

QFC Reproducible Research Workshop - Software Setup

December 11-12, 2013.

Installed Software

These set up instructions will:

- ➊ verify that you have working installations of the following software packages:
 - ▶ R (<http://www.r-project.org>)
 - ▶ ADMB (<http://admb-project.org/>)
 - ▶ L^AT_EX
 - ★ proTeXt (<http://www.tug.org/protext/>) or MiKTeX (<http://www.miktex.org/>) on windows
 - ★ MacTeX (<http://www.tug.org/mactex/>) on a mac
 - ★ Tex Live (<http://www.tug.org/texlive/>) on linux
 - ▶ git (<http://git-scm.com/>)
- ➋ Configure emacs and verify functionality

Set up

- a zip file has been provided that contains all of the configurations files and additional packages needed for the workshop
- unzip the contents of the archive to a convenient location and note the path
- in the remaining slides, substitute '~' with the path to the workshop folder on your computer

What's in the zip?

- emacs executable
- aspell executable - a spell checker for e-macs
- emacs plugins:
 - ▶ autocomplete
 - ▶ admb-ide
 - ▶ ESS - emacs speaks statistics
 - ▶ magit
 - ▶ yasnippet
- associated utility files

Set up - emacs

- navigate to `~/workshop`
- double click 'emacs.bat' to start emacs (ignore warnings for now)
- from within emacs open the `.emacs` file located in the `~/workshop` directory
- edit line 5 of `.emacs` to reflect location of the `~/workshop/emacs` directory on your computer
- save the `.emacs` file and close emacs
- re-open emacs by double clicking on `emacs.bat`
 - ▶ the warnings should be gone

Tests

- each of following slides assume that you have a command prompt open and will look like:

> <command to type>

- The top line of the panel indicates what you need to type at the prompt,
- the body of the panel indicates what you should see if you were successful
 - ▶ a ... indicates that the output presented here has been trimmed
- if there are lines below the ... (eg. `q()`), they indicate the command(s) needed to return to the prompt

Tests (cont'd)

- if the command prompt returns “not recognized as an internal or external command” the software may not be installed or configured properly - please consult the documentation for that software
- open a command prompt or open emacs and type `Alt-x shell <return>`
 - ▶ (Alt + x key, followed by s-h-e-l-l <RETURN>)
- a new buffer named `**shell**` should open
- at the command prompt (`>`) type:

Tests - Git

```
> git
```

```
git
```

```
usage: git [--version] [--exec-path[=<path>]] [--html-pager[=  
        [-p|--paginate|--no-pager] [--no-replace-objects] [--n  
        [--git-dir=<path>] [--work-tree=<path>] [--bare] [--n  
        [-c name=value] [--help]  
        <command> [<args>]
```

```
...
```

```
>
```


Tests - ADMB

```
> admb
```

```
Usage: admb [-d] [-g] [-r] [-s] model
```

```
Build AD Model Builder executable from TPL.
```

```
-d      Create DLL
```

```
-g      Insert debugging symbols
```

```
-r      Create ADMB-RE
```

```
-s      Enforce safe bounds
```

```
model  Filename prefix, e.g. simple
```

```
>
```

Tests - R

```
> R --vanilla
```

```
R version 3.0.1 (2013-05-16) -- "Good Sport"  
Copyright (C) 2013 The R Foundation for Statistical Computing  
Platform: i386-w64-mingw32/i386 (32-bit)
```

```
R is free software and comes with ABSOLUTELY NO WARRANTY.  
You are welcome to redistribute it under certain conditions.  
Type 'license()' or 'licence()' for distribution details.
```

```
...
```

```
q()  
>
```

```
> latex
```

```
latex
```

```
This is pdfTeX, Version 3.1415926-2.3-1.40.12 (MiKTeX 2.9.6)
```

```
**
```

```
...
```

```
\end
```

```
\end
```

```
>
```

R-Packages

- the following R-packages will be used in the workshop
 - ▶ knitr (and/or sweave)
 - ▶ reshape2
 - ▶ xtable
 - ▶ Hmisc
 - ▶ ADMButils (not available on CRAN, but see `~/utils/Rpackages`)

In R type:

```
> install.packages(c('knitr', 'reshape2', 'xtable',  
                     'Hmisc'))
```

Setting up the ADMB-ide

- edit paths in `~/workshop/emacs/SetADMBpaths.bat`
 - ▶ `ADMB_HOME` is the directory that contains `bin`, `examples`, `include`, and `lib` subdirectories associated with your ADMB installation
 - ▶ `CPP_COMPILER` is the path to the `/bin` directory of your C++ compiler
- copy `~/workshop/utils/admb2r.cpp` to `ADMB_HOME/include/admb2r.cpp`

Test emacs configuration

- R

- ▶ in emacs type `Alt-x R <RETURN>`
- ▶ accept the default working directory
 - ★ An active R-prompt should appear in a new buffer named `*R*`
- ▶ open file `~/tests/test.r`
- ▶ in the test file, place your cursor immediately after `rtemp1` and press `<TAB>`
 - ★ a blank R-template should appear in the buffer

Test emacs configuration (cont'd)

- R

- ▶ highlight the line in `test.r` that contains `print(1:9)` and type `Ctrl-<enter>`
- ▶ the numbers 1 to 9 should appear in the **R** buffer
- ▶ type `Ctrl-k` to close (kill) `test.r`
- ▶ type `y` when emacs asks you if you are sure
- ▶ type `q()` at the R-prompt to quit R

Test emacs configuration (cont'd)

- ADMB-ide
 - ▶ open the file `~/tests/simple/simple.tpl`
 - ▶ press <F8> to link and compile the simple model
 - ▶ once the model is compiled, press <F9> to run the model
 - ▶ standard ADMB output should appear in a buffer

Test emacs configuration (cont'd)

- git
 - ▶ type `Ctrl-c Ctrl-g`
 - ▶ emacs should prompt you for a Git repository
 - ▶ type `Ctrl-g` to quit
- ispell
 - ▶ open a new buffer and cut and paste some text (preferably with at least one spelling mistake)
 - ▶ type `Alt-x ispell <RETURN>`
 - ▶ suggestions for mis-spelled should be provided
 - ▶ type `Ctrl-g` to quit