How Users can Install LaTeX packages without Help from System Administrators

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The Center for Research Methods and Data Analysis at the University of Kansas endorses LaTeX as a document preparation framework. This document is about what users can do when the system administrator is not around to install LaTeX packages.

Contents

1 Overview

When a user wants to use a LaTeX style or class file that the system administrator has not installed, it is still possible to install the package into the user's workspace and get the project done. A system administrator can always install the package later.

There will be a 2 step process

1. Put the package or the style file in "the right place" (somewhere in the user's HOME folder)

2. Tell the LaTeX distribution to use the new package or style files.

There are some operating systems, or some LaTeX distributions, where step 2 is not required. However, in our testing we find step 2 is actually needed on some systems–the LaTeX compile fails because the packages are not found. As a result, we run the re-configure step, even if it might not strictly be necessary.

There are operating system-specific ways to update the package data base, but, so far as we know, the following should work on every system that has a command line interface or terminal:

```
$ texhash
```

If the user has a graphical interface for preparing LaTeX documents, it might be necessary to tell that program about the new packages. In LyX, for example, it is necessary to open LyX and run "Settings" -> "Reconfigure".

2 Microsoft Windows with the MikTEX Distribution

With Windows, there are two ways to perform package installs: manually, or using the Package Manager.

2.1 Using the MiKTEX Package Manager

If a package exists in CTAN, use the MiKTEX Package Manager, but not in the (Admin) mode. Click Start -> MiKTEX -> Maintenance -> Package Manager.
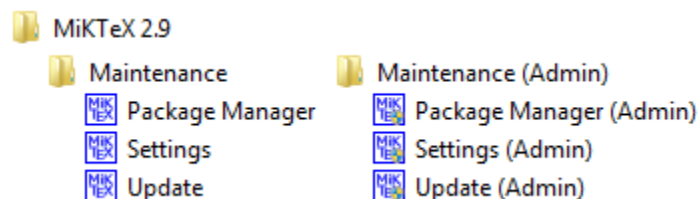

Figure 1: Choose Package Manager, not Package Manager (Admin)

2.1.1 Installing Packages

Once the Package Manager is opened, you'll have access to every package available on CTAN. Choose one, press the ✚ located in the top left corner.
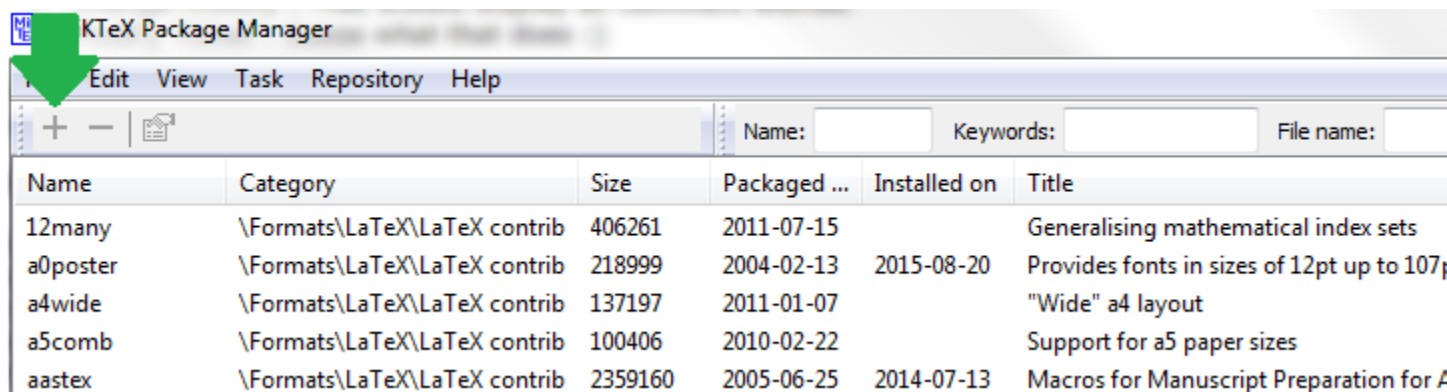

Figure 2: List of Packages

MiKTEX will verify the number of packages to be installed. Click "OK", and the package manager will take care of the rest.

Congratulations! You're package is now installed.

