



RSS Web Interfaces to GNU (S) - R

The following [Web interface](#) allows a user to submit R scripts interactively; edit the scripts; and resubmit the changed script by selecting the hypertext link button: "Run Program". This interface is used only for existing datasets that are part of the R system and for demonstrations and simulations done in R. A different mechanism for [uploading your own datasets](#) is outlined below. [Example R Scripts](#) for use and modification are provided at the bottom of this web page - some of which run and return output, others are just script examples that do not run. These R scripts can be run locally on your desktop PC by installing the appropriate binary version of R on your PC. A Windows version can be [downloaded here](#). You will also need to [install some additional packages](#). Other binary versions can be [found here](#).

As an example of using the Rweb web interface, click the ["Run Program" button](#). This R script creates a vector of 10 random normal deviates; displays the results; calculates the mean of the vector; and creates a histogram of the random numbers. To view any text output, scroll to the bottom of the browser window. To view any graphical output, select the "Display Graphic" link. Selecting the browser "back page" button will return the reader to this document.

An example R Script (click the "Run Program" icon to submit; click your back-page in your web browser to return to this web page):

Depending on the user load, response times can vary. If you are experiencing slow response times, choose an alternate server that is hosting the R web interface

Alternate servers:

- [Web interface to GNU-S \(R\)](#) - Server I (RSS)
- [Web interface to GNU-S \(R\)](#) - Server II (Kryton)

Upload to Rweb Server

Unlike the above URL's, the following URL will allow you to **upload a tab-delimited text file** to the RSS server for R analysis. The first line needs to consist of tab-delimited variable names. **The Rweb javascript automatically saves the data set in a dataset called X** (that is an 'upper-case X').

- [Rweb tab-delimited upload to GNU-S \(R\)](#) - Web-link to Server I (RSS)

To reference variables in your data set you can use the following collection of R functions:

```
# Note: The "pound-signs" are comments; "var1" is a hypothetical variable name in  
# the dataset named "X". Make sure that you replace "var1" with your own  
variable
```

```
# name. The dataset is automatically named "X" when it is uploaded to Rweb  
server
```

```
names(X)      # the "names" function shows what the variable names are in "X"
```

```
attach(X)     # the "attach" function allows one to reference the variables
```

```
without
```

```
# using the name of the dataset every time a variable is referred  
to.
```

```
# After the attach function of "X", if "var1" is a variable in your data set, use the  
# following to reference "var1" for analysis:
```

```
var1          # type the name of the variable to display the values of  
"var1"
```

```
summary(var1) # calculates summary statistics of the values of variable "var1"
```

```
# Note: if you don't use the attach function you can use the "pound-sign" to  
reference
```

```
# a variable that exists in a dataset as follows:
```

```
X$var1       # display values of var1
```

```
summary(X$var1) # summarize values of var1
```

R Script Examples

(note that some of these scripts are "live" scripts - these scripts run in place and return output to your web browser)

- [\(pdf file of script and graph\)](#)
- 25) [Christmas version of the Hypergeometric function \(Acceptance Sampling\) Example from textbook \(pdf\)](#)
 - 24) [Interface to the true random number service provided by: http://www.random.org](#)
 - 23) [Monte Carlo Parameter Estimation - Simple Regression](#)
 - 22) [Simulation and Estimation of Hidden Markov Model \(HMM\)](#)
 - 21) [Monte Carlo Integration of the Bivariate Normal Distribution](#)
 - 20) [Downloading data from a SSL enabled website using a HTTPS call](#)
 - 19) [A Monte Carlo Simulation that Demonstrates Hyper-Parameter Models and Simpson's paradox with Linear Regression Models](#)
 - 18) [Maximally Reliable Scores](#)
 - 17) [Bootstrapped Screeplot I](#)
 - 16) [Bootstrapped Screeplot II](#)
 - 15) [Case Study \(Marcy Haag\)](#)
 - 14) [Demonstration of "distplot" in Michael Friendly's book "Visualizing Categorical Data"](#)
 - 13) [Simulation of Measurement Error in Predictor Model for Simple Linear Regression](#)
 - 12) [Multiple Regression Simulation to demonstrate Bias in R squared and adjustment with bootstrap](#)
 - 11) [Merging single response and multiple response survey data](#)
 - 10) [Calculating the variability of a descriptive statistic over many samples](#)
 - 9) [Perform a multivariate two-sample permutation test using the cramer statistic](#)
 - 8) [Simulation of a 1-factor, 2 parameter IRT model](#) - data created by logistic function; thresholded then compared with a linear 1-factor common trait model based on both tetrachoric and pearson correlation matrices.
 - 7) [Simulation of Lord's Normal Ogive Item Response Model](#) - estimation based on tetrachoric correlations. Additionally, comparison is made to a 1 and 2 parameter IRT based on the logistic.
 - 6) [Simulation of the Linear Common Factor Model \(2 factors\) with a CFA](#)
 - 5) [Generating Correlated Multivariate Normal Data](#)
 - 4) [Monte Carlo & Bootstrap Simulation of Proportion](#)
 - 3) [Item Response Theory \(IRT\) simulation and analysis](#) - R Scripts for simulating IRT
 - 2) [Simulating IRT model](#) - Simulates a 3PL IRT model and gives some basic descriptives
 - 1) [Fitting a Rasch model in R](#) - Uses the function "[clogit](#)" (conditional logistic regression) from the library "survival"

