

Getting started with R and R Commander

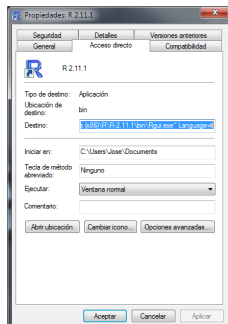
Getting started with R and R Commander

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- ▶ Changing language to English in R
- ▶ Loading R Commander (and other packages)
 - ▶ Loading data in R Commander
 - ▶ From a file
 - ▶ From R libraries
 - ▶ Creating data in R/ R Commander
 - ▶ Creating data in R Commander
- ▶ Installing R
- ▶ Installing packages in R

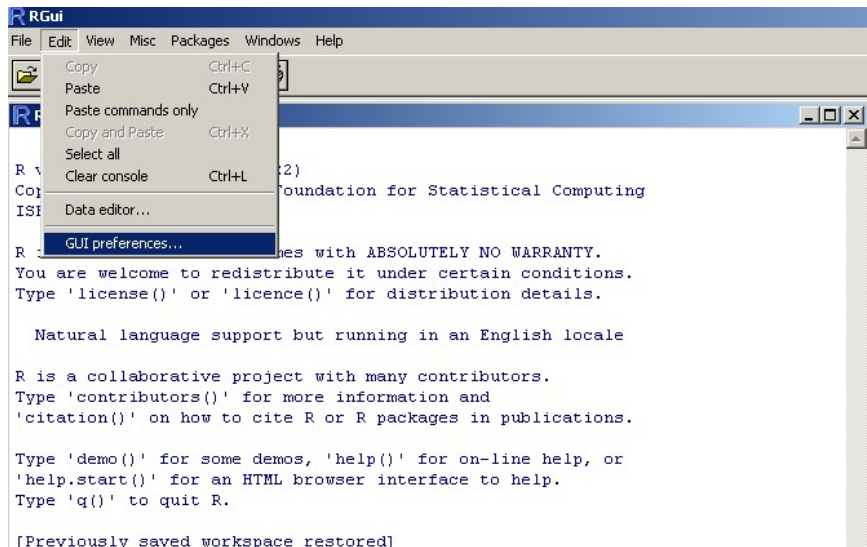
Starting R

- ▶ Go to the **Start** menu (bottom left corner)
- ▶ Then to **Programs**, look for **R**
- ▶ Click on the thick blue **R 2...**
- ▶ R uses the language from the windows version of your computer.
- ▶ It is possible to change language (apart from English) to German, French, Italian... Right click the shortcut icon in the desktop. Type, e.g., Language=it after the texts in Target field. Apply and restart R.



