Getting Started with R and RStudio

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R is a functional open-source programming language widely used in statistical analysis and visualization. It compiles and runs on a wide variety of UNIX platforms, Windows and MacOS. Similar to any programming language, learning R may not be easy at the beginning, but once you get into it, you can explore more powerful things with R. In this instruction, you will find more details on how to install R and Rstudio, and some useful resources to help you familiarize with R.

Step 1: Installing R

R is freely available online. To install R, go to https://www.r-project.org/ and click on "download R" bolded in blue. Then, choose the Berkeley mirror (https://cran.cnr.berkeley.edu/) as your cran mirror (since this is more physically close to us).

USA

https://cran.cnr.berkeley.edu/	University of California, Berkeley, CA
https://mirror.las.iastate.edu/CRAN/	Iowa State University, Ames, IA
https://ftp.ussg.iu.edu/CRAN/	Indiana University
https://rweb.crmda.ku.edu/cran/	University of Kansas, Lawrence, KS
https://cran.mtu.edu/	Michigan Technological University, Houghton, MI
https://repo.miserver.it.umich.edu/cran/	MBNI, University of Michigan, Ann Arbor, MI
http://cran.wustl.edu/	Washington University, St. Louis, MO
http://archive.linux.duke.edu/cran/	Duke University, Durham, NC
https://cran.case.edu/	Case Western Reserve University, Cleveland, OH
https://ftp.osuosl.org/pub/cran/	Oregon State University
http://lib.stat.cmu.edu/R/CRAN/	Statlib, Carnegie Mellon University, Pittsburgh, PA
http://cran.mirrors.hoobly.com/	Hoobly Classifieds, Pittsburgh, PA
https://mirrors.nics.utk.edu/cran/	National Institute for Computational Sciences, Oak Ridge, TN
https://cran.revolutionanalytics.com/	Revolution Analytics, Dallas, TX

Then, click on one of the "Download R for" links based on your operating system. For example, if you are a Mac user, you will need to click on "Download R for (Mac) OS X". After the selection, click on the R-3.6.2.pkg file underneath the "Latest Release" heading and download the file. Follow the instructions on the installer and finish R installation on your system.

Latest release:

R-3.6.2.pkg
MD5-hash: 837416578abdcfe3efe16b5a95d65ea0
SHA1-hash: e07a717ab448932fa967472f5f41c28ea9d7506a
(ca. 77MB)

R 3.6.2 binary for OS X 10.11 (El Capitan) and higher, signed package. Contains R 3.6.2 framework, R.app GUI 1.70 in 64-bit for Intel Macs, Tcl/Tk 8.6.6 X11 libraries and Texinfo 5.2. The latter two components are optional and can be ommitted when choosing "custom install", they are only needed if you want to use the `tcltk` R package or build package documentation from sources.

Updated 2019/12/15: A notarization has been added to the installer package to simplify installation on macOS Catalina (the payload is identical). See above for the current checksum with size 81,045,295. The previous package was signed but not notarized and had a SHA1 checksum of 4a38acac6341a06770d1fedad127df086d9aaf82 and size 81,042,225. (Thanks to Bob Rudis for support and testing!)

Note: the use of X11 (including `tcltk`) requires XQuartz to be installed since it is no longer part of OS X. Always re-install XQuartz when upgrading your macOS to a new major version.

Step 2: Installing RStudio

Next, you need to install RStudio, a user interface for R that makes R programming more convenient and easier. To install RStudio, navigate to https://rstudio.com/products/rstudio/download/ and click on "Download" underneath the RStudio Desktop (Free version). It is worth noting that installing RStudio needs to be done after you successfully installed R (following Step 1).

Click on the installer suggested by the website or select from the list based on your operating system. Follow the instructions on the installer and finish RStudio installation on your system.

OS	Download	Size	SHA-256
Windows 10/8/7	⬇ RStudio-1.2.5033.exe	149.83 MB	7fd3bc1b
macOS 10.12+	⬇ RStudio-1.2.5033.dmg	126.89 MB	b67c9875
Ubuntu 14/Debian 8	⬇ rstudio-1.2.5033-amd64.deb	96.18 MB	89dc2e22
Ubuntu 16	⬇ rstudio-1.2.5033-amd64.deb	104.14 MB	a1591ed7
Ubuntu 18/Debian 10	⬇ rstudio-1.2.5033-amd64.deb	105.21 MB	08eaa295
Fedora 19/Red Hat 7	⬇ rstudio-1.2.5033-x86_64.rpm	120.23 MB	38cf43c6
Fedora 28/Red Hat 8	⬇ rstudio-1.2.5033-x86_64.rpm	120.87 MB	452bc0d0
Debian 9	⬇ rstudio-1.2.5033-amd64.deb	105.45 MB	27c59722
SLES/OpenSUSE 12	⬇ rstudio-1.2.5033-x86_64.rpm	98.87 MB	9c1e200c
OpenSUSE 15	⬇ rstudio-1.2.5033-x86_64.rpm	106.91 MB	98fd2258