Last updated:06/18/08 by [Rich Herrington](#).



The R Project for Statistical Computing

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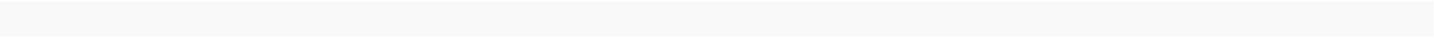
Getting Started

R is a free software environment for statistical computing and graphics. It compiles and runs on a wide variety of UNIX platforms, Windows and MacOS. To [download R](#), please choose your preferred [CRAN mirror](#).

If you have questions about R like how to download and install the software, or what the license terms are, please read our [answers to frequently asked questions](#) before you send an email.

News

- **R version 3.3.0 (Supposedly Educational)** has been released on 2016-05-03.
- **R version 3.2.5 (Very, Very Secure Dishes)** has been released on 2016-04-14. This is a rebadging of the quick-fix release 3.2.4-revised.
- **Notice XQuartz users (Mac OS X)** A security issue has been detected with the Sparkle update mechanism used by XQuartz. Avoid updating over insecure channels.
- The **R Logo** is available for download in high-resolution PNG or SVG formats.
- **useR! 2016**, will take place at Stanford University, CA, USA, June 27 - June 30, 2016.
- **The R Journal Volume 7/2** is available.
- **R version 3.2.3 (Wooden Christmas-Tree)** has been released on 2015-12-10.
- **R version 3.1.3 (Smooth Sidewalk)** has been released on 2015-03-09.



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RSS Matters

Link to the last RSS article here: [Speaking of Stata - Ed.](#)

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?
Search
About R
R Homepage
Software
R Sources
R Binaries
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Documentat
Manual
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Newsletter
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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:

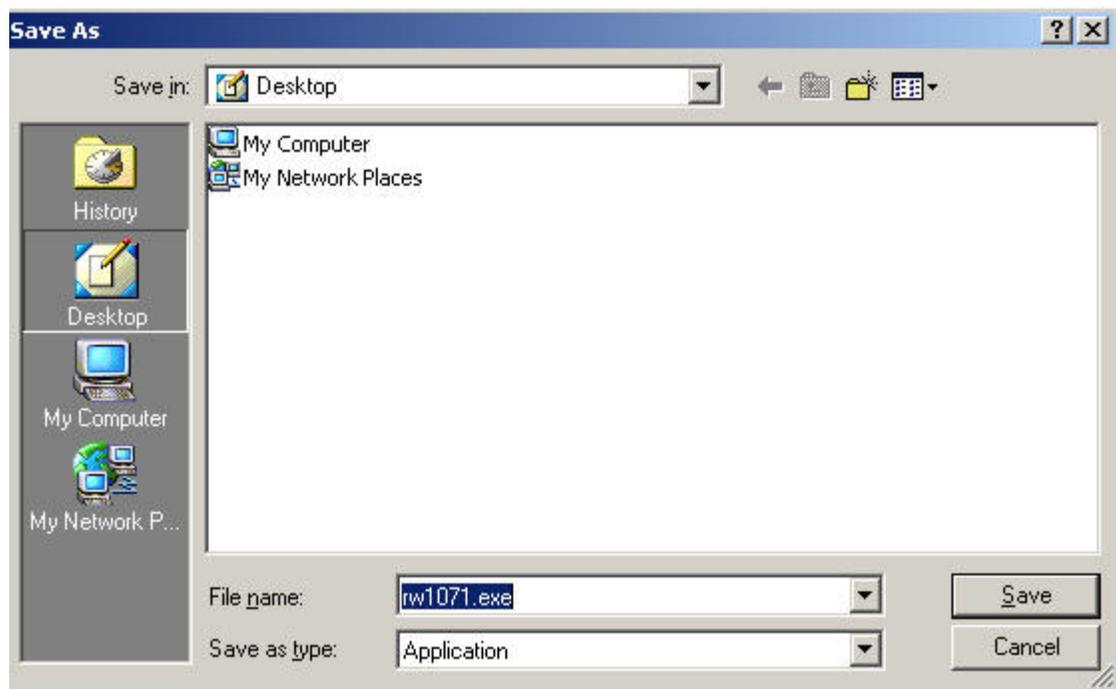
base	Binaries for base distribution (managed by Duncan Murdoch)
contrib	Binaries of contributed packages (managed by Uwe Ligges)
unsupported	Unsupported or obsolete packages

