

# LocalTeX Preference Pane

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## 1 The Global PrefPane and the LocalTeX Pane

MacTeX installs a copy of TeX Live owned by root in `/usr/local/texlive`. It also installs a small data structure invented by Gerben Wierda and Jérôme Laurens describing the distribution in `/Library/TeX`. These choices were somewhat controversial and I once gave a TUG talk complaining about them. Now I'm happy.

Each year's distribution is in a folder named by date in `/usr/local/texlive`, so for instance TeX Live 2017 is in `/usr/local/texlive/2017`. This makes it possible to keep old distributions around, in case a new distribution breaks a crucial class file. We used to install a Preference Pane, shown below, for Apple's System Preferences, allowing users to switch between distributions. A switch changed all GUI apps to use the new distribution and also changed the command line so command line programs use it.

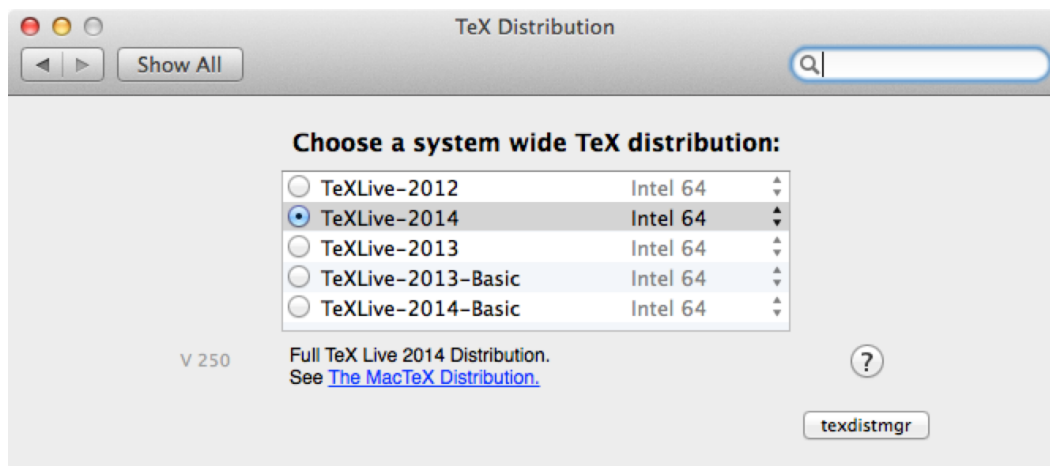


Figure 1: Global PrefPane

Unfortunately, Apple kept changing the rules for Preference Panes. First they had to have PowerPC code, and then Universal code, and then 64 bit Intel code using garbage collection, and finally 64 bit Intel code using Automatic Reference Counting. Following all of these changes became difficult, and finally MacTeX stopped installing the Preference Pane altogether. The functionality was moved to TeX Live Utility. To use it, select “Change Default TeX Live Version” in the Configure menu,.

Both the PrefPane and TeX Live Utility select one distribution for all users and require root access. I’m going to argue that we should have created a Local PrefPane instead, so each user could choose their own default TeX distribution and make this selection without root access. That’s how *programs* work on the Macintosh. Programs live in `/Applications` where they are accessed by all users of a given machine. But each user has their own Preference settings for these applications, stored in `~/Library/Preferences`. One user’s default Word font might be Times Roman, while another’s might be Helvetica Neue.

The LocalTeX PrefPane, shown below, is such a Pane. It can be installed locally for one user or globally for all users, but it makes independent choices for each user and does not require a password. This Pane does not change any link created by TeX Live Utility or any element of the TeXDist structure, so it can be used together with TeX Live Utility, or when TeX Live Utility is completely missing.

