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R for the Windows Platform: Installation and Configuration

By [Dr. Rich Herrington](#), Research and Statistical Support Services Manager

This month we demonstrate how to download and install the GNU S statistical system "R", for the Microsoft Windows platform. The following is an excerpt from the R website <http://www.r-project.org> - "R is a language and environment for statistical computing and graphics. It is a [GNU project](#) which is similar to the S language and environment which was developed at Bell Laboratories (formerly AT&T, now Lucent Technologies) by John Chambers and colleagues. R can be considered as a different implementation of S. There are some important differences, but much code written for S runs unaltered under R. R provides a wide variety of statistical (linear and nonlinear modeling, classical statistical tests, time-series analysis, classification, clustering, ...) and graphical techniques, and is highly extensible. The S language is often the vehicle of choice for research in statistical methodology, and R provides an Open Source route to participation in that activity. One of R's strengths is the ease with which well-designed publication-quality plots can be produced, including mathematical symbols and formulae where needed. Great care has been taken over the defaults for the minor design choices in graphics, but the user retains full control. R is available as Free Software under the terms of the [Free Software Foundation's GNU General Public License](#) in source code form. It compiles and runs out of the box on a wide variety of UNIX platforms and similar systems (including FreeBSD and Linux). It also compiles and runs on Windows 9x/NT/2000 and MacOS" (from Introduction).

Downloading and Installing R

R can be downloaded from the main org website <http://www.cran.r-project.org>



The Comprehensive R Archive Network

Frequently used pages

CRAN
Mirrors
What's new?
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Software
R Sources
R Binaries
Package
Sources
Other
Documentat
Manual
FAQs
Contributed
Newsletter
Related
Projects
Bioconductor
Omega

Precompiled Binary Distributions

Base system and contributed packages. **Windows and Mac** users most likely want these versions of R.

- [Linux](#)
- [MacOS \(System 8.6 to 9.1 and MacOS X\)](#)
- [MacOS X \(Darwin/X11\)](#)
- [Windows \(95 and later\)](#)

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!

- **Source code** of the latest release (2003-06-16): [R-1.7.1.tgz](#) (read what's [new](#) in the latest version).
- **Source code** of [contributed packages](#)
- Current patch set (daily snapshot): [R-release.diff.gz](#).

Under **Precompiled Binary Distributions**, the **Windows (95 and later)** bullet is the hypertext link for downloading the binary version of R. The base subdirectory has the main R self-extracting executable file in it:

Subdirectories:

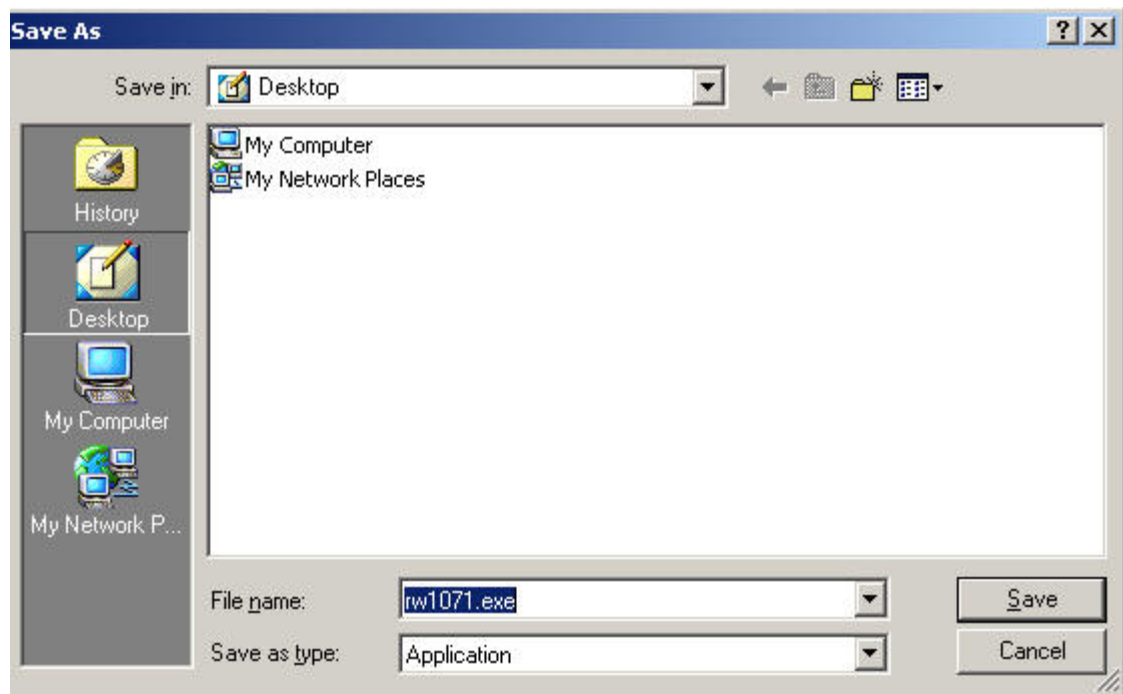
base	Binaries for base distribution (managed by Duncan Murdoch)
contrib	Binaries of contributed packages (managed by Uwe Ligges)
unsupported	Unsupported or obsolete packages

