

Installing R and RStudio (written by Dr. Martin Calvino)

R is a software environment for statistical computing and graphics. It is widely used in data science. **RStudio** is an Integrated Development Environment (IDE) that facilitates working with R because it provides a code editor, debugging features, and visualization tools.

R must be installed prior to RStudio

Installing R

R is open source and thus freely available. Please go to <http://cran.wustl.edu> and select the link according to your computer's operating system:



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 (2022-03-10, One Push-Up) [R-4.1.3.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](#)

Questions About R

- 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.

What are R and CRAN?

R is "GNU S", a freely available language and environment for statistical computing and graphics which provides a wide variety of statistical and graphical techniques: linear and nonlinear modelling, statistical tests, time series analysis, classification, clustering, etc. Please consult the [R project homepage](#) for further information.

CRAN is a network of ftp and web servers around the world that store identical, up-to-date, versions of code and documentation for R. Please use the CRAN [mirror](#) nearest to you to minimize network load.

Submitting to CRAN

To "submit" a package to CRAN, check that your submission meets the [CRAN Repository Policy](#) and then use the [web form](#).

If this fails, send an email to CRAN-submissions@R-project.org following the policy. Please do not attach submissions to emails, because this will clutter up the mailboxes of half a dozen people.

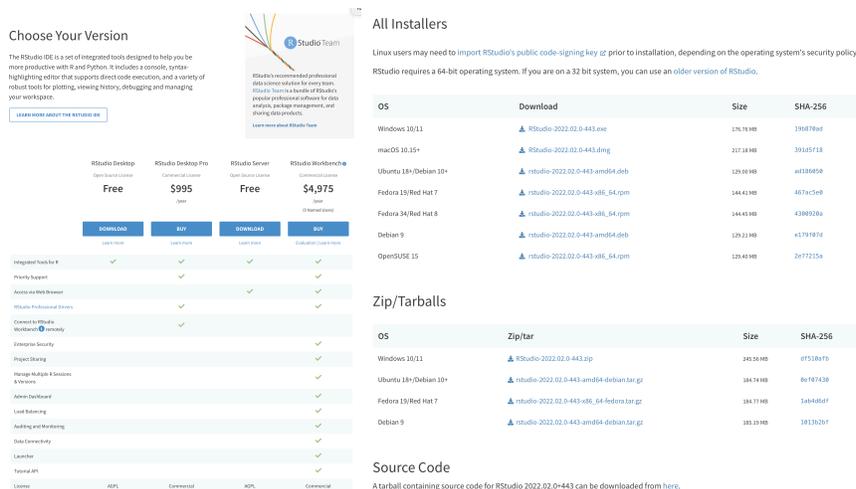
Note that we generally do not accept submissions of precompiled binaries due to security reasons. All binary distribution listed above are compiled by selected maintainers, who are in charge for all binaries of their platform, respectively.

For queries about this web site, please contact [the webmaster](#).

Once the download is complete, run the installer to open the **R Setup Wizard** and follow the instructions.

Installing RStudio

Please go to <https://www.rstudio.com/products/rstudio/download/> and download the RStudio Desktop version (which is FREE) corresponding to your computer's operating system:



Choose Your Version

The RStudio IDE is a set of integrated tools designed to help you be more productive with R and Python. It includes a console, syntax-highlighting editor that supports direct code execution, and a variety of robust tools for plotting, viewing history, debugging and managing your workflow.

[LEARN MORE ABOUT THE RSTUDIO IDE](#)

Feature	RStudio Desktop	RStudio Desktop Pro	RStudio Server	RStudio Workbench
Integrated Tools for R	✓	✓	✓	✓
Priority Support	✓	✓	✓	✓
Access to Web Browser	✓	✓	✓	✓
RStudio Professional Drivers	✓	✓	✓	✓
Connect to RStudio Workbench	✓	✓	✓	✓
Control Security	✓	✓	✓	✓
Project Cloning	✓	✓	✓	✓
Manage Multiple R Sessions & Versions	✓	✓	✓	✓
Admin Dashboard	✓	✓	✓	✓
Local Balancing	✓	✓	✓	✓
Autobuild and Monitoring	✓	✓	✓	✓
Data Connection	✓	✓	✓	✓
Cluster	✓	✓	✓	✓
Terminal	✓	✓	✓	✓
License	AGPL	Commercial	AGPL	Commercial

All Installers

Linux users may need to import RStudio's public code-signing key [prior to installation](#), depending on the operating system's security policy. RStudio requires a 64-bit operating system. If you are on a 32-bit system, you can use an [older version of RStudio](#).