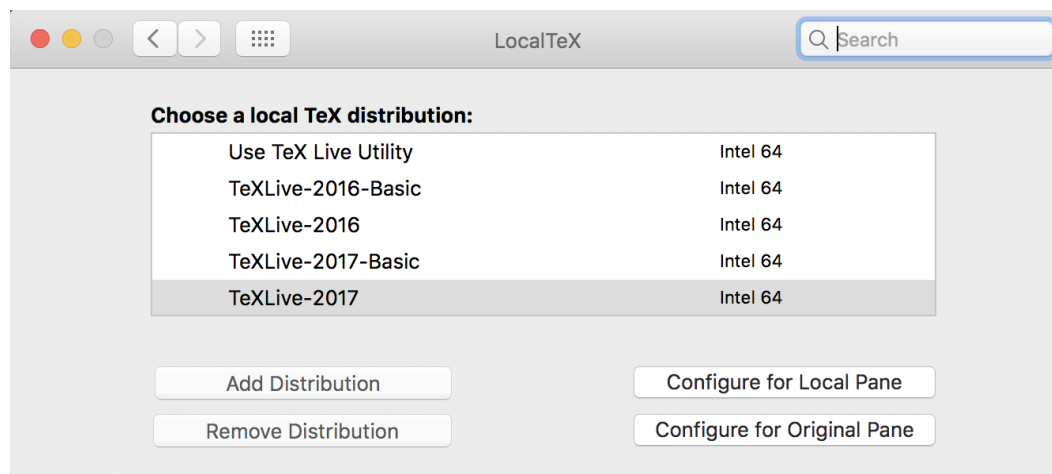


Figure 2: Local Pref Pane

The first item in the distribution list is always “Use TeX Live Utility” Selecting this item activates the choice made by TeX Live Utility. The next items are distributions with TeXDist data structures, so an individual user can select a different default than the one chosen by the TeX Live Utility.

Scrolling down in the list of distributions in the Pane, we see that the LocalTeX pane can also define and select distributions on external disks, or distributions installed in a user's home directory. Although MacTeX cannot install TeX in such locations, the TeX Live install script from TUG can.

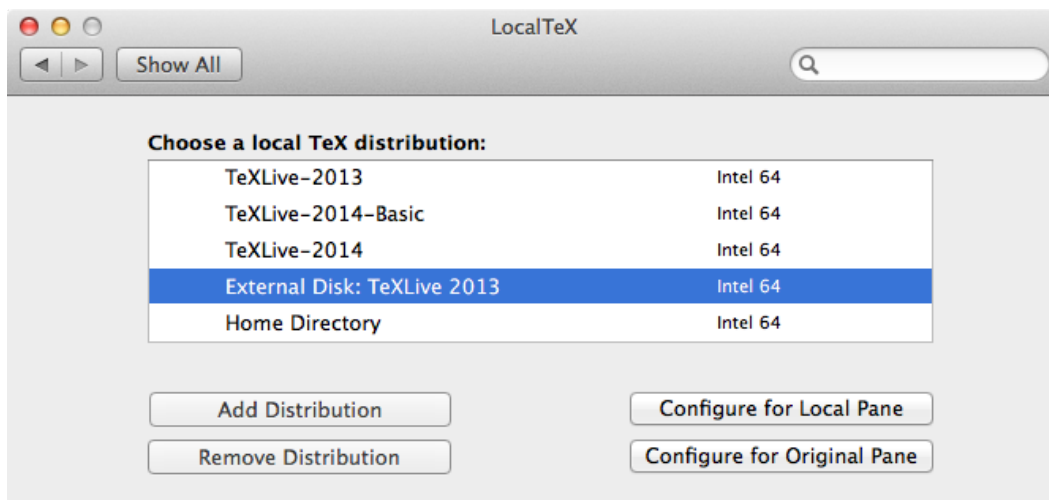


Figure 3: Local Pref Pane

Students may find this ability useful when they use a University owned machine and don't have root access. They can easily install TeX Live on a thumb drive, carry it with them, and have access to TeX in all locations.

The LocalTeX pane only shows distributions that are currently available. So if a thumb drive is removed, its distribution is no longer listed in the pane. Inserting the drive causes LocalTeX to list it again.

