

Installation of R, of R packages, and Editor Environments

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Most users (Windows, MacOS X and some flavours of Linux) will be able to install R from binaries. Download the appropriate file, place it in a convenient folder (perhaps the desktop), click on the file icon. If in doubt, accept the defaults for the prompts that appear. Australian users should get the binaries (or source files, if needed) from an Australian Comprehensive R Archive Network (CRAN) mirror site: <http://cran.csiro.au> or <http://cran.ms.unimelb.edu.au/>.

For installation under MacOS X, see later.

1 R under Windows

1.1 The Startup Working Directory

If left at the installation default, the startup directory for a user who is not logged in as administrator, is likely to be: "C:\Documents and Settings\Owner\My Documents". This can be changed to any directory that has write access, or new icons created with new startup directories. A good strategy is to have a separate working directory for each new project. In the image below C:\r-course is used, but any directory that has write access is possible.

To create an icon that starts in a new working directory, make a copy of the R icon. Then right click on the copy and set the working directory (under Target, in the Shortcut tab of Properties) to the directory that you intend to use for the course.

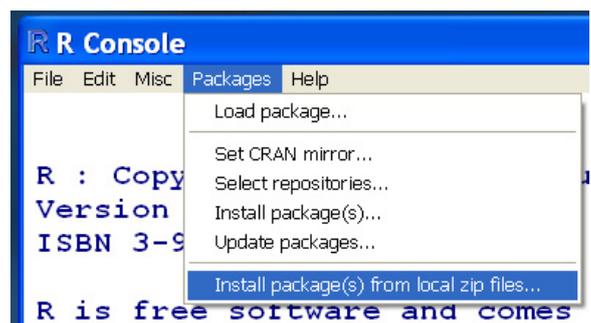
1.2 Installation of Packages

Most users will want to install R packages that are additional to those included in the initial installation. Make sure that there is a live internet connection, and start an R session.

Installation from the menu: Use the Packages drop down menu.

This shows the Packages drop down menu. Commonly used repositories are CRAN (Comprehensive R Archive Network) and Bioconductor (for Bioinformatics packages).

The menu shown is for the Packages main menu item. On or prior to first use of the menu for downloading and installing packages from the CRAN, it will be necessary to set the CRAN mirror. If Bioconductor is required rather than CRAN, use the Select repositories... menu item to make the change.



Under Set CRAN mirror ..., Australia is highlighted.



Installation from the command line: Type, e.g.:

```
install.packages("Rcmdr", dependencies=TRUE)
```

Alternatively, packages can be installed from a local drive (hard drive, or external drive or CD) to which they have been copied. Select the Install package(s) from local zip files ... menu item, then navigate to the directory that holds the zip file(s), select those that are to be installed, and press the ENTER key.

The R Commander Graphical User Interface

Several graphical user interfaces (GUIs) are available for R. For elementary statistical use, the R Commander is the most mature. It installs as an R package. To install the R Commander from the command line, enter:

```
install.packages("Rcmdr", dependencies=TRUE)
```

Among the dependencies are the graphics packages *rgl* (3D dynamic graphics), *scatterplot3d*, *vcd* (visualization of categorical data) and *colorspace* (for generation of color palettes, etc).

2 Running R from an editor

The free and open source development environment RStudio (editor, and much more) is strongly recommended. Download it from <http://rstudio.org> (Mac: ~30MB; Windows: ~32.5MB; Linux: ~28MB)

R users who are familiar with the Emacs or Xemacs editors may prefer ESS¹ interface to Emacs or XEmacs editor. Vincent Goulet provides, for Microsoft Windows and for MacOS X, ready-to-install versions of Emacs 23.4 with ESS and other additions. Go to <http://vgoulet.act.ulaval.ca/en/emacs/>.

For Linux, other possibilities include Kate, under either the KDE or the Gnome Window manager, or gedit under the Gnome Window manager. The gedit editor for the Gnome environment in Linux has an R plugin, Rgedit, that provides an interface to R. Go to <http://sourceforge.net/projects/rgedit/>.

Windows users might also consider the highly customizable Tinn-R editor, which has an elaborate built-in interface to R. Go to (<https://sourceforge.net/projects/tinn-r>; see also www.sciviews.org/Tinn-R/).

3 R under Mac OSX

The binary installs a Unix version that can be run from the command line, plus a MacOS X application that runs R from a Cocoa-based Gui. Fire up the application, and explore the features that are available from the menu system. The editor is fairly basic, but does have syntax highlighting. The menu has helpful abilities for checking what packages and versions have been installed and for installing and upgrading packages.

MacOS X users have the further options of running R from the Unix command line, or via the ESS interface as an Emacs/XEmacs process. You may need to type, from a terminal window:

```
sudo ln -s /Library/Frameworks/R.framework/Resources/R /usr/local/bin/R
```

For use with MacOS X, emacs-like alternatives are: Vincent Goulet's Emacs for OSX modified at <http://vgoulet.act.ulaval.ca/en/emacs/> (installing this package also installs ESS), or Aquaemacs at <http://sourceforge.net/projects/aquamacs/> (Mac-like user interface), or XEmacs at <http://sourceforge.net/projects/xemacs/> (Graphical user interface support).

The quartz graphics device is available irrespective of the interface. The X11 device is also in principle available, but depending on the version of MacOS X, various components of X11 may need to be installed.

4 R under Unix and Linux

For R binaries, see <http://cran.csiro.au/bin/linux/> or other mirror url. For Unix and some flavours of Linux, it may be necessary to compile the R source. This is straightforward providing that you have the needed compilers, etc. Check the R FAQ at <http://cran.csiro.au/doc/FAQ/R-FAQ.html>.

¹<http://ess.r-project.org/>