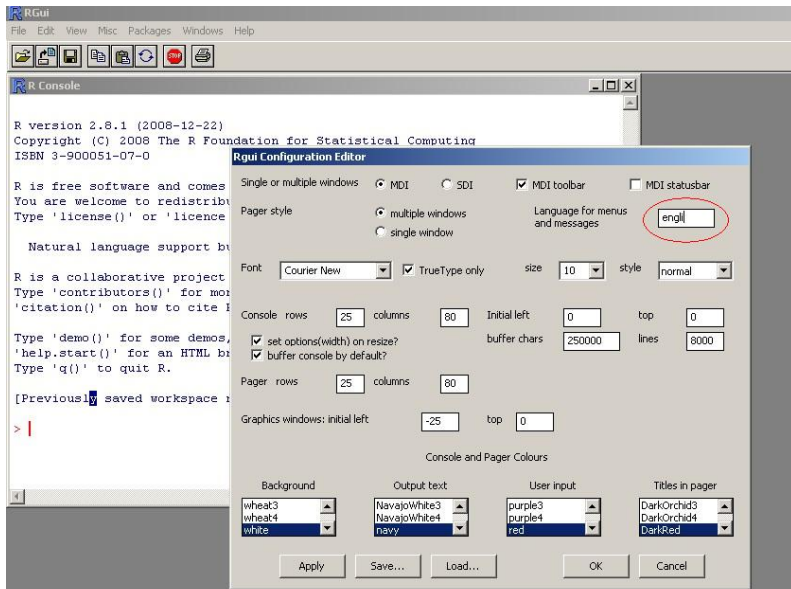
Changing language to English in R

- Go to **Edit** menu, then **GUI preferences...**



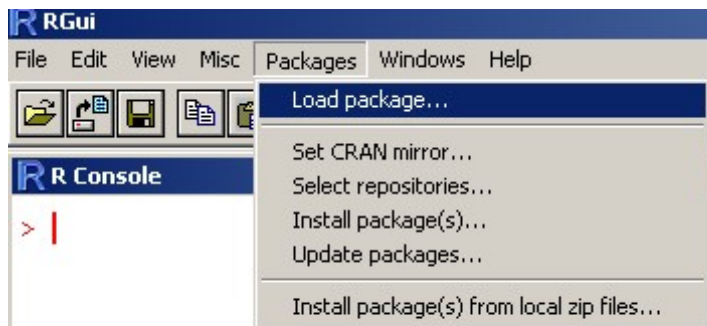
Changing language to English in R

- ▶ Type **english** in the top right field and hit OK



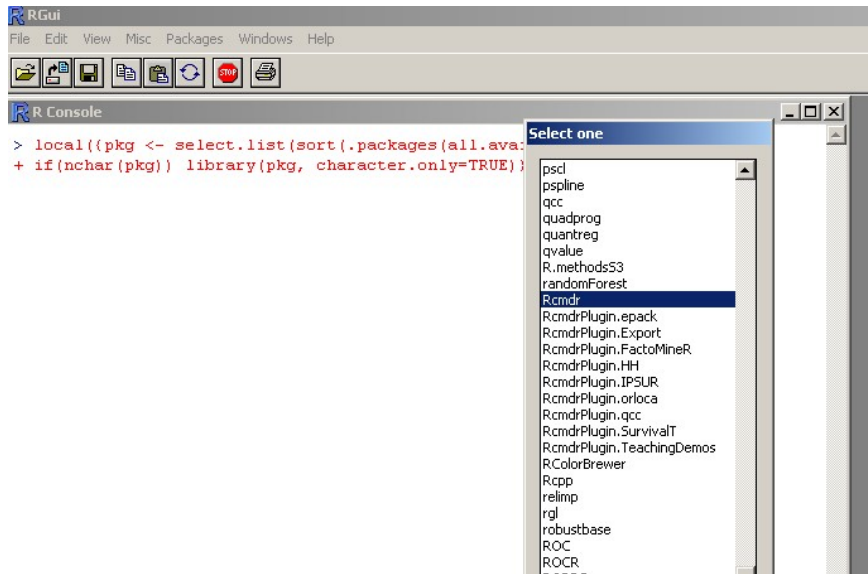
Loading R Commander - first method

- From the top menu, choose **Packages** and **Load package...**



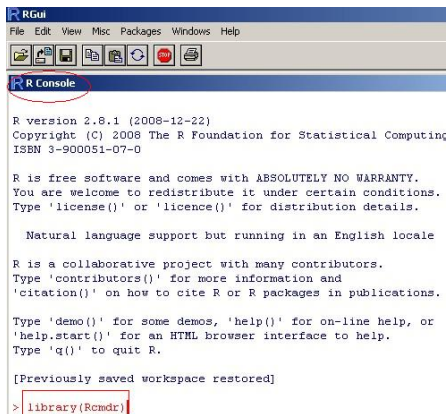
Loading R Commander - first method cont.

- From the drop-down menu, choose **Rcmdr**



Loading R Commander - second method

- Type in the **R Console** window `library(Rcmdr)` and hit OK



```
RGui
File Edit View Misc Packages Windows Help

R R Console

R version 2.8.1 (2008-12-22)
Copyright (C) 2008 The R Foundation for Statistical Computing
ISBN 3-900051-07-0

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.

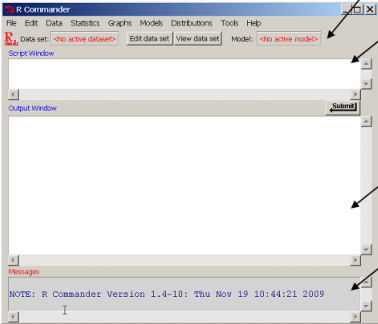
Natural language support but running in an English locale

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

[Previously saved workspace restored]
> library(Rcmdr)
```


Main window of R Commander



The screenshot shows the R Commander application window. At the top is a menu bar with options: File, Edit, Data, Statistics, Graphs, Models, Distributions, Tools, and Help. Below the menu bar is a toolbar with icons for file operations and data management. The main workspace is divided into three panes: the top pane is the Script Window, the middle pane is the Output Window, and the bottom pane is the Messages window. Arrows point from text boxes to specific features: 'Drop down menus' points to the menu bar; 'Toolbar' points to the toolbar; 'Script Window: R commands generated by the GUI' points to the Script Window; 'Output Window' points to the Output Window; and 'Message Window:' points to the Messages section of the bottom pane.