Possible Resources

If you are curious and want to try R programming, here are some additional resources that you can go through:

1. Swirl: Swirl is an interactive R package that helps beginners to learn R programming and data science through a fun way. You can install swirl package in your RStudio by following the instructions on https://swirlstats.com/students.html. By Swirl, you can work through short lessons to start writing R codes!
2. Datacamp free course for R: you can find "Introduction to R" course (https://www.datacamp.com/courses/free-introduction-to-r) on Datacamp. You can work through the first lesson "Intro to basics" (free lesson) to get better prepared for R.
3. Udacity video on touring RStudio: if it is your first time using RStudio, there is a helpful Youtube video by Udacity on the layout and functions on RStudio, which may help you better familiarize the interface, Check this out at: https://www.youtube.com/watch?v=5ZbjUEg4a1g
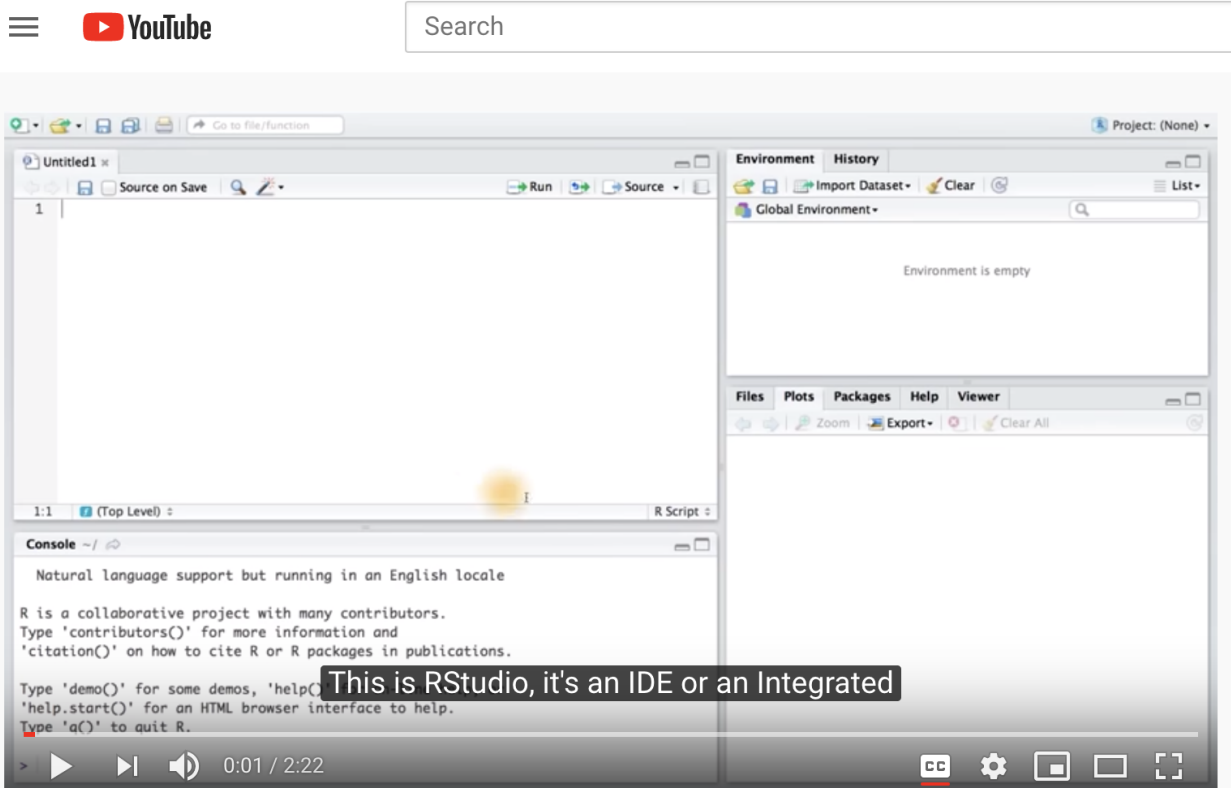
RStudio Layout - Data Analysis with R