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 .

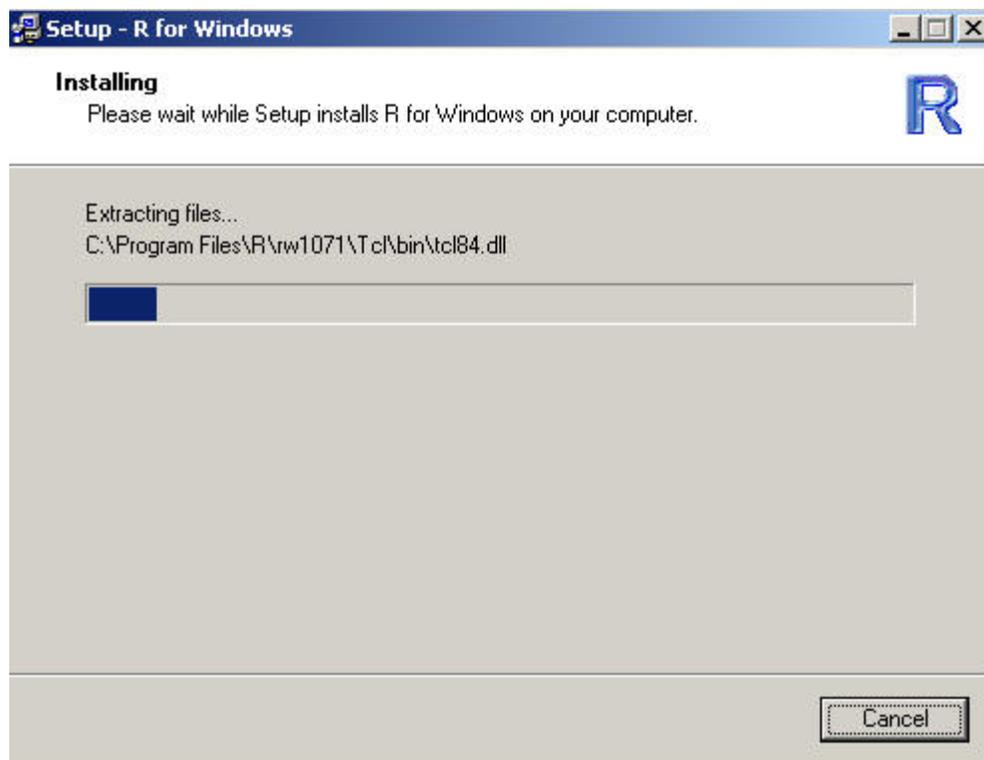
The rw1071.exe file can be save to your local desktop by a "right mouse-click" on the **rw1071.exe** hypertext link. Select "Save Target As.."; browse the file system to find the Desktop and then "Save".