Drop down menus

Toolbar

Script Window: R commands generated by the GUI
You can type commands directly here. Select then by highlighting and then send the code by pressing the Submit button (on right below the script window)

Output Window
DARK BLUE: printed output
RED: command that was used

Message Window:
RED: Error messages
GREEN: Warnings
BLUE: Other information

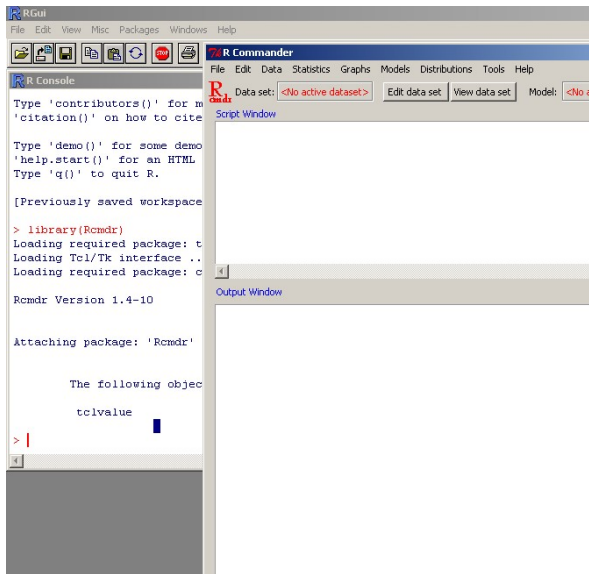
Main window of R Commander

Drop down Menu item	
File	Menu items for loading and saving script files; for saving output and the R workspace; and for exiting.
Edit	Menu items (Cut, Copy, Paste, etc.) for editing the contents of the script and output windows. Right clicking in the script or output window also brings up an edit "context" menu
Data	Submenus containing menu items for reading and manipulating data.
Statistics	Submenus containing menu items for a variety of basic statistical analyses.
Graphs	Menu items for creating simple statistical graphs.
Models	Menu items and submenus for obtaining numerical summaries, confidence intervals, hypothesis tests, diagnostics, and graphs for a statistical model, and for adding diagnostic quantities, such as residuals, to the data set. Distributions Probabilities, quantiles, and graphs of standard statistical distributions (to be used, for example, as a substitute for statistical tables).
Tools	Menu items for loading R packages unrelated to the Rcmdr package (e.g., to access data saved in another package), and for setting some options.
Help	Menu items to obtain information about the R Commander (including an introductory manual derived from this paper). As well, each R Commander dialog box has a Help button.

Toolbar buttons	
Data set	Shows the name of the active dataset Button: allows you choose among dataset currently in memory which to be active
Edit data set	Allows you to open the active dataset
View data set	Allows you to view the active dataset
Model	Shows the name of the active statistical model e.g. linear model Button: allows you to choose among current models in memory

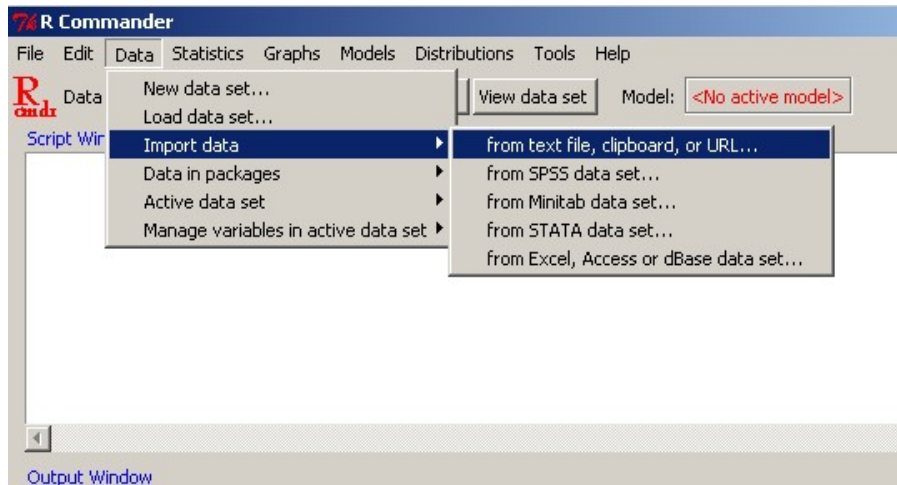
R Commander

- If you accidentally close the **Rcmdr** window, type **Commander()** in the **R Console** and hit OK

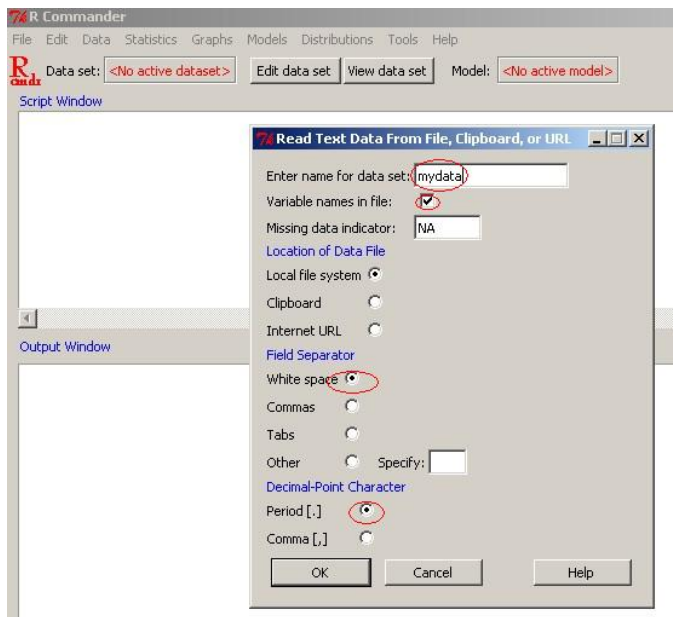


Loading data in R Commander - from a file

- ▶ We want to load **Nations.txt** located in ...
- ▶ C:/Program Files/R/R-2.13.1/library/Rcmdr/etc/ ...
- ▶ And call it **mydata**

