**ADMB/TMB Full Installation for Windows**

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Note: Mac installation of this software is much more involved – contact Charlie for instructions.

[The newest version of this file is on Github](https://github.com/QFCatMSU/OnlineClassBackEnd/raw/master/Windows--ADMB-TMB-EMACS%20Installation%20(replaces%20ADStudio).docx)

These procedures install the following software and was tested on 8/17/22:

* R 4.2.1
* Rtools 4.2
* RStudio 2022.07.0 Build 548
* TMB package for R 1.9
* ADMB 13.0
* Emacs 27.2 (Emacs version 28 does not work)

**Admin access to your computer**

The installation procedures will do the following that might require administrative access to your computer (this message is specifically geared towards government computers):

* Install programs (R, RStudio, Rtools, ADMB, Emacs)
* Install programs directly to the **C:** drive (ADMB, RTools)
* Change the User Environment variables (PATH\_6-3.bat)
* Install programs not validated by Microsoft (ADMB, PATH\_6-3.bat)

**Viewing hidden files and extensions (optional but useful):**

To complete this installation, it would help to be able to see hidden files on your computer – this is also helpful for any kind of programming.

To see hidden files and extensions:

1. Open a File Explorer window
2. Windows 10: Click ***View*** à ***Options*** à ***Change folder and search options*** ([figure 1a](#Fig1a))

Windows 11: click 3 dots **( … ) à *Options*** ([figure 1b](#Fig1b))

1. Click ***View*** tab ([figure 2](#Fig2))
   1. Check ***Show hidden files…***
   2. Uncheck ***Hide extensions for known file types***
   3. click ***OK***

**Installation of ADMB and TMB (all installations use default options):**

Steps 3 and 4 are only needed for TMB, and Step 5 is only needed for ADMB. All other steps are required for both ADMB and TMB.

1. [Download](https://cran.r-project.org/bin/windows/base/) and Install R (you need to have at least version 4.2)
2. [Download](https://cran.r-project.org/bin/windows/Rtools/rtools42/rtools.html) and install Rtools42 (version 4 part 2)
   * Click on ***Rrools42 Installer*** in ***Installing Rtools42*** section
3. [Download](https://www.rstudio.com/products/rstudio/download/#download) and install RStudio (you need to have a version from 2022 or later)
4. Open RStudio and install the TMB package
   * Tools à Install Packages… à TMB (in ***Packages*** textbox) à Install
   * Close RStudio after installing package
5. [Download](http://www.admb-project.org/downloads/admb-12.3/) and install ***ADMB-12.3-windows.exe*** (under ***Windows*** header)
   * + You will likely get a ***Windows protected your PC*** screen, if so:
       1. click ***More info***
       2. click ***Run anyway***
6. [Download](http://ftpmirror.gnu.org/emacs/windows/emacs-27) and install ***emacs-27.2-x86\_64-installer.exe***
7. [Download ***PATH\_v6-3.zip***](https://github.com/QFCatMSU/OnlineClassBackEnd/raw/master/PATH_v6-3.zip)
   * Unzip ***PATH\_v6-3.zip*** (Right-click, ***Extract All***), which contains
     + An executable file called ***PATH\_v6-3.bat***
     + A folder called ***emacsConfigFiles*** that gets installed to the home directory when PATH\_v6-3.bat is executed
     + A folder called ***Examples***, which contains ADMB and TMB scripts that can be tested in Emacs.
   * Execute (double-click) ***Path\_v6.bat***
     + You will likely get a ***Windows protected your PC*** screen, if so:
8. click ***More info***
9. click ***Run anyway***
10. Restart computer

**Issue: Old installations**

Older versions of the programs installed here (especially ADStudio and Rtools 2.X/3.X) could cause problems as they do not uninstall properly, and they leave stuff in your User Environment that might interfere with the newer versions. You might need to uninstall these programs and delete references in the User Environment – [appendix 1 shows you how to get to the User Environment](#Environment).

**Testing out ADMB:**

* In folder you just unzipped, double-click ***emacs à examples à simple à simple.tpl***
* Open ***simple.tpl*** in ***Emacs***
* Click ***Translate*** (button 1), ***Build*** (button 2), and ***Run*** (button 3)
  + Make sure you wait for steps to complete
* If the Emacs panels look like this after ***Run,*** then ADMB is properly installed:

Graphical user interface, text, application

Description automatically generated

**Testing out TMB:**

* In folder you just unzipped, double-click ***emacs*** à ***examples*** à ***mini*** à ***mini.cpp***
* Open ***mini.cpp*** in ***Emacs***
* Click ***Clean*** (button 1), ***Compile*** (button 2), and ***Run*** (button 3)
  + Make sure you wait for step to complete
  + ***Compile*** take a minute or two and gives lots of warnings
* If the Emacs panels look like this after ***Run,*** then TMB is properly installed:

Graphical user interface, text, application

Description automatically generated

**Figures:**

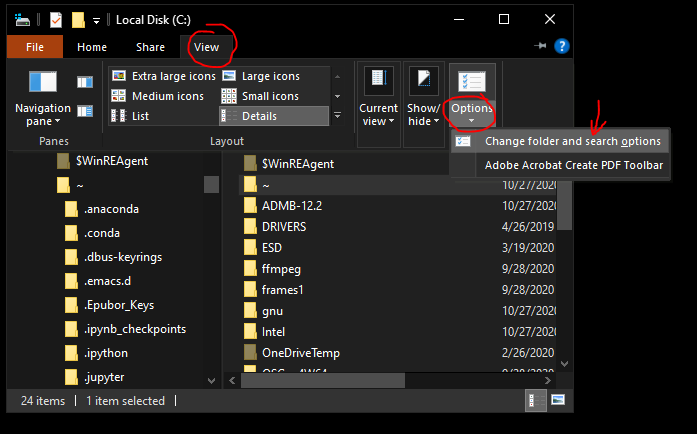


Figure 1a: Opening the Folder Options window (Windows 10) -- [go back to instructions](#options)

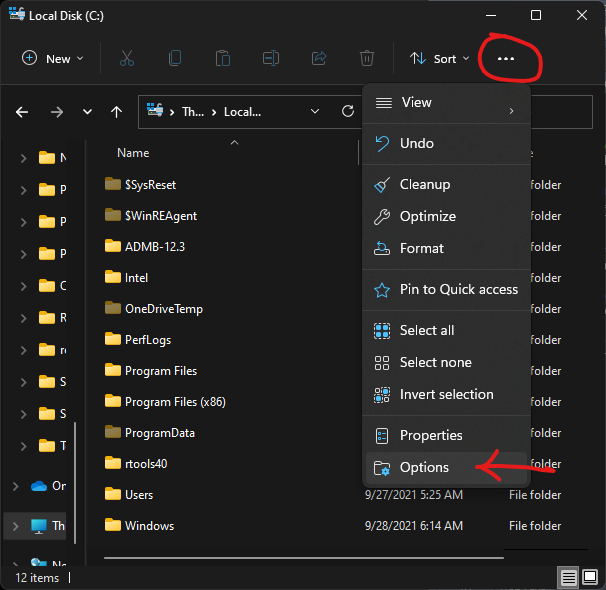


Figure 1b: Opening the Folder Options window (Windows 11) -- [go back to instructions](#options)

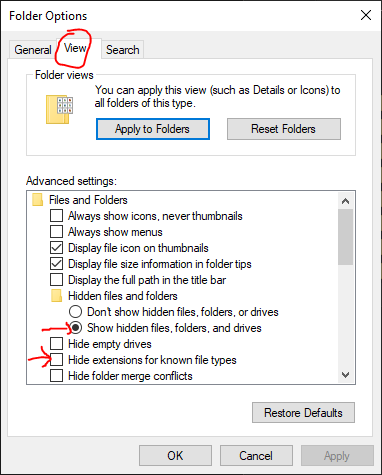


Figure 2: Folder options to change – [go back to instructions](#View)

**Notes:**

1. The batch file ***PATH\_v6-3.bat*** adds the following five folders to the ***User*** ***Environment PATH*** variable:

* c:\Program Files\R\R-***X.X.X***\bin; // currently R-4.2.1
* c:\Program Files\R\R-***X.X.X***\bin\x64; // currently R-4.2.1
* c:\admb-XX.X\utilities\mingw64\bin; // currently admb-13.0
* c:\rtoolsXX\usr\bin; // currently rtools42
* c:\admb-XX.X\bin; // currently admb-13.0

The folders can be manually added – information is in the Appendix. A lot of the functionality of the User Environment has been moved elsewhere and I believe that only the third folder path (c:\admb-XX.X\utilities\mingw64\bin) is still needed in the User Environment – but I have not fully tested this out yet.

1. **If you update ADMB** (a very rare occurrence), you will need to modify the PATH to reflect the new version – otherwise you will run the old version. This can be done by executing the ***PATH\_v6-3.bat*** file.
2. There is a Mac version of these installation, but the Mac version is much more involved and requires Terminal access. Contact Charlie for the Mac instructions.

**Appendix – Manually do wha****t Path\_v6-3.bat does:**

Path\_v6-3.bat does two things that can both be done manually:

1. prepends 5 locations to the User’s ***Environment Variables***
2. Copies the ***Emacs*** configuration files to the user’s ***AppData*** folder

I prepend the locations because I do not want to delete any of the current PATH locations, but I want these five locations to take priority. For instance, there might already be a g++ compiler in an older PATH location and I want to be sure the newest compiler is chosen.