Clicking **base** hypertext link gives the screen:

In this directory:

README.rw1071	Installation and other instructions.
CHANGES	New features of this version.
rw1071.exe	Setup program (about 20 megabytes). Please download this from a mirror near you . This corresponds to the file named SetupR.exe in pre-1.6.0 releases.
mini	Collection of diskette-sized files. Again, please download from a mirror .
old	The previous release.
md5sum.txt	md5sum output for the setup program. A Windows GUI version of md5sum is available at http://www.md5summer.org/ ; a Windows command line version is available at http://www. etree.org/md5com.html .

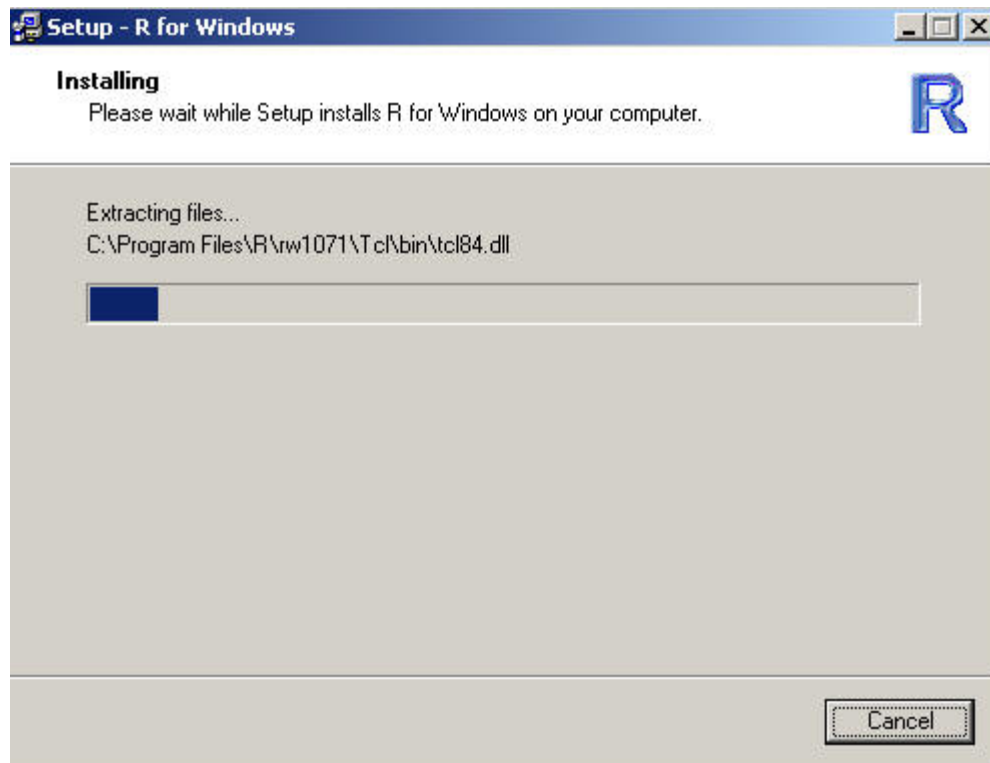
The rw1071.exe file can be save to your local desktop by a "right mouse-click" on the **rw1071.exe** hypertext link. Select "Save Target As.."; browse the file system to find the Desktop and then "Save".



There should be an icon on your Desktop. Double clicking this icon should give the following installation screen.