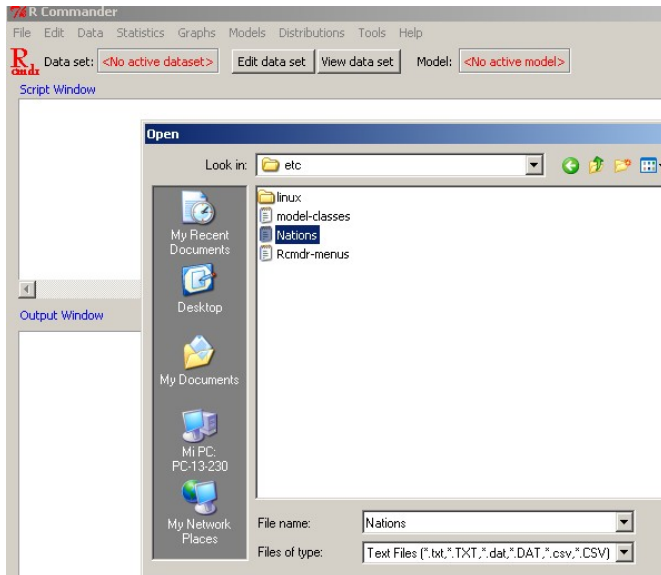


Loading data in R Commander - from a file cont.



Loading data in R Commander - from a file cont.

- ▶ Starting from C:, follow the path till you get to the file



Loading data in R Commander - from a file cont.

- **mydata** automatically becomes your active **Data set** and you can view its contents by clicking on the **View data set**

The screenshot shows the R Commander application window. The menu bar includes File, Edit, Data, Statistics, Graphs, Models, Distributions, Tools, and Help. The toolbar shows 'Data set: mydata', 'Edit data set', 'View data set', and 'Model: <No active model>'. The 'Script Window' contains the following R code:

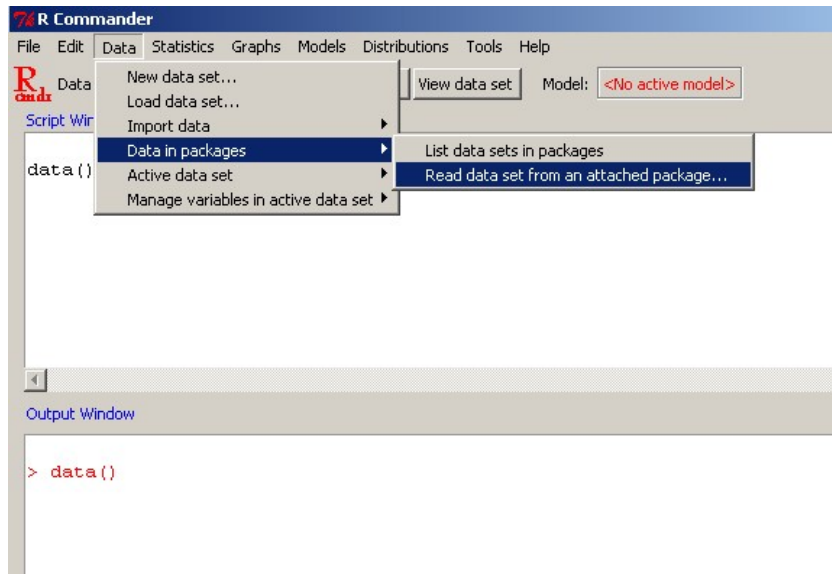
```
mydata <-  
  read.table("C:/Program Files/R/R-2.8.1/library/Rcmdr/etc/Nations.txt",  
    header=TRUE, sep=" ", na.strings="NA", dec=".", strip.white=TRUE)  
showData(mydata)  
maxhe
```

The 'Output Window' displays the first 15 rows of the 'mydata' dataset:

	TFR	contraception	infant.mortality	GDP	region
Afghanistan	6.90	NA	154	2848	Asia
Albania	2.60	NA	32	863	Europe
Algeria	3.81	52	44	1531	Africa
American-Samoa	NA	NA	11	NA	Oceania
Andorra	NA	NA	NA	NA	Europe
Angola	6.69	NA	124	355	Africa
Antigua	NA	53	24	6966	Americas
Argentina	2.62	NA	22	8055	Americas
Armenia	1.70	22	25	354	Europe
Australia	1.89	76	6	20046	Oceania
Austria	1.42	71	6	29006	Europe
Azerbaijan	2.30	17	33	321	Asia
Bahamas	1.95	62	14	12545	Americas
Bahrain	2.97	53	18	9073	Asia

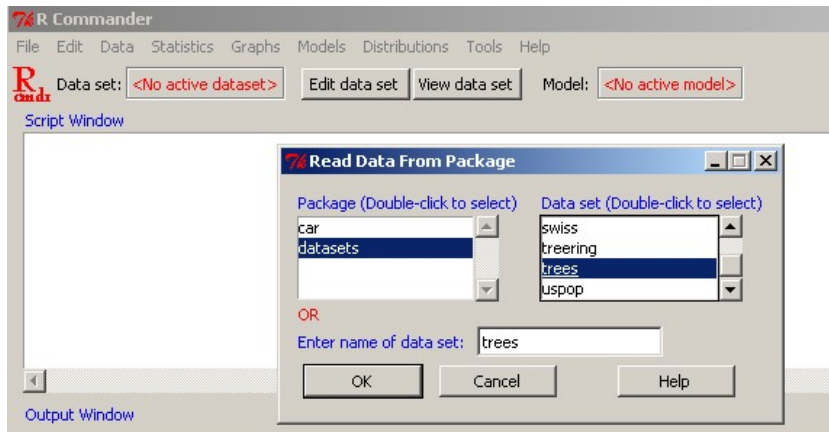
Loading data in R Commander - from R libraries

- ▶ You can load data from any package of R:



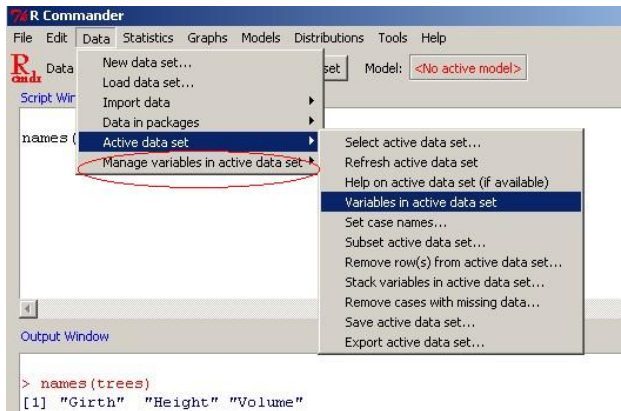
Loading data in R Commander - from R libraries cont.

- ▶ Remember to **double-click!**



Loading data in R Commander - from R libraries cont.

- ▶ In **Active data set**, you can **Select/Refresh**, etc and **Get variable names**
- ▶ In **Manage variables in active data set**, **Recode**, etc



Creating data in R/ R Commander

- ▶ We want to create three vectors **X**: 11,12,13,16,16,17,18,21,
Y: 14,15,15,15,16,16,16,17, **Z**: 11,11,11,12,19,20,20,20
- ▶ And then merge them together as one data set, one vector per column
- ▶ Type in the **Script Window**, highlight everything, press **Submit**

```
x = c(11,12,13,16,16,17,18,21)
y = c(14,15,15,15,16,16,16,17)
z = c(11,11,11,12,19,20,20,20)
data.xyz = data.frame(x,y,z)
data.xyz
```

R Commander

File Edit Data Statistics Graphs Models Distributions Tools Help

Data set: **trees** Edit data set View data set Model: **<No active model>**

Script Window

```
x<-c(11,12,13,16,16,17,18,21)
y<-c(14,15,15,15,16,16,16,17)
z<-c(11,11,11,12,19,20,20,20)

data.xyz<-data.frame(x,y,z)
data.xyz
```

Select Data Set

Data Sets (pick one)

