



Economics of Financial Crisis
Yaprak Tavman
Introduction to R, RStudio, and ggplot

If you would like to install R and RStudio on your own machine, below are instructions.

Downloading R

Helpful installation videos:


PC: <https://www.youtube.com/watch?v=9-RrkJQQYqY>

Mac: <https://www.youtube.com/watch?v=5-ly3kyxwEg>

1. Download R <https://archive.linux.duke.edu/cran/index.html>

- a. **PC users:**

- i. Choose the “Download R for Windows” option



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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](#) (Debian, Fedora/Redhat, Ubuntu)
- [Download R for macOS](#)
- [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 (2021-05-18, Camp Pontanezen) [R-4.1.0.tar.gz](#), read [what's new](#) in the latest version.

- ii. Click the “base” option

Slides and handouts available at:

<http://bit.ly/diti-fall2021-tavman>

Developed by: Tieanna Graphenreed, DITI Fellow and Colleen Nugent, DITI Fellow

Taught by: Tieanna Graphenreed, DITI Fellow and Colleen Nugent, DITI Fellow

Questions? Contact us: nulab@northeastern.edu



R for Windows

Subdirectories:

[base](#)
[contrib](#)
[old.contrib](#)
[Rtools](#)

Binaries for base distribution. This is what you want to [install R for the first time](#).
Binaries of contributed CRAN packages (for R \geq 2.13.x; managed by Uwe Ligges). There is also information on [third party software](#) available for CRAN Windows services and corresponding environment and make variables.
Binaries of contributed CRAN packages for outdated versions of R (for R $<$ 2.13.x; managed by Uwe Ligges).
Tools to build R and R packages. This is what you want to build your own packages on Windows, or to build R itself.

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

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

Note: CRAN does some checks on these binaries for viruses, but cannot give guarantees. Use the normal precautions with downloaded executables.

iii. Click “Download R 4.1.0 for Windows”



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R-4.1.0 for Windows (32/64 bit)

[Download R 4.1.0 for Windows](#) (86 megabytes, 32/64 bit)

[Installation and other instructions](#)
[New features in this version](#)

If you want to double-check that the package you have downloaded matches the package distributed by CRAN, you can compare the [md5sum](#) of the .exe to the [fingerprint](#) on the master server. You will need a version of md5sum for windows: both [graphical](#) and [command line versions](#) are available.

iv. Then go back to the above link, click “Rtools” instead of “base”

R for Windows

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v. Click on the recommended version to download.

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Installing Rtools40

Note that rtools40 is only needed build R packages with C/C++/Fortran code from source. By default, R for Windows installs the precompiled “binary packages” from CRAN, for which you do not need rtools!


To use rtools40, download the installer from CRAN:

- On Windows 64-bit: [rtools40v2-x86_64.exe](#) (recommended: includes i386, x64, and x64-ucrt compilers)
- On Windows 32-bit: [rtools40-i686.exe](#) (i386 compilers only)

Note for RStudio users: please check you are using a recent version of RStudio (at least 1.2.5042) to work with rtools40.

b. Mac users:

- Choose the “Download R for Mac OS” option



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- The latest release (2021-05-18, Camp Pontanezen) [R-4.1.0.tar.gz](#), read [what's new](#) in the latest version.

- install the **latest release package best-suited for your system** (High Sierra or Big Sur)

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Latest release:

[R-4.1.0.pkg](#) (notarized and signed)
SHA1-
hash: df4d6fc17bbf6b7a27d4e015c0084d4bb6f7b428
(ca. 87MB)

R 4.1.0 binary for macOS 10.13 (**High Sierra**) and higher, **Intel 64-bit** build, signed and notarized package.
Contains R 4.1.0 framework, R.app GUI 1.76 in 64-bit for Intel Macs, Tcl/Tk 8.6.6 X11 libraries and Texinfo 6.7. The latter two components are optional and can be omitted when choosing "custom install", they are only needed if you want to use the `tcltk` R package or build package documentation from sources.

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.

This release supports Intel Macs, but it is also known to work using Rosetta2 on M1-based Macs. For native Apple silicon arm64 binary see below.

Important: this release uses Xcode 12.4 and GNU Fortran 8.2. If you wish to compile R packages from sources, you may need to download GNU Fortran 8.2 - see the [tools](#) directory.

[R-4.1.0-arm64.pkg](#) (notarized and signed)
SHA1-
hash: 7354c1b249cab9baf6a6ae67c73563303a05fa17
(ca. 88MB)

R 4.1.0 binary for macOS 11 (**Big Sur**) and higher, **Apple silicon arm64** build, signed and notarized package.