OS	Download	Size	SHA-256
Windows 10/11	RStudio-2022.02.0-443.exe	176.78 MB	196878ad
macOS 10.15+	RStudio-2022.02.0-443.dmg	227.28 MB	39165f18
Ubuntu 18+/Debian 10+	rstudio-2022.02.0-443-amd64.deb	129.80 MB	ad180959
Fedora 19/Red Hat 7	rstudio-2022.02.0-443-x86_64.rpm	144.43 MB	467ac5e9
Fedora 34/Red Hat 8	rstudio-2022.02.0-443-x86_64.rpm	144.43 MB	4380928a
Debian 9	rstudio-2022.02.0-443-amd64.deb	129.21 MB	e179187d
OpenSUSE 15	rstudio-2022.02.0-443-x86_64.rpm	128.40 MB	2e77235a

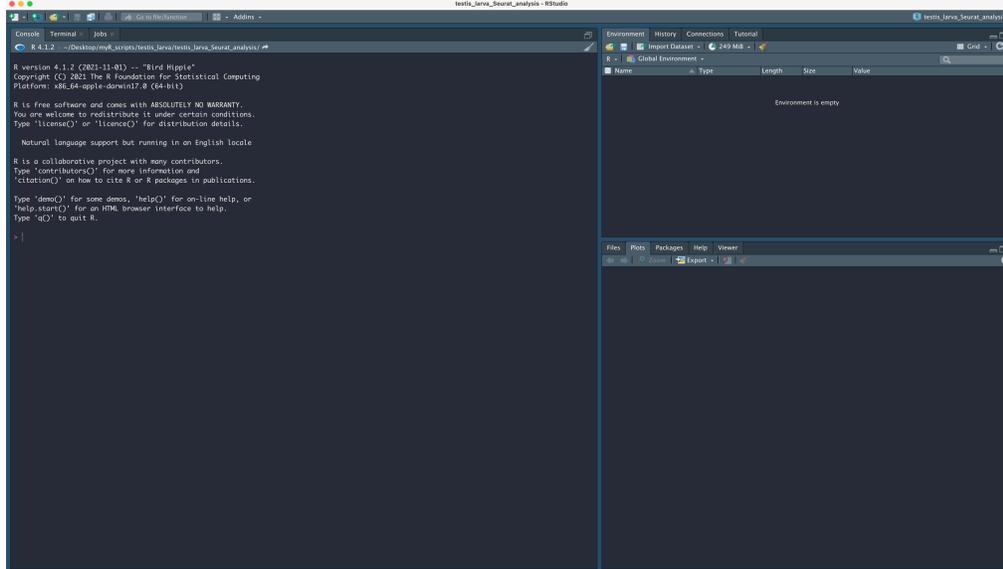
Zip/Tarballs

OS	Zip/tar	Size	SHA-256
Windows 10/11	RStudio-2022.02.0-443.zip	245.36 MB	d1538a7d
Ubuntu 18+/Debian 10+	rstudio-2022.02.0-443-amd64-debian.tar.gz	184.74 MB	6e197439
Fedora 19/Red Hat 7	rstudio-2022.02.0-443-x86_64-fedora.tar.gz	184.77 MB	1a6486df
Debian 9	rstudio-2022.02.0-443-amd64-debian.tar.gz	185.19 MB	1813820f

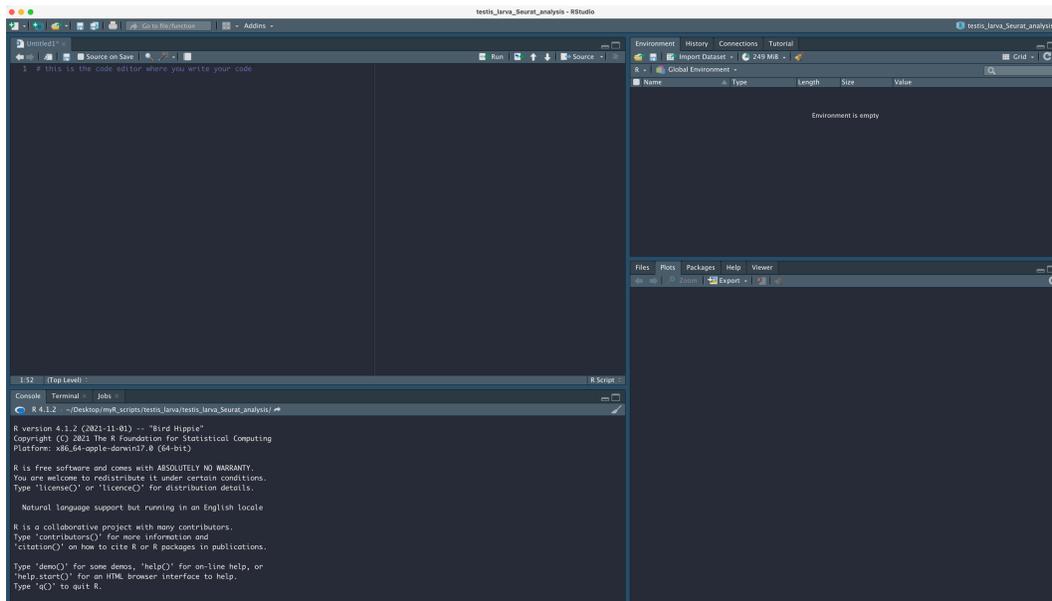
Source Code

A tarball containing source code for RStudio 2022.02.0-443 can be downloaded from [here](#).