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



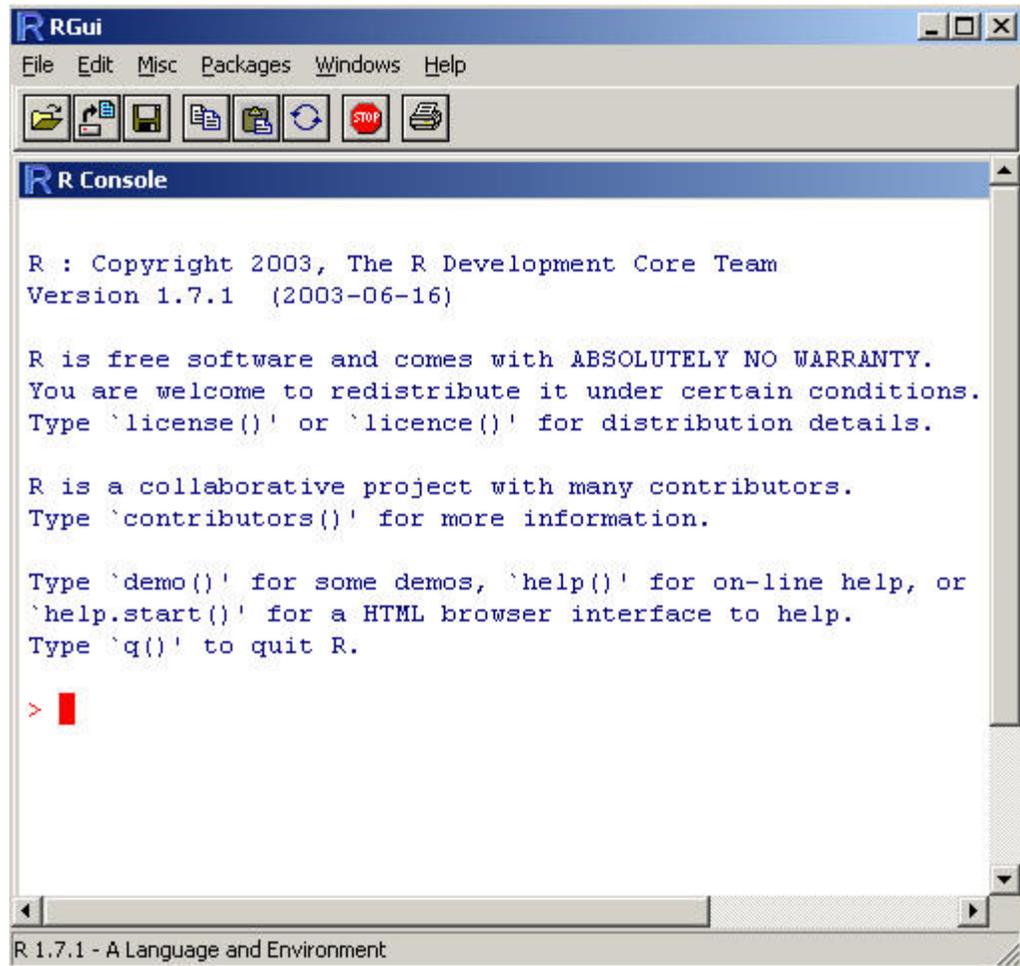
Select the **Next** button. After reading the GNU licensing agreement, if you agree, continue to choose the default selections in the installation window. If installation is proceeding properly, you will see the following installation screen. Once installation is finished, an R icon will be placed on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



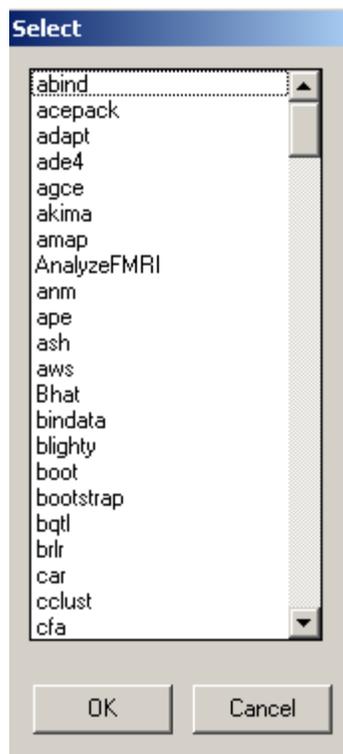
As of version 1.7.0, the R installation file installs the Tcl/Tk system. The Tcl/Tk system allows programmers to build general GUIs for entry level R users. A discussion of the potential uses of this interface in R can be found at:

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.