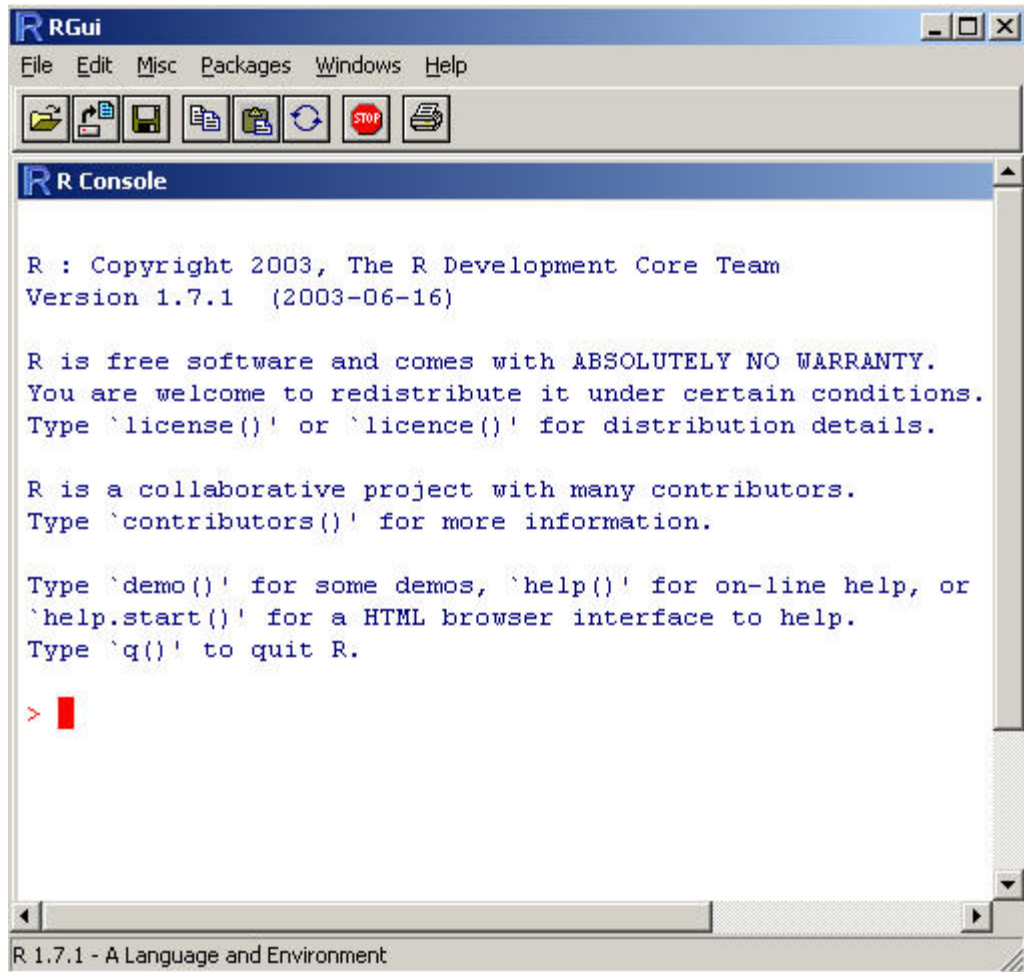
Select the **Next** button. After reading the GNU licensing agreement, if you agree, continue to choose the default selections in the installation window. If installation is proceeding properly, you will see the following installation screen. Once installation is finished, an R icon will be placed on the Desktop.



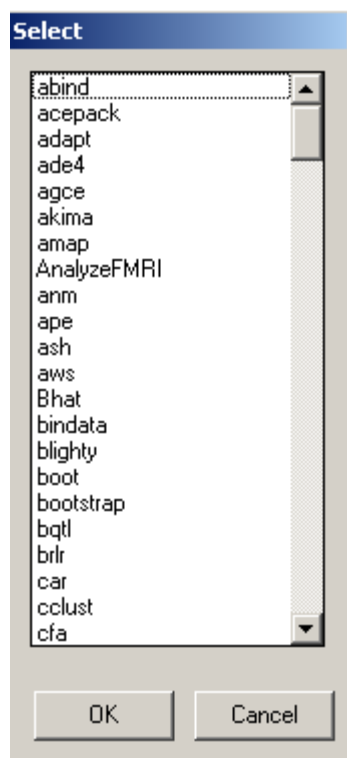
As of version 1.7.0, the R installation file installs the Tcl/Tk system. The Tcl/Tk system allows programmers to build general GUIs for entry level R users. A discussion of the potential uses of this interface in R can be found at:

Installing Libraries in R

After downloading and installing R, we will want to download and install libraries that are available on R CRAN website. Double click the R icon on your desktop and you should see the following screen:



You will need a fast internet connection to download these libraries. Select the **Packages** option on the main menu bar, then select **Install package(s) from CRAN**. The following screen should appear:



Using the "ctrl" key (the control key), one can multiply select those libraries that are to be installed. To install the **Rcmdr** library, scroll down the window and select "Rcmdr". Delete the downloaded archive files by responding "yes" at the question prompt. R then configures the html help pages.

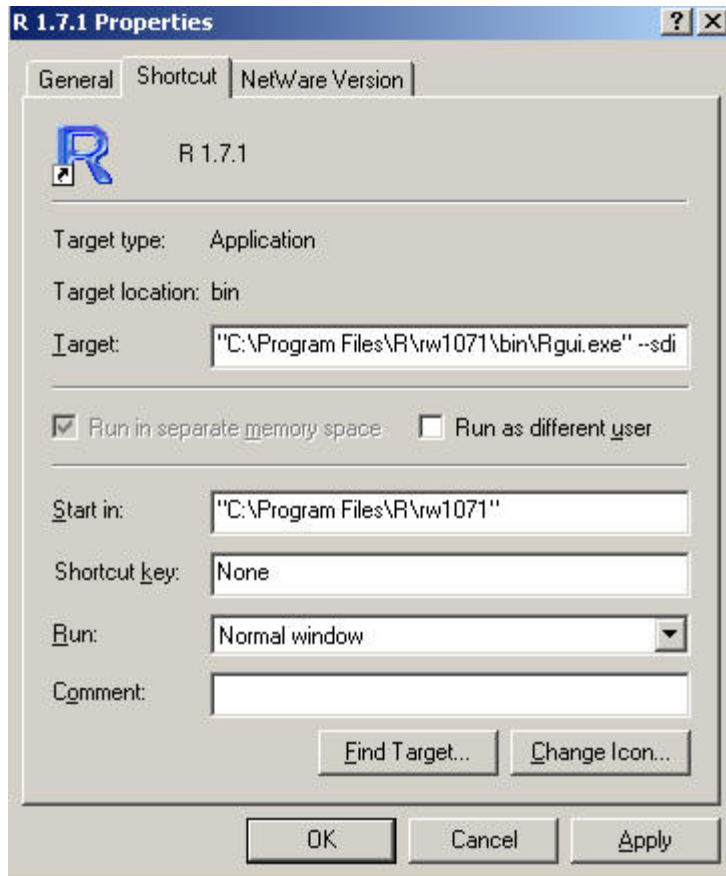
```
Delete downloaded files (y/N)? y
updating HTML package descriptions
> █
```

The Rcmdr or "R Commander" library is a simple menu system based on Tcl/Tk. The following excerpt are taken from the author's webpage at: <http://www.socsci.mcmaster.ca/jfox/Misc/Rcmdr/index.html>. *"The R-Commander GUI consists of a window containing several menus, buttons, and information fields. In addition, the Commander window contains a log/script box. The R-Commander menus are easily configurable through a text file. The menus lead to simple dialog boxes, the general contents of which are more or less obvious from the names of the menu items. These boxes have a common structure, including a help button leading to the help page for a relevant function. Commands generated via the dialog are posted to the R session window, along with printed output, and to the log window. Lines in the log window may be edited and (re)submitted for execution. Commands access a current or active data set (data frame). When a new data set is read (from an attached package or imported), it becomes the active data set. The user can also select an active data set from among data frames currently in memory. In addition to standard packages, the Commander uses some functions in my car package.(The scatterplot and scatterplot.matrix functions in the car package, prior to version 1.0-5 of car, generate warning messages in R 1.7.0 and above. This is not a problem specific to the Commander and will go away if you update car.). My object in designing and implementing this GUI was to cover the content of a basic-statistics course. The target text was Moore's *The Basic Practice of Statistics, Second Edition* (Freeman, 2000), which is the text that I currently use for a two-semester introduction to statistics for undergraduate sociology majors. The R Commander implements the content of this text plus*

