-bit Windows you should acquire the file `gs921w32.exe`. If you run 64-bit Windows you need `gs921w64.exe`. Once downloaded, double-click on this file to start installation of Ghostscript.

## 2. Installing Ghostview

Do the same at the site

[www.artifex.com/developers-ghostscript-gsview/](http://www.artifex.com/developers-ghostscript-gsview/)

to obtain the appropriate version of Ghostview 6.0. If you are a Windows user, the desired installation file is `gsview_setup_6.0.exe`.

## 3. Installing MiKTeX

Next we need to obtain a L<sup>A</sup>T<sub>E</sub>X compiler. It is imperative that you complete this step *before* attempting to install the text editor.

There are several L<sup>A</sup>T<sub>E</sub>X bundles out there, but I highly recommend the use of the MiKTeX package. I have used this for years and have *never* had a problem, plus it's free. It has also become the industry standard.

The MiKTeX project page may be found at [miktex.org](http://miktex.org). You should visit this page and browse around for a bit. In particular, you should be sure that you have read the installation overview at

[miktex.org/howto/install-miktex](http://miktex.org/howto/install-miktex).

Historically, students that have read this page first had no problems with the install, while those that didn't bother to read it had massive issues that I had to fix later (really annoying). You should also keep a copy of this article open as you install MiKTeX.

OK, enough chit-chat. Let's actually install this now. Follow these steps carefully.

1. Make sure you have a reliable internet connection. The faster the better.
2. Go to [miktex.org/download](http://miktex.org/download).
3. Download the Basic MiKTeX Installer appropriate for your machine. If you are a 64-bit Windows user, you should have the file `basic-miktex-2.9.6361-x64.exe`. If you are a 32-bit Windows user, you may need to click the "All Downloads" tab to see the required version. This file will be called "the wizard" for the rest of these instructions.

NOTE: Do NOT download the MiKTeX Net Installer. Well, you can, but it may take several days to download. It's huge.

4. Now start the wizard, following the instructions. I have four important tips:
  - You may be asked if you wish to install MiKTeX privately or as a shared system: you want to use it as a *shared system*. This question may never come up.
  - When it comes time to choose a default paper size, take "letter." This is NOT the default setting, so you must actively change this. We are not in Europe.

- When you are asked about automatically downloading packages from the web (“on the fly”), take the option “yes.” This means that MiKTeX will automatically find and install missing things for you, without bothering you about it. This handy feature only works when you are connected to the web, though.
- If at any time you are asked if you want a small, large or total package set, take the *small or basic package set*. This question may never come up.

### 3.5. Testing Your MiKTeX Installation

If things went well (and they usually do), you now have a L<sup>A</sup>T<sub>E</sub>X compiler on your machine! It’s time to test it and see if it installed correctly.

1. Open a command prompt in Windows by selecting

Start ⇒ Programs ⇒ Accessories ⇒ Command Prompt.

2. At the prompt, type `latex sample2e`.
3. Cross your fingers and hit return. L<sup>A</sup>T<sub>E</sub>X will start compiling this built-in sample document.
4. After it has finished, type `yap sample2e`.
5. If MiKTeX has been correctly installed, you should see a 3-page document in the *Yap previewer* (this is a dvi viewer that comes free with MiKTeX). If you see this, congratulations!

## 4. Installing an Editor

Now that you have L<sup>A</sup>T<sub>E</sub>X on your computer, you need a user-friendly interface. Again, there are lots of options, but I recommend only two: WinEdt and TeXnicCenter. My personal preference is WinEdt. This comes with a free 31-day trial, so if you don’t like it you can abandon it after you’ve acquired some more knowledge and experience. If you wish to keep it, a lifetime license is only \$40, at least the last time I checked. Probably the best \$40 I ever spent.

If you don’t want to be bothered with registration fees for WinEdt, I advocate using TeXnicCenter. TeXnicCenter actually does everything that WinEdt does. And I’ll be honest: if TeXnicCenter had been around when I was first learning (I’m old), I would have probably never started using WinEdt. I only continue to use it now out of habit. The only downside to using TeXnicCenter is that I am not personally well-versed in its use, so the amount of help I can give may be a little limited. (For the record, past students who went the TeXnicCenter route didn’t have any problems that we couldn’t figure out together.)

At any rate, it is time to make a choice...

### 4a. Installing TeXnicCenter

This is the easy part of this whole process.

- Go to [www.texniccenter.org](http://www.texniccenter.org).
- Grab the appropriate install file from the downloads page for TeXnicCenter 2.02 Stable. If you are a 64-bit Windows user, you’ll need the file `TXCSetup_2.02Stable_x64.exe`.
- Run it.

## 4b. Installing WinEdt

Installing WinEdt is also really easy. Follow these steps.

1. Go to [www.winedt.com](http://www.winedt.com). Read the “Installing WinEdt” page at [www.winedt.com/installing.html](http://www.winedt.com/installing.html) to get an idea of what you should be seeing.
2. Go to the downloads page and get the appropriate installer for WinEdt 10.2. You should have the file `winedt102-64.exe` if you are running 64-bit Windows.
3. Run the appropriate file, taking all the default options.
4. After you have successfully installed WinEdt, you should start it up to make sure that it actually opens. When you do, the *configuration wizard* will probably appear. You need *not* do anything with this: WinEdt will work just fine for you if you close this. In fact, you probably shouldn’t mess with this until you know what you’re doing.

## 5. Testing Your Total Installation

Let’s see if you have a complete (working) L<sup>A</sup>T<sub>E</sub>X system on your computer. You should have a file called `tryme.tex` from an earlier email message from me (or, you just grabbed it from my webpage).

1. Put this file *in its own folder* somewhere.
2. Start your chosen editor and open `tryme.tex`. Do NOT edit this file!
3. Make sure you are connected to the internet.
4. You now need to compile your document.
  - If you are in WinEdt, go to the T<sub>E</sub>X menu and hit “T<sub>E</sub>Xify”. There is also probably a snazzy button that does this. (I’ve customized my environment to the point that I don’t know what a new user sees anymore.)
  - If you are in TeXnicCenter, compile your document by using the “L<sup>A</sup>T<sub>E</sub>X ⇒ dvi” profile.
5. Things will happen. Let them. If you get prompted to install an additional package, do so. (In particular, you may be prompted to install a package called *geometry*. If so, please get it: it’s invaluable.)
6. If things go right, a previewer should open and you should see a document and the document should be readable. If this happens, you’ve been successful in your installation endeavors. If not, you’ve got problems.
7. If you want help in how to use WinEdt or in customizing your environment, please ask me.

## So How Did It Go?

Seriously, let me know.