2.1.2 Where did those packages go?

This is a bit mysterious. The default on Windows is to put the packages into a *hidden folder* (not visible by default). That's a little bit unfortunate because we'd like to put other files in there. Usually, that folder has a name like "`C:\Users\your-name-here\AppData\Roaming\MikTeX\2.9\tex\latex`".

From here, lets use the symbol ~ to refer to "`C:\Users\your-name-here`."

At this stage, it does not matter to you where those files are, as long a LaTeX works. However, it will be important in the next step.

2.2 Installing Packages or Style Files that are not in CTAN or where MikTeX fails

Suppose some body sends you a LaTeX class in a Zip (or tar.gz, or 7zip) package. Extract that. Then what?

Put the new LaTeX files in the same place where MikTeX installed the new user package in the previous section. Figuring out where that is will be the most frustrating thing for most Windows users.

Step 1. Find out where your LaTeX distribution will look for user-installed packages.

To find out, we used the Package Manager to install something that we would never otherwise use. Then we searched for the result. For example, after installing the package "gchords", search inside the user's home folder for the word "gchord*". That leads us to this directory for the user "paultest":

"`~\AppData\Roaming\MikTeX\2.9\tex\latex\gchords`"

This is a hidden folder, unfortunately. Every version of Windows Explorer (so far) has a configuration to make hidden "protected files visible". Run an Internet search for "Find AppData Roaming" on Windows, you'll find thousands of angry users saying "I need my AppData! Why did they hide it?". Reveal your AppData folder, then continue.

Step 2. Copy the LaTeX files into that area.

If a LaTeX project requires a style file, such as "Sweavel.sty", which we use for R reports, copy the file in "`C:\Users\paultest\AppData\Roaming\MikTeX\2.9\tex\latex`."

It is OK to copy the file there, or to create a subdirectory within that, such as "`C:\Users\...\latex\local`". We chose "local" as a subdirectory name, that is fairly common.

If the LaTeX files are a whole directory, as many packages are, place the folder in "`C:\Users\...\latex`". It can be on the same level as local.

Step 3. Tell the MikTeX system to take note of the new style. Click Windows Start menu MikTeX -> Maintenance -> Settings, then that choose

Refresh FNDB

and

Update Formats

While you are there, look below under Package Installation. The "Install missing packages on the fly" should be YES.