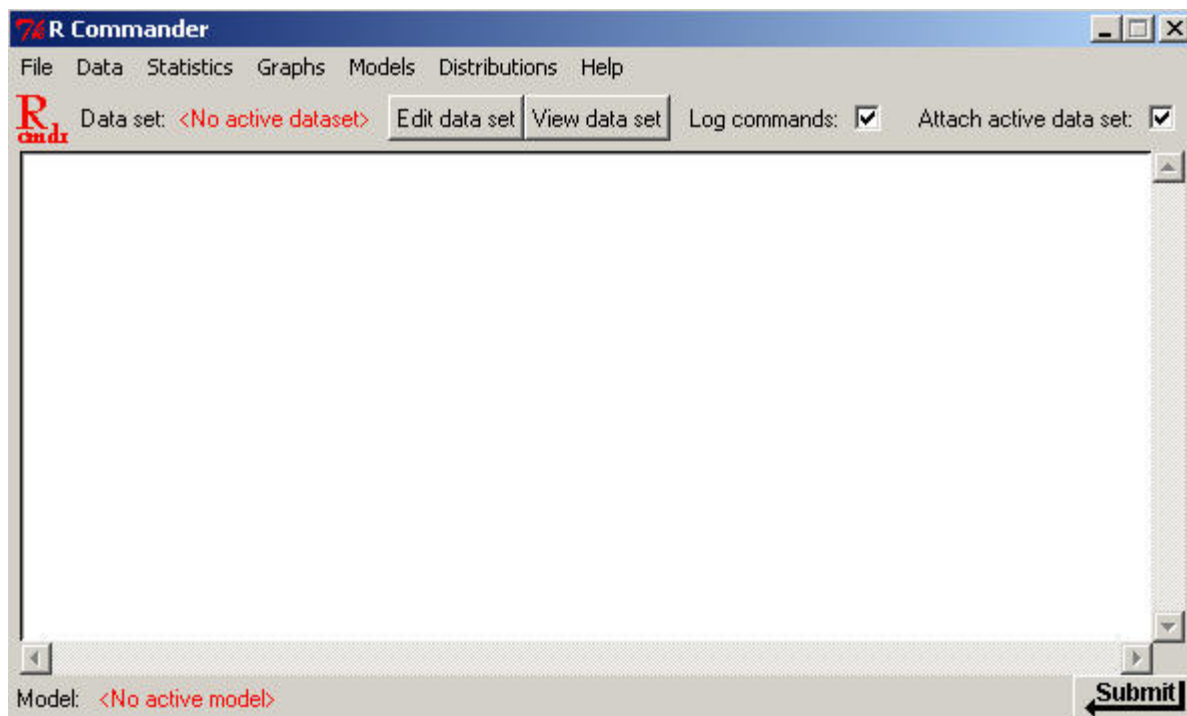
some additional material (e.g., linear and generalized linear models). As a result of several suggestions that I have received, the coverage is now larger than originally envisaged (quoted from John Fox's Rcmdr webpage).