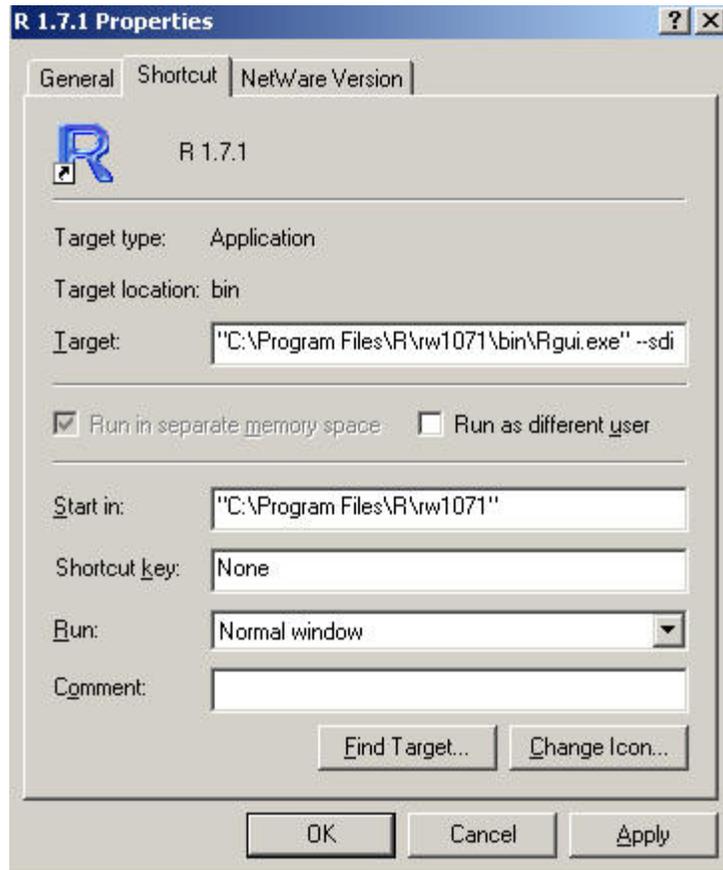
```
Delete downloaded files (y/N)? y
updating HTML package descriptions
> █
```

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*

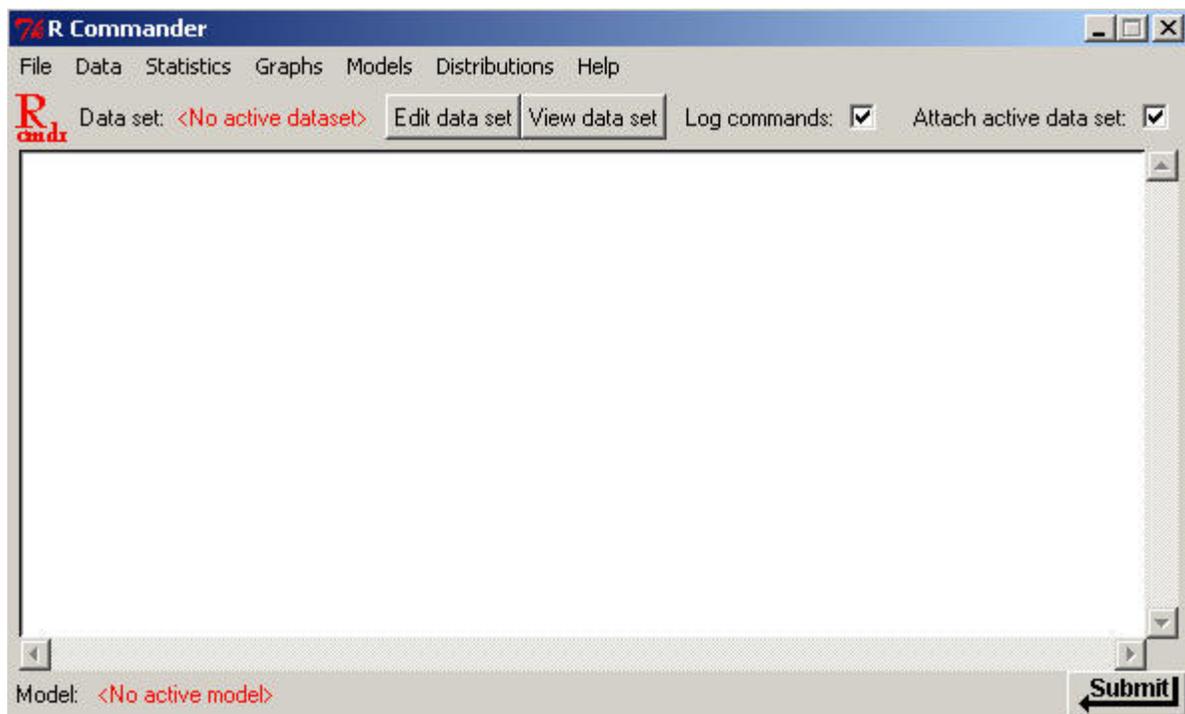
some additional material (e.g., linear and generalized linear models). As a result of several suggestions that I have received, the coverage is now larger than originally envisaged (quoted from John Fox's Rcmdr webpage).

