



Introduction to basic R

In this document we show how to download R software, and some basic commands that illustrate syntax of this program.

Getting R

R is a free software and can be downloaded from <https://cran.r-project.org>. There you can select which version of R you need (Linux, Mac or Windows), also on this website you can get R manuals and other information:

The Comprehensive R Archive Network

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:

- [Download R for Linux](#)
- [Download R for \(Mac\) OS X](#)
- [Download R for Windows](#)

R is part of many Linux distributions, you should check with your Linux package management system in addition to the link above.

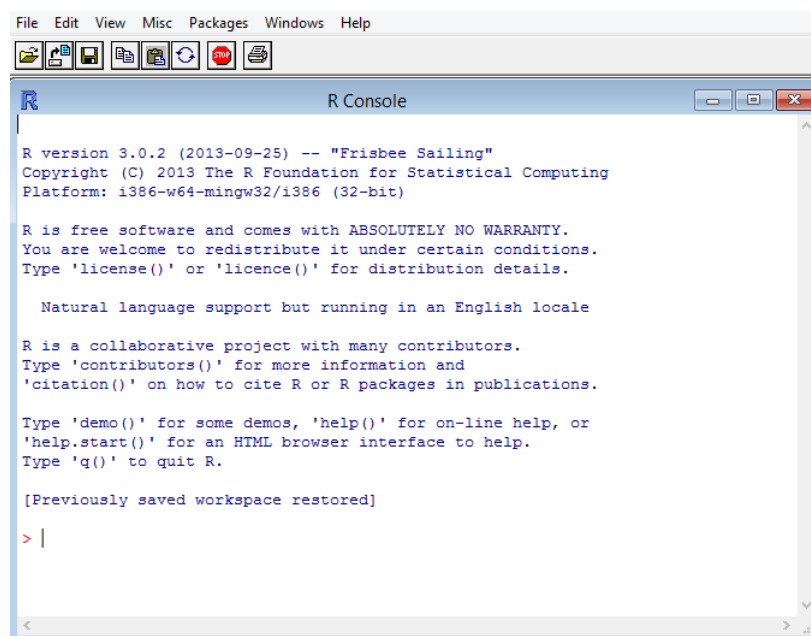
Source Code for all Platforms

Windows and Mac users most likely want to download 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 (2015-06-18, World-Famous Astronaut) [R-3.2.1.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 patched and development versions are [available here](#). Please read about [new features and bug fixes](#) before filing corresponding feature requests or bug reports.
- Source code of older versions of R is [available here](#).
- Contributed extension [packages](#)

Then follow instructions.

Once R is installed, an icon on the desktop appears. Double click on the icon and the R console window opens:



Basic commands

In the console window we type commands and get results. For example if we type $2 + 2$ then press enter we get 4. '[1]' at the beginning of the row is not important for now. Similarly we can do any arithmetic calculation:

```
> 2+2
[1] 4
> 3*4
[1] 12
> 14/7
[1] 2
> 5-3
[1] 2
```

Next we can create variables and store values in them. Suppose we call our variable 'x' and we want to store 5 in this variable. Then we just type `x=5` and press enter. There is no output but now 'x' has 5 in it. So now if we type `x+2` we get 7:

```
> x=5
> x+2
[1] 7
```

We can store result of `x+2` in the variable that we call 'y' by entering `y=x+2`. Now 'y' stores 7. To see what value a variable stores just type the name of the variable and press enter. For example if we just type 'y' we get 7:

```
> y=x+2
> y
[1] 7
```

It is possible to store not only one value in a variable but several values together using 'c' function. For example if we type `x=c(2,5,3,1)` then 'x' forgets about 5 that it stored before and now stores 4 values. If we enter `x+5` then R adds 5 to every value of 'x':

```
> x=c(2,5,3,1)
> x+5
[1] 7 10 8 6
```

If we also store 4 values in variable 'y' by typing `y=c(1,2,3,4)`, and make summation of 'x' and 'y' (`x+y`) then R sums each component separately:

```
> y=c(1,2,3,4)
> x+y
[1] 3 7 6 5
```

Similarly we can do any other arithmetic manipulations.

Data sets download

Frequently we will have data sets in the text or CSV formats. We suggest to store all these files in one folder. In order for R to easily access these files we need to specify the path to this folder (or as it sometimes called 'Working Directory'). To do that in Windows go to **File** and click on **Change Dir**, on Mac system go to **Misc** and click on **Change Working Directory**. 'Browse for Folder' window opens and here select the folder that stores all the data files, then click 'OK'. This allows to call these data files only by their names without specified the path to them each time. In other R notes you will see how to download these files into R.