The "Add Distribution" button is used to inform the LocalTeX pane of TeX distributions without a TeXDist structure. It brings up a panel shown on the next page. The "Name" field can be any desired name, since it will only appear in the LocalTeX pane. The "Path to Distribution" and "Path to Binaries" fields can be filled in by dragging appropriate locations to the dialog.

This data will only be accepted if the binary location is not empty, and contains a binary with at least one of the following names: `tex`, `latex`, `pdftex`, `pdflatex`, `luatex`, `lualatex`, `xetex`, `xelatex`.

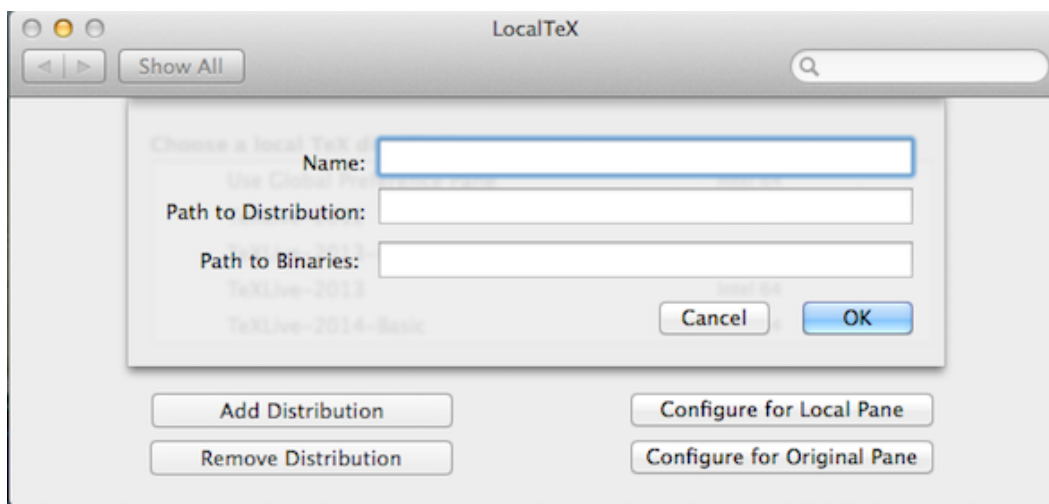


Figure 4: Local Pref Pane

The “Remove Distribution” button produces a list of extra distributions which can be removed one-by-one from those listed by the panel. Only distributions without a TeXDist data structure can be removed.

## 2 Installing and Configuring the LocalTeX Pane

The LocalTeX pane will only run on Mavericks and above, macOS 10.9 or higher. That is because it uses Automatic Reference Counting for memory management, and this is only available in the Apple Preferences application on Mavericks and higher,.

Installing the LocalTeX pane is very easy. Find and double click LocalTeX.prefPane. This brings up a dialog offering to install the Pane for all users or for only one user. Choose “only one user” and the Pane is installed for the current user without requiring a password. Or choose “all users” and the Pane is installed for everyone, but acts as a local pane for these users; installing this way requires a password.

After the Pane is installed, push the button ”Configure for Local Pane” on the right. This reconfigures TeXShop, TeX Live Utility, and BibDesk to use the new Pane. It also reconfigures shell for *some* users, namely users whose home directory contains none of the three hidden files .bash\_profile, .bash\_login, and .profile.

Done. You are ready to go.

To return to the Global Pane and stop using LocalTeX, push “Configure for Original Pane” to configure TeXShop, TeX Live Utility, and BibDesk for the original pane. Done. Don’t

do this if you are merely choosing “Use TeX Live Utility” in the LocalPane.

There is one confusing issue. If you configure TeX Live Utility to use the Local Pane, then it will update the system selected by the Local Pane even if it selected a different global default. That is, the command “Change Default TeX Live Version” in the TeX Live Utility Configure menu does not even apply to TeX Live Utility itself unless the Local TeX pane has selected “Use TeX Live Utility.”