Loading a Library in R

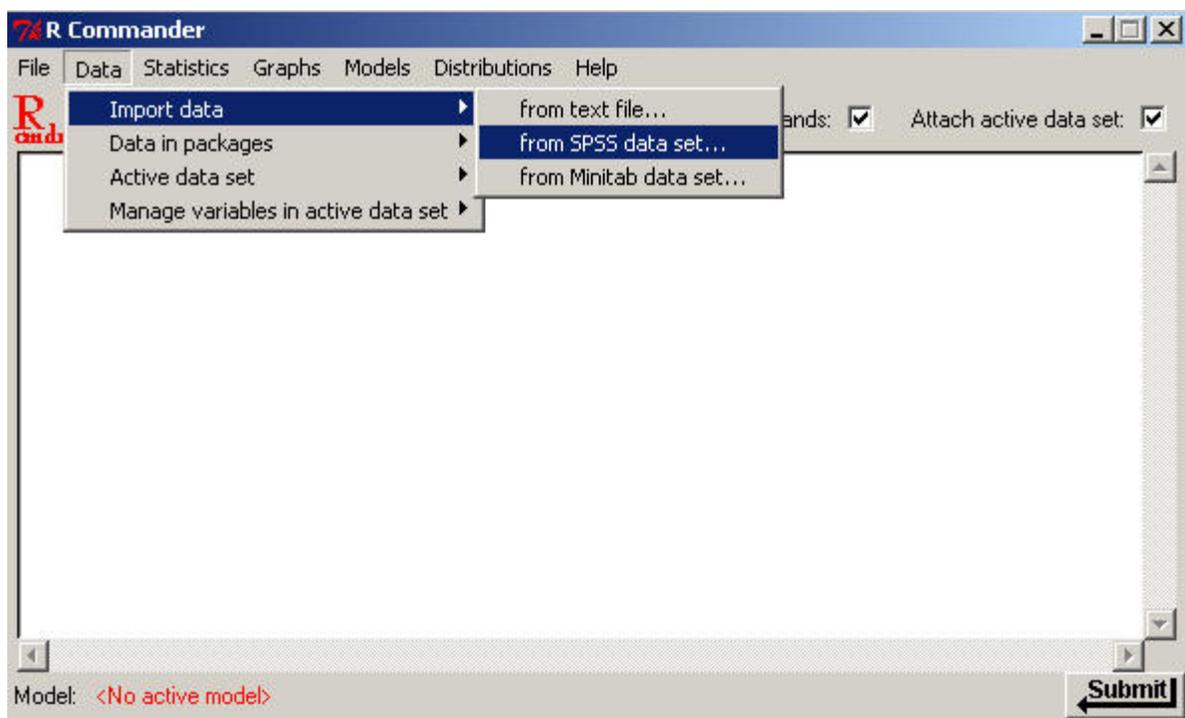
To use the Rcmdr library, we will want to configure the R system window to have a "single document interace" mode. Right mouse click the R icon on your desktop and select **properties**. Add " --sdi " to the Target field after the Rgui.exe statement (see below). Click **apply**, then **ok**. Double click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



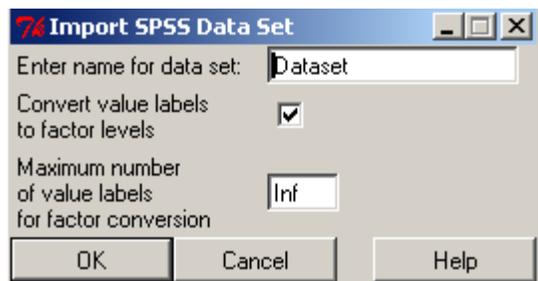
To load a library in R, select **Packages** from the main menu bar and select **Load Package**. Select the Rcmdr library in the package selection window. The following menu system will appear:



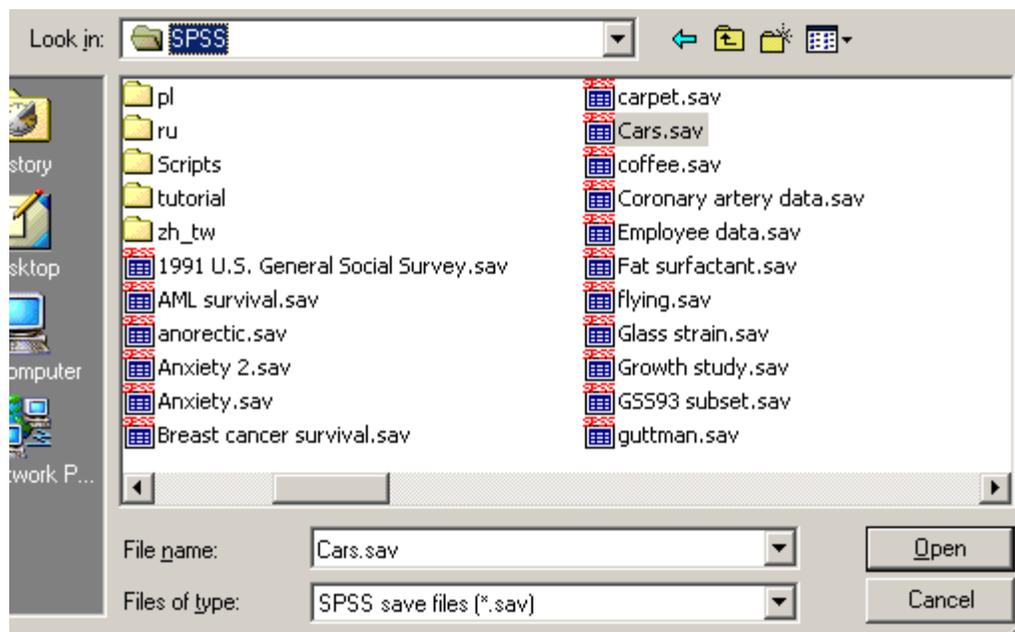
To import an SPSS data set:



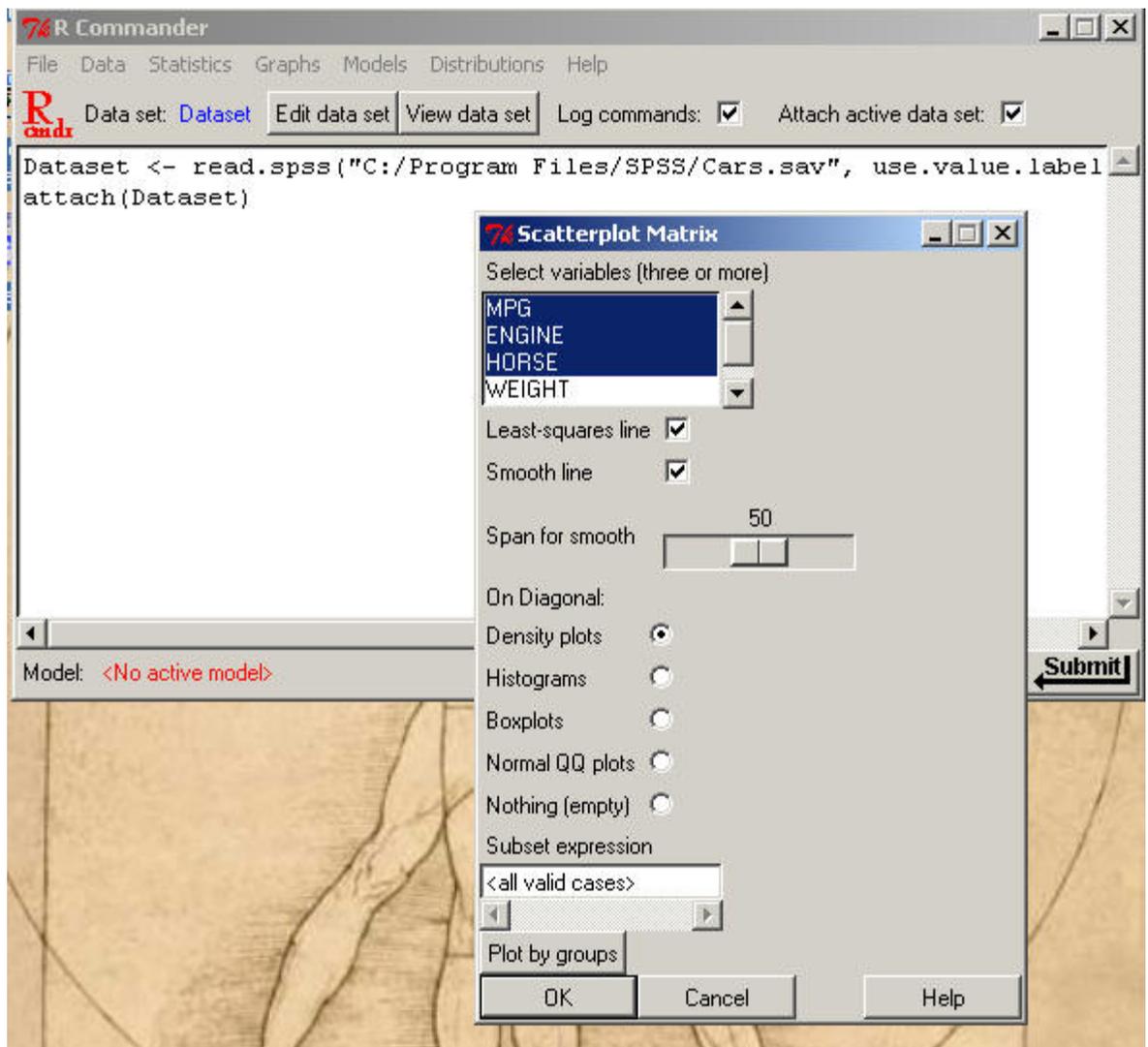
Give the imported data set a working session name, then browse the file system to select your SPSS data set.