Loading a Library in R

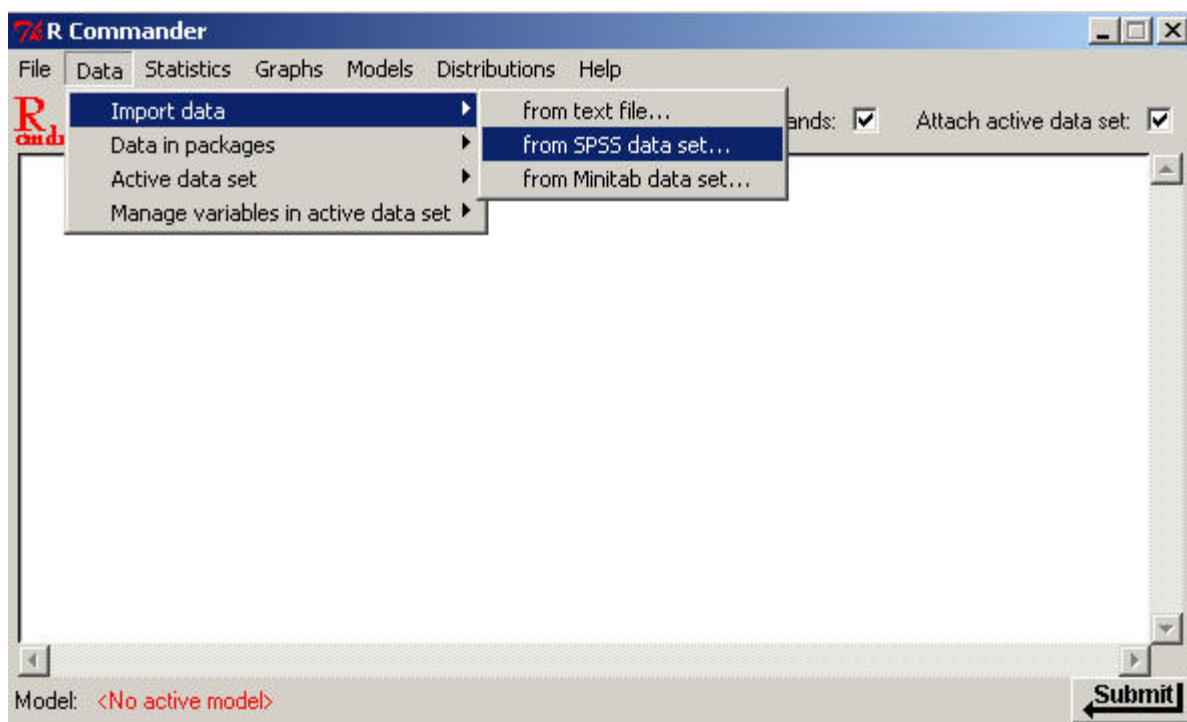
To use the Rcmdr library, we will want to configure the R system window to have a "single document interace" mode. Right mouse click the R icon on your desktop and select **properties**. Add " --sdi " to the Target field after the Rgui.exe statement (see below). Click **apply**, then **ok**. Double click the R icon on your desktop to start the R system.



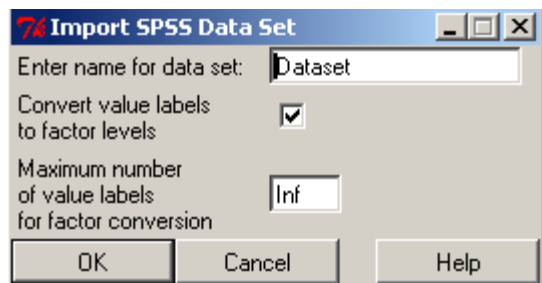
To load a library in R, select **Packages** from the main menu bar and select **Load Package**. Select the Rcmdr library in the package selection window. The following menu system will appear:



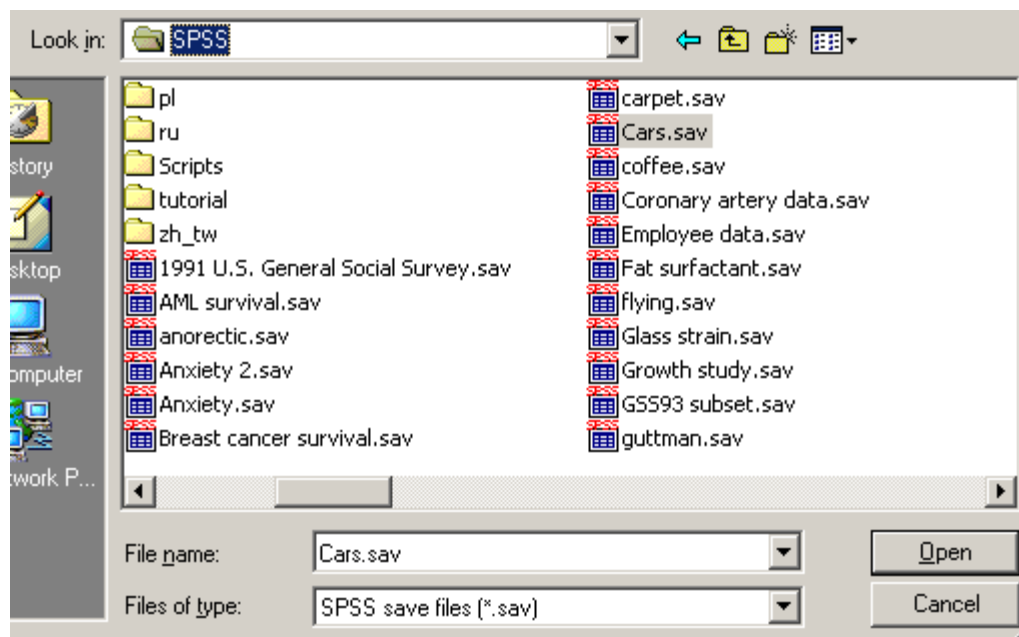
To import an SPSS data set:



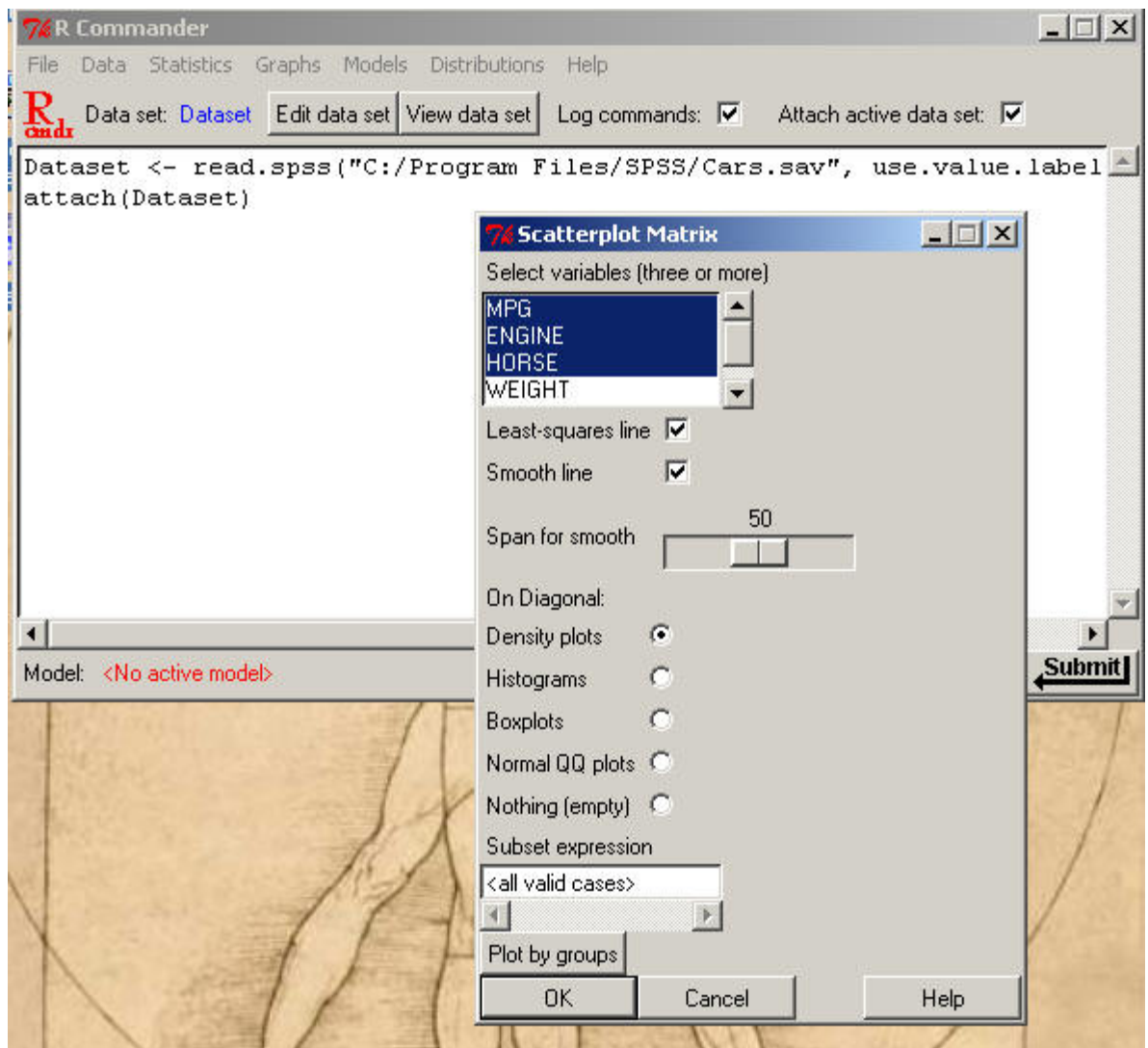
Give the imported data set a working session name, then browse the file system to select your SPSS data set.