It should also work to run "texhash" in a command line mode. Here is is running in Windows Command Box:

```
1  C:\Users\paultest>texhash
2  Creating fndb for user root directory (C:\Users\paultest\AppData\Roaming\MiKTeX\ 2.9)...
3  Creating fndb for user root directory (C:\Users\paultest\AppData\Local\MiKTeX\2. 9)...
4  Skipping common root directory (C:\ProgramData\MiKTeX\2.9)...
5  Skipping common root directory ("C:\Program Files (x86)\MiKTeX 2.9")...
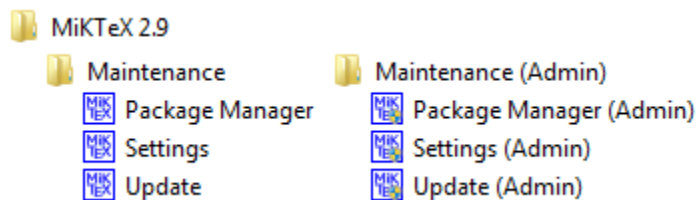```

### 2.2.1 Updating Packages



Figure 3: Do not select the (Admin) version.

To update packages, simply select "Update". Once you select "Update", you will be prompted to select a package repository. Choose the nearest package repository.
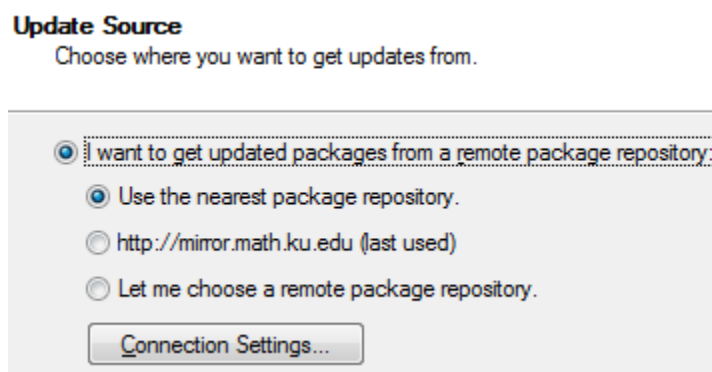


Figure 4: Specify a remote package repository

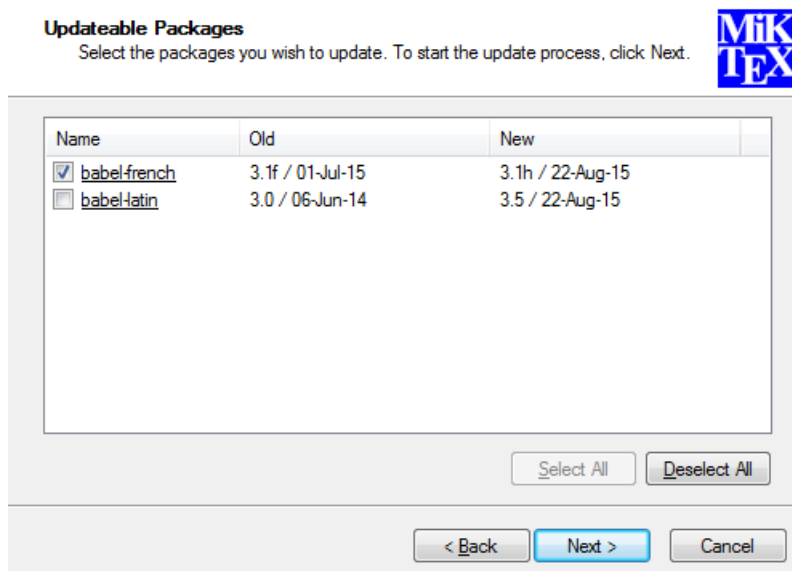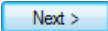Once a package repository is chosen, click [ Next > ]. MiKTEX finds updates. Want to install them?



Figure 5: List of updateable packages

Select the packages you wish to update, and select Next >. The update will begin, click Next >, and then Finish to complete the process.

# 3 Linux

The user home folder, suppose it is /home/paultest, is the starting point. It is very likely that the LaTeX configuration will assume that user packages are to be installed here

~/texmf/tex/latex

~ is shorthand for "/home/your-name-here".

That is the equivalent of the hidden user folder `AppData\Roaming\MikTEX\2.9\tex\latex` for the Windows user.

After class or style or whole packages are dropped there, run the following in the command prompt

$ texhash

texhash is the equivalent of the MikTEX "Refresh RNDB". There will be a sequence of errors because a non-administrator tried to do an administrative chore. The system will refuse to update /usr/local/share/texmf, but it will get to the end of the directories and it will agree to update the package list for the user's area.

# 4 Macintosh

The same basic idea also works on a Macintosh computer. We've just done it. In the user home folder, create a subdirectory.

~/Library/texmf/tex/latex

~ is shorthand for "/Users/your-name-here". Copy the desired style or class files and directories in there.

After that, open a terminal and run

$ texhash

As far as we can see, that does nothing and it is not necessary, but it is not harmful either. There will be a sequence of messages about folders where the the LaTeX distribution looks for packages.

# 5 After installing the New Packages

After installing new packages, and causing a "reconfigure" cycle, then a LaTeX compiler like `pdflatex` will be able to make use of them. Compiling a LaTeX document should "just work."

If one is using LyX, there will be required another step. LyX must be told to take notice of the new packages. The user must start LyX, run Tools -> Reconfigure, then when finished, close LyX and restart. If the new packages were found, then all is well.

If LyX still does not find the required packages, then we need to back-track and figure out why LyX and LaTeX are not able to get this done.

# 6 Troubleshooting

By far, the biggest problem we have run into so far is that users have a copies of various style and class files in various locations and an old one is found first, and makes the compile fail. A search of the files system can usually reveal that problem.

If there are errors when compiling, say in LyX or TeXWorks, then why not change gears and open the file in a different editor, say TeXMaker or TeXStudio? LyX has a nice menu "File -> Export -> LaTeX (pdflatex)". That creates a *.tex file. Open that in TeXMaker and you might be surprised how much easier it is to see what's wrong.

If it turns out that the tex document will compile in TeXMaker but not in LyX, that means the LyX configuration is sick. Usually, the solution is in LyX, do "Tools -> Reconfigure". Maybe we try that again. In newer versions of LyX, there's a very handy feature. In the pull down menus, choose "View -> Messages Pane". The benefit of this is that every package's availability will be revealed.