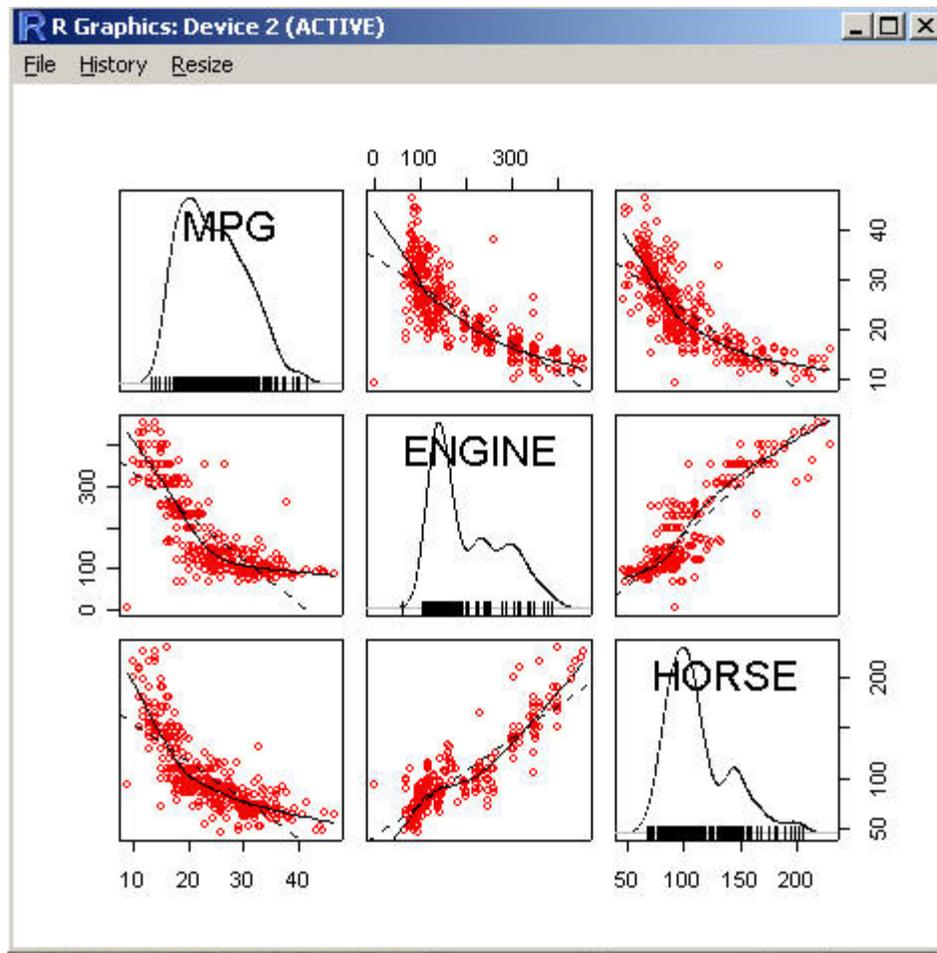
In the main SPSS directory there should be a data set called "Cars" (this dataset ships with SPSS).



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.

Index of /bin

Name	Last modified	Size	Description
 Parent Directory		-	
 linux/	23-Jan-2008 19:47	-	
 macos/	19-Apr-2005 09:45	-	
 macosx/	04-May-2016 04:08	-	
 windows/	01-Mar-2016 17:46	-	

Apache/2.2.22 (Debian) Server at cran.r-project.org Port 443