**Prepending locations to the User PATH Environment Variable**

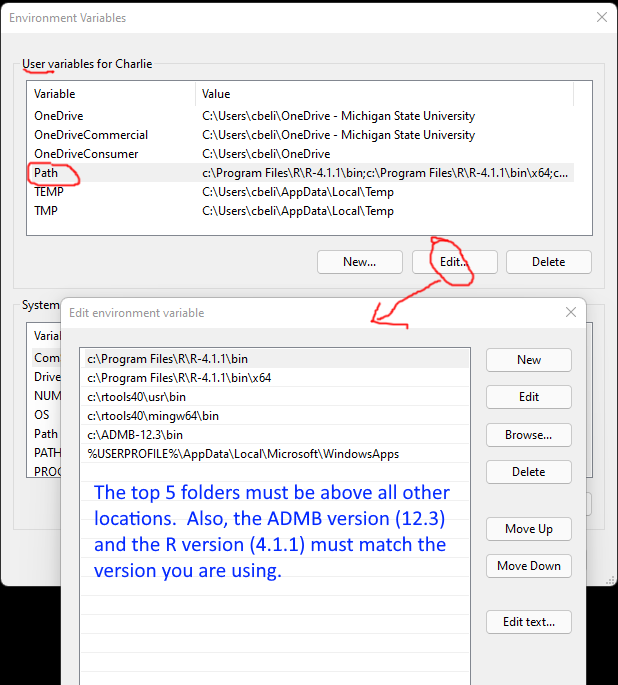
The five location we are adding are:

* c:\Program Files\R\R-4.2.1\bin; // used in emacs to find R executable for TMB
* c:\Program Files\R\R-4.2.1\bin\x64;
* c:\admb-13.0\utilities\mingw64\bin; // used in ADMB to find g++ compiler -- needed
* c:\rtools42\usr\bin; // used by TMB to find make.exe
* c:\admb-13.0\bin; // used by emacs to find ADMB (has to go last)

Note: Much of the functionality of the PATH Environment Variables has moved elsewhere and I think that only the 3rd path is still needed – but I have not fully tested this out yet.

You can manually add the five locations to the Users Path by:

1. Go to ***Start*** à ***Settings***
2. In ***Find a setting*** textbox start typing ***Environment***
3. Click on ***Edit environment variables for your User account***
4. If Path is NOT in the ***User variables for***… list, then
   1. Click ***New...***
   2. Variable Name: ***Path***
   3. Variable Value: Add the four locations – make sure you keep the semicolon in to separate them
5. If Path is in the ***User variables for…*** list, then
   1. click on ***Path***
   2. click ***Edit…***
   3. Add the four locations to the beginning of the list and click ***OK***

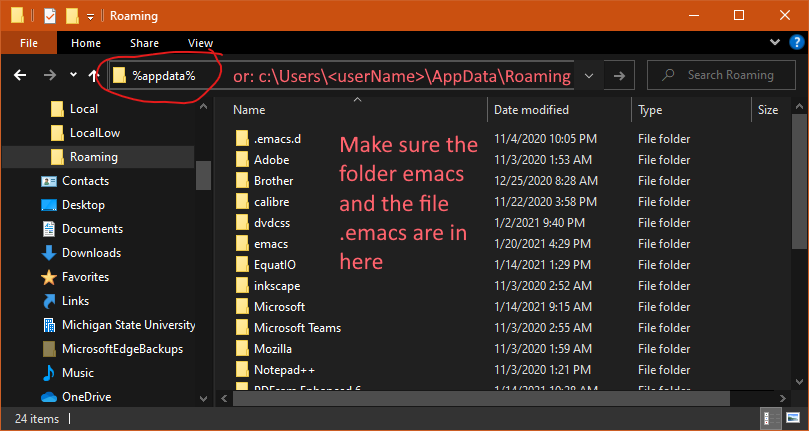


Add locations to the User Path – steps 3 and 5 (old image – from when there were 5 folders to add)

**Copy emacs config files to AppData**

Inside ***Path\_v6-3.zip***, there is a folder named ***emacsConfigFiles***.  You need to copy the contents inside the emacsConfigFiles folder (a file named ***.emacs*** and a folder named ***emacs***) to the user’s ***appdata*** folder.

The easiest way to get to the ***appdata*** folder is to type **%appdata%** in a File Explorer window and hit enter.  Or, you can go to the folder: C:\Users\<yourUserName>\AppData\Roaming



File Explorer Window opened to the AppData folder – copy ***.emacs*** and the ***emacs*** folder here

**Future changes to document:**

* Check which PATH variables are still needed – need to fully test
* Explain how my version of ***.emacs*** is finding the PATH folders now.