- data
- data.xyz**
- mydata
- trees

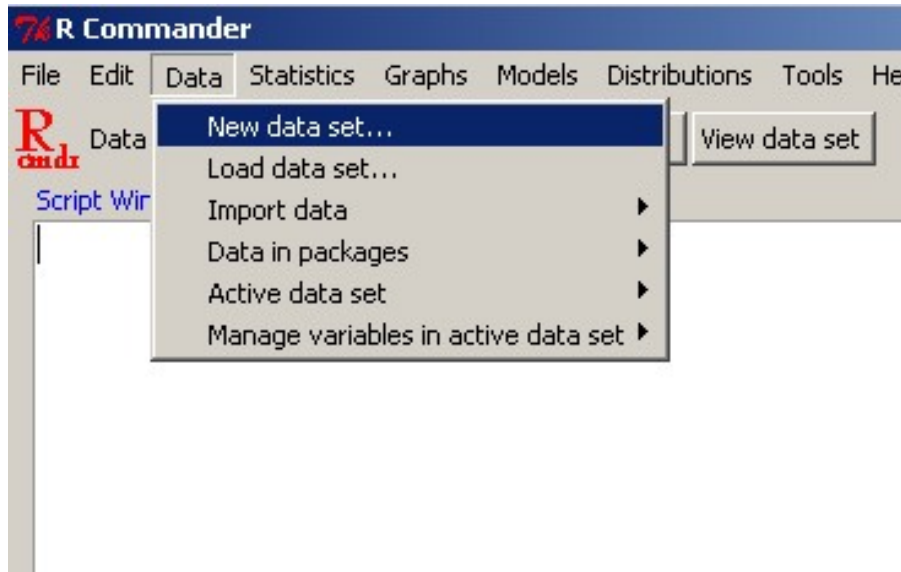
OK Cancel

Output Window

```
> x<-c(11,12,13,16,16,17,18,21)
> y<-c(14,15,15,15,16,16,16,17)
> z<-c(11,11,11,12,19,20,20,20)
> data.xyz<-data.frame(x,y,z)
> data.xyz
  x  y  z
1 11 14 11
2 12 15 11
3 13 15 11
4 16 15 12
5 16 16 19
6 17 16 20
7 18 16 20
8 21 17 20
```

Creating data in R Commander (*not recommended*)

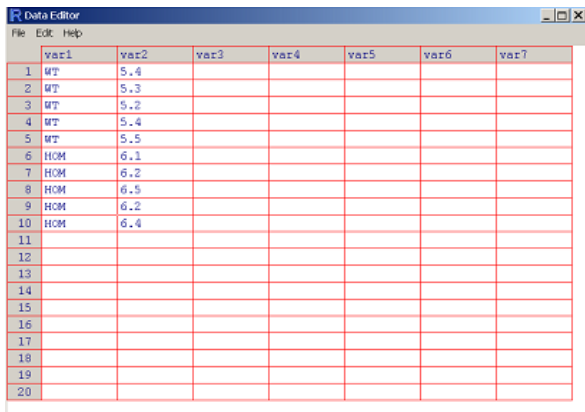
- Often crashes the programme



Creating data: Alternatives

Type in the **Script Window**, highlight everything, press **Submit**:

► `Data <- edit(as.data.frame(NULL))`



The screenshot shows the R Data Editor window. The title bar is 'R Data Editor'. The menu bar contains 'File', 'Edit', and 'Help'. The data frame has 7 columns labeled 'var1' through 'var7' and 20 rows. The first 10 rows contain data, and the remaining 10 rows are empty.

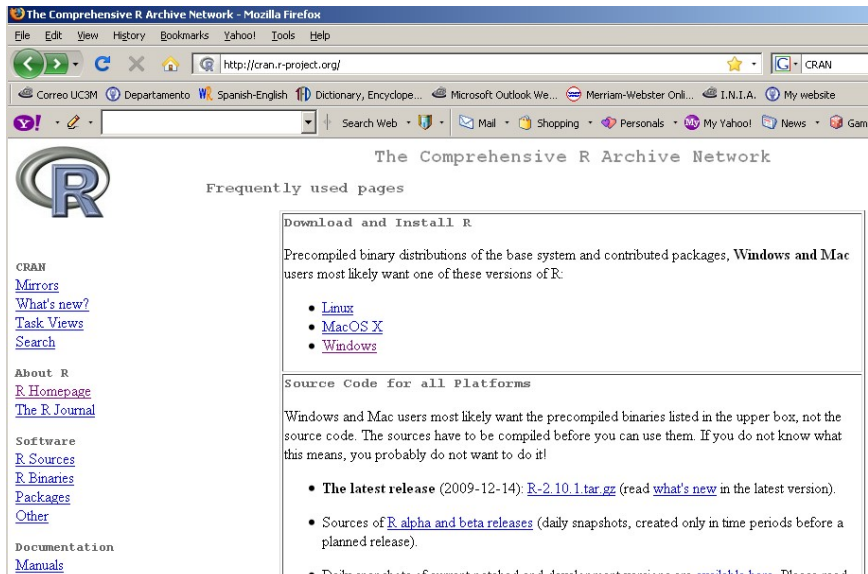
	var1	var2	var3	var4	var5	var6	var7
1	WT	5.4					
2	WT	5.3					
3	WT	5.2					
4	WT	5.4					
5	WT	5.5					
6	HCM	6.1					
7	HCM	6.2					
8	HCM	6.5					
9	HCM	6.2					
10	HCM	6.4					
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

► Alternatively: `x = scan()`

Introduce values. When finishing, press *Intro* twice.