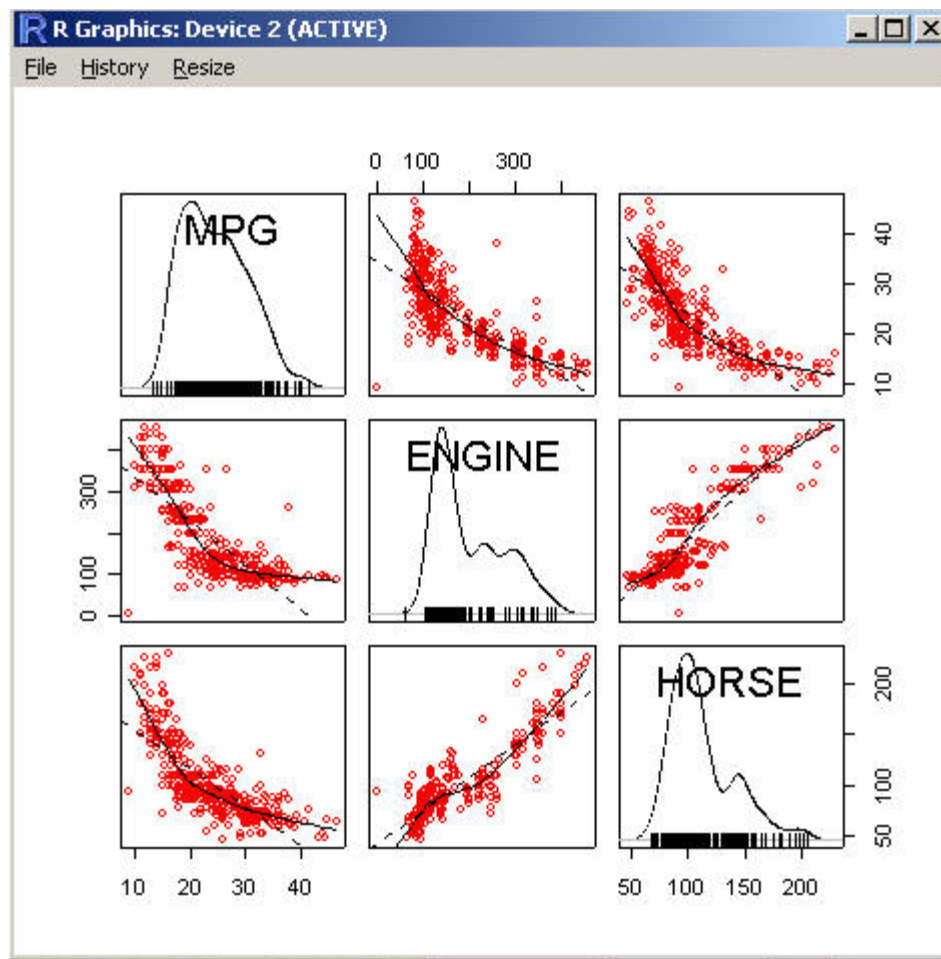
In the main SPSS directory there should be a data set called "Cars" (this dataset ships with SPSS).



Select the data file. Next, go to Graphs and select Scatterplot Matrix. Select MPG, ENGINE, and HORSE. Next, select OK.



You should see the following:



Selecting **History** on the plot window will keep a history of previous plots. You can access previous plots by using the "page up" and "page down" key.

Next Time

Next time we will explore in more detail the Rcmdr library for windows.

References

Dalgaard, Peter (2002). *Introductory Statistics with R*. Springer: New York.

Fox, John (2003). *The R Commander: A Basic-Statistics GUI for R*.

<http://www.socsci.mcmaster.ca/jfox/Misc/Rcmdr/index.html>

RSS News

Research consulting duties change hands

We have a new face in the RSS office! [Mike Clark](#) has replaced Garvii Thomas as a research consultant in the RSS office. Mike comes to us with quite a bit of research experience developed during his tenure as a graduate student working on his PhD in Experimental Psychology. Mike graduated with a double undergraduate degree in psychology and philosophy. Mike continued his education, becoming a graduate student here at UNT. He has taught undergraduate statistics and graduate statistics labs as part of

his graduate student experience, and continues to consult with graduate students on research projects. Let us all give Mike a warm welcome, and bring the research on!

"SAS Corner" combined with "RSS Matters"

We have decided to combine these two columns. "RSS Matters" will cover SAS topics as well as other research and statistical topics.