### 3 How Does the Pane Work?

The LocalTeX pane creates three symbolic links in `~/Local/TeX/LocalTeX`:

- `texbin` → binary directory of default distribution
- `texroot` → folder containing the default distribution
- `texdist` → texdist structure for the default distribution, if such a structure exists

GUI applications should then be configured to look for TeX binaries in `~/Library/TeX/LocalTeX/texbin` rather than in `/usr/texbin` or `/Library/TeX/texbin`, the old and new corresponding links for the Global pane and the choice of TeX Live Utility. This is done automatically by the “Configure for LocalPane” button for TeXShop, TeX Live Utility, and BibDesk. LaTeXiT has a rather baroque preference system which doesn’t permit setting its presences using the “defaults” command line tool, but they can be reset by hand, as can the corresponding preference settings for other third party applications. Many of these applications require a full path, so instead of writing `~/Library/TeX/LocalTeX/texbin`, write your full path. I write `/Users/koch/Library/TeX/LocalTeX/texbin`.

### 4 Other Advantages

Wierda and Laurens carefully selected the location for the link `/usr/texbin`, arguing that Apple would probably not change or remove this link. That reasoning turned out to be wrong, and in Yosemite, Apple made `/usr` off limits even to users with root access. So MacTeX had to move the link to an entirely equivalent `/Library/TeX/texbin`. The location `/Library` does not present this problem, since it is used by almost all third party applications and wholesale Apple changes would create a nightmare.

Apple’s increasing security work caused several Pref Panes to fail with system updates. The Local Pane is immune to security concerns, and works on Mavericks and above.

## 5 Configuring Terminal

To finish configuration of LocalTeX, add `/Users/koch/Library/TeX/LocalTeX/texbin` to your `PATH` before the item `/usr/texbin`. Here and in the following paragraphs, always replace “koch” with your own login name.

If you use some other shell than the default bash, you no doubt know what to do already.

Otherwise follow these instructions. By default, modern versions of OS X use “bash” as a shell. This shell reads `.bash_profile` when it starts up. If this file does not exist, it reads `.bash_login`, and if this file does not exist, it reads `.profile`.

Files starting with a period are in your home directory, but are hidden. Many users have none of these files. In that case, pushing the “Configure for Local Pane” button created a `.bash_profile` file for you and there is nothing more to do.

Otherwise, you need to edit the appropriate file. In Terminal, type

```
cd
ls -a
```

to see a list of hidden files in your home directory. If you have `.bash_profile`, edit that. If not, but you have `.bash_login`, edit that. Otherwise edit `.profile`. Make the same edit in all three cases. I’ll discuss the case when you have `.bash_profile`. In Terminal, type

```
cd
mv .bash\_profile bash_profile
```

Then you have a visible file to edit. Open this file with TeXShop. At the top, add the following two lines

```
# Added by LocalTeX Preference Pane
export PATH="/Users/koch/Library/TeX/LocalTeX/texbin":$PATH
```

and save the file. In Terminal type

```
cd
mv bash_profile .bash_profile
```

## 6 Removing Everything

If you install the LocalTeX Pane and decide that you don't want it, here is how to remove absolutely every trace from your computer.

- Using the Local Pane, push the “Configure for Original Pane” button to configure TeXShop, TeX Live Utility, and BibDesk to look for TeX in `/usr/texbin`. If you reconfigured other apps, return them to their original configuration.
- Move LocalTeX.prefPane from `~/Library/PreferencePanes` to the trash.
- Move the folder LocalTeX from `~/Library/TeX` to the trash.
- If your shell was automatically configured for the new Pane, you will find a file named `.bash_profile` in your home directory containing the following lines. Throw it in the trash.

```
# Added by LocalTeX Preference Pane
export PATH="/Users/koch/Library/TeX/LocalTeX/texbin":$PATH
```

Otherwise you probably edited one of `.bash_profile`, `.bash_login`, or `.profile` and added these lines. Remove them from the appropriate file.

- Finally, the LocalTeX Pref Pane stores its local data in the defaults system of OS X. To remove this data, type the following in Terminal:

```
defaults remove com.apple.systempreferences localTeXExtrasData
```