Installing R

- Go to CRAN website <http://cran.r-project.org/>



The screenshot shows a Mozilla Firefox browser window with the address bar displaying <http://cran.r-project.org/>. The page title is "The Comprehensive R Archive Network". The browser's menu bar includes File, Edit, View, History, Bookmarks, Yahoo!, Tools, and Help. The toolbar contains navigation buttons (back, forward, home, stop, reload) and a search bar. The page content features the R logo on the left and a main heading "The Comprehensive R Archive Network". Below this, there are two main sections: "Frequently used pages" and "Download and Install R". The "Frequently used pages" section lists links for CRAN, Mirrors, What's new?, Task Views, Search, About R, R Homepage, The R Journal, Software, R Sources, R Binaries, Packages, Other, Documentation, and Manuals. The "Download and Install R" section provides information about precompiled binary distributions for Windows and Mac users, listing links for Linux, MacOS X, and Windows. Below this, the "Source Code for all Platforms" section explains that Windows and Mac users should use precompiled binaries and lists the latest release (2009-12-14) and sources for alpha and beta releases.

The Comprehensive R Archive Network

Frequently used pages

CRAN

- [Mirrors](#)
- [What's new?](#)
- [Task Views](#)
- [Search](#)

About R

- [R Homepage](#)
- [The R Journal](#)

Software

- [R Sources](#)
- [R Binaries](#)
- [Packages](#)
- [Other](#)

Documentation

- [Manuals](#)

Download and Install R

Precompiled binary distributions of the base system and contributed packages, **Windows and Mac** users most likely want one of these versions of R:

- [Linux](#)
- [MacOS X](#)
- [Windows](#)

Source Code for all Platforms

Windows and Mac users most likely want the precompiled binaries listed in the upper box, not the source code. The sources have to be compiled before you can use them. If you do not know what this means, you probably do not want to do it!

- The latest release** (2009-12-14): [R-2.10.1.tar.gz](#) (read [what's new](#) in the latest version).
- Sources of [R alpha and beta releases](#) (daily snapshots, created only in time periods before a planned release).
- Daily snapshots of current stable and development versions are [available here](#). Please read

Installing R

- Choose the platform, eg, **Windows**

The Comprehensive R Archive Network - Mozilla Firefox

File Edit View History Bookmarks Yahoo! Tools Help


http://cran.r-project.org/ CRAN

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The Comprehensive R Archive Network

Frequently used pages



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Installing R

- Choose the **base**

The Comprehensive R Archive Network - Mozilla Firefox

File Edit View History Bookmarks Yahoo! Tools Help

http://cran.r-project.org/

Correo UC3M Departamento Spanish-English Dictionary, Encyclope... Microsoft Outlook We... Merriam-Webster Onli... I.N.I.A.

Y! Search Web Mail Shopping Personals My Yahoo!

R for Windows

This directory contains binaries for a base distribution and packages to run on i386/x64 Windows.

Note: CRAN does not have Windows systems and cannot check these binaries for viruses. Use the downloaded executables.

Subdirectories:

base	Binaries for base distribution (managed by Duncan Murdoch)
contrib	Binaries of contributed packages (managed by Uwe Ligges)

CRAN

- [Mirrors](#)
- [What's new?](#)
- [Task Views](#)
- [Search](#)

About R

- [R Homepage](#)
- [The R Journal](#)

Software

- [R Sources](#)
- [R Binaries](#)

Please do not submit binaries to CRAN. Package developers might want to contact Duncan Murdoch in case of questions / suggestions related to Windows binaries.

You may also want to read the [R FAQ](#) and [R for Windows FAQ](#).

Last modified: April 4, 2004, by Friedrich Leisch

Installing R

- ▶ Click on [Download...](#) and ...
- ▶ save the .exe file on your machine/external hard-drive
- ▶ You can get to the .exe file faster by simply typing <http://cran.es.r-project.org/bin/windows/base/R-2.13.1-win32.exe> in your browser

The Comprehensive R Archive Network - Mozilla Firefox

File Edit View History Bookmarks Yahoo! Tools Help

http://cran.r-project.org/

Correo UC3M Departamento Spanish-English Dictionary, Encyclope... Microsoft Outlook We... Merriam-Webster Onli... I.N.I.A.

Search Web Mail Shopping Personals My Yahoo!

R-2.10.1 for Windows

Download R 2.10.1 for Windows (32 megabytes)

[Installation and other instructions](#)

New features in this version: [Windows specific](#), [all platforms](#).

CRAN

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About R

[R Homepage](#)

[The R Journal](#)

Software

If you want to do... compare the [md5](#) command line ver...

Frequently

- [How do I...](#)
- [How do I...](#)

Opening R-2.10.1-win32.exe

You have chosen to open

☒ R-2.10.1-win32.exe

which is a: Application

from: http://cran.r-project.org

Would you like to save this file?