Contains R 4.1.0 framework, R.app GUI 1.76 for Apple silicon Macs (M1 and higher), Tcl/Tk 8.6.11 X11 libraries and Texinfo 6.7.

Important: this version does NOT work on older Intel-based Macs.

Note: the use of X11 (including `tcltk`) requires [XQuartz](#). Always re-install XQuartz when upgrading your macOS to a new major version.

This release uses Xcode 12.4 and experimental GNU Fortran 11 arm64 fork. If you wish to compile R packages from sources, you may need to download GNU Fortran for arm64 from <https://mac.R-project.org/libs-arm64>. Any external libraries and tools are expected to live in `/opt/R/arm64` to not conflict with Intel-based software and this build will not use `/usr/local` to avoid such conflicts.

2. **PC and Mac-** Download R Studio:

<https://www.rstudio.com/products/rstudio/download/>

- a. Scroll down to the "Installers for Supported Platforms" and choose which installer you will need for your computer

Slides and handouts available at:

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Linux users may need to import a custom GPG key prior to installation, depending on the operating system's security policy.

RStudio 1.2 requires a 64-bit operating system, and works exclusively with the 64 bit version of R. If you are on a 32 bit system or need the 32 bit version of R, you can use an older version of RStudio.

Installers for Supported Platforms

Installers	Size	Date	MD5
RStudio 1.2.1335 - Windows 7+ (64-bit)	126.9 MB	2019-04-08	d0e2470f1f8ef4cd35a669aa323a2136
RStudio 1.2.1335 - macOS 10.12+ (64-bit)	121.1 MB	2019-04-08	6c570b0e2144583f7c48c284ce299eef
RStudio 1.2.1335 - Ubuntu 14/Debian 8 (64-bit)	92.2 MB	2019-04-08	c1b07d0511469abfe582919b183eee83
RStudio 1.2.1335 - Ubuntu 16 (64-bit)	99.3 MB	2019-04-08	c142d69c210257fb10d18c045fff13c7
RStudio 1.2.1335 - Ubuntu 18/Debian 10 (64-bit)	100.4 MB	2019-04-08	71a8d1990c0d97939804b46cfb0aa75
RStudio 1.2.1335 - Fedora 19/RedHat 7 (64-bit)	114.1 MB	2019-04-08	296b6ef88969a91297fab6545f256a7a
RStudio 1.2.1335 - Debian 9 (64-bit)	100.6 MB	2019-04-08	1e32d4d6f6e216f006a81ca82ef65a91
RStudio 1.2.1335 - OpenSUSE 15 (64-bit)	101.6 MB	2019-04-08	2795a63c7efd8e2aa2dae86ba09a81e5
RStudio 1.2.1335 - SLES/OpenSUSE 12 (64-bit)	94.4 MB	2019-04-08	c65424b06ef6737279d982db9eefcae1

Zip/Tarballs

Zip/tar archives	Size	Date	MD5
RStudio 1.2.1335 - Windows 7+ (64-bit)	186.6 MB	2019-04-08	f1e013ade0c241969400507cf258e0ad
RStudio 1.2.1335 - Ubuntu 14/Debian 8 (64-bit)	137.6 MB	2019-04-08	e3e1ea2dd113fd9cf640bc5035effdde

3. **PC and Mac-** Go through the setups of the R and R Studio download until you are finished with both! (The videos walk you through each window of each setup box - you don't need to adjust any settings for each)

Downloading ggplot2

R packages page <https://www.rstudio.com/products/rpackages/>
Click ggplot2. Click project site link (<https://ggplot2.tidyverse.org>)

R vs. RStudio vs. R Markdown vs. R Notebooks

R: The basic software environment to run the R programming language. You can Use R without having to download RStudio.

RStudio: An integrated development environment (IDE) [read: easier user interface] for programming, usually R. You need to download R to use RStudio (but recently other languages could be used for RStudio, too).

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R Markdown: A file format for making dynamic documents with R. An R Markdown document is written in markdown (an easy-to-write plain text format) and contains chunks of embedded R code

R Notebooks: An R Markdown document with chunks that can be executed independently and interactively, with output visible immediately beneath the input.

Saving

Be sure to have a comprehensive setup of your data. Make sure there is an R Projects folder saved somewhere you can find it, holding all of the projects you work on using R. Be clear with how you name your subfolders and datafiles, as you will have to find them later when setting up your working directory in RStudio.

ggplot2

ggplot2 is an open-source data visualization package meant for use with the programming language R. The software is free to download and install on personal computers.

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