Save File Cancel

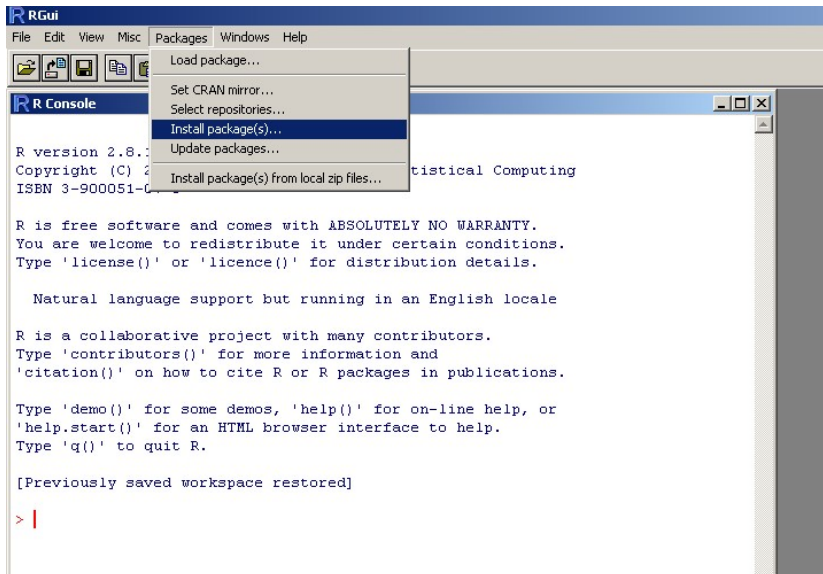
ches the package
f md5sum for wii

Installing R

- ▶ Double click on the saved file and ...
- ▶ Follow the installation steps
 - ▶ You can install R on an external hard-drive (you need around 150MB of space), thus not necessarily on your laptop/desktop
 - ▶ Set the language to Spanish/English

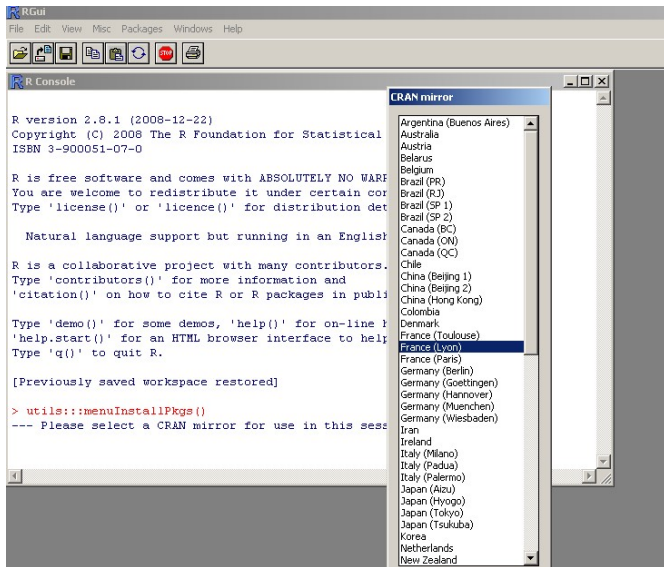
Installing packages in R

- From the top menu, choose **Packages** and **Install package(s)...**



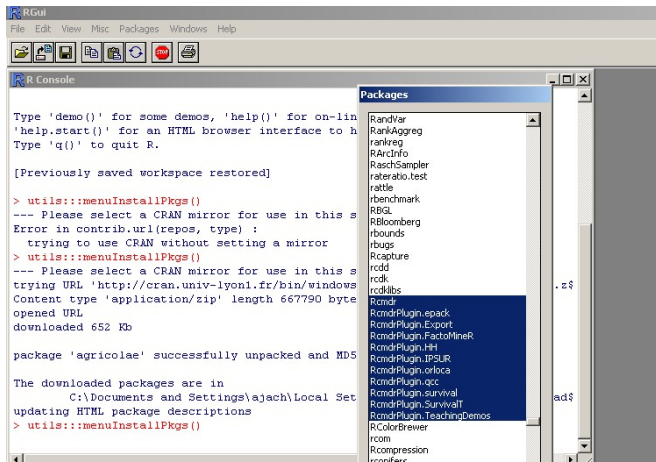
Installing packages in R

- ▶ Select **CRAN mirror** (place from which you will download packages), eg, from Lyon in France



Installing packages in R

- ▶ From the drop-down list, select the packages (press CTRL and hold it, whilst clicking with the mouse button on several packages)
- ▶ Useful packages: [agricolae](#), [Rcmdr](#), [Rcmdr.TeachingDemos](#), [lattice](#), [Deducer](#)



References and additional reading material about RCommander

- ▶ "The R Commander: A Basic-Statistics Graphical User Interface to R". John Fox Journal of Statistical Software 2005, Volume 14, Issue 9.
- ▶ cran.r-project.org/doc/contrib/Karp-Rcommander-intro.pdf