When the download is complete, run the installer and follow instructions. When your installation is complete, **launch RStudio** and you will encounter a GUI (Graphical User Interface) with three panes; the *console* (positioned left), the *workspace* (positioned top-right) and the *notebook* (positioned bottom-right):



The *code editor* pane (where you will write your code) becomes visible (as the top-left pane) when you select **File, New File, RScript** on the menu bar. The default layout positions for the panes is shown below:



You will encounter the default 'white appearance' of the RStudio GUI, you can customize it by setting its features.

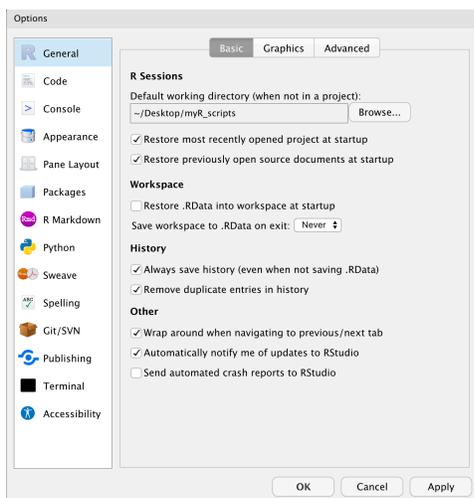
Setting Preferences in RStudio: Work Organization and Management

It is important to keep yourself organized when working in RStudio. Keeping your R scripts and data files in the same folder is a good practice. You will set the preferences of RStudio in a way that will help you achieve a good work ethic.

On your desktop, create a folder named **myR_scripts**

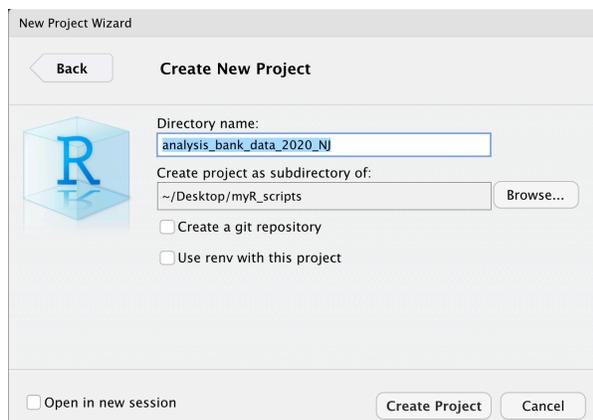
Select **Tools, Global Options** to open the *Options Dialog*. You can do the same by selecting **RStudio, Preferences**. Keep the *Options Dialog* window open for now.

Set up your recently created **myR_scripts** folder/directory as your default working directory by selecting **General** from the *Options Dialog* window under the title **R Sessions**. Subsequently, under the title **Workspace**, uncheck the box indicating 'Restore .RData into workspace at startup' and select **Never** as the option to 'Save workspace to .RData on exit':



Click on the **Apply** button at the bottom-right of the *Options Dialog* window. You are all set!

R practitioners keep all the files associated with a project together (input data, R scripts, analytical results, and figures). RStudio enable this approach via **Projects**. Select **File, New Project** then **New Directory** and finally **Empty Project / New Project**. When the *New Project Wizard* window appears write **analysis_bank_data_2020_NJ** as directory name and select **myR_scripts** as subdirectory:

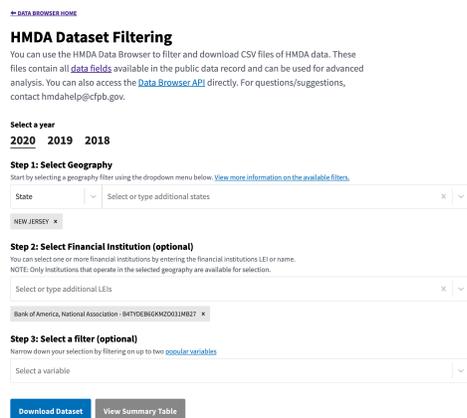


Select **Create Project** and a new R session will open. You are all set!

DOWNLOAD dataset

We will learn and practice our data science skills by analyzing a dataset composed of home mortgage applications for the state of New Jersey for the year 2020. We will focus on Bank of America only. You will download this dataset from the following link:

<https://ffiec.cfpb.gov/data-browser/data/2020?category=states&items=NJ&leis=B4TYDEB6GKMZO031MB27>



Place your recently downloaded dataset (it is a .csv file named *state_NJ_lei_B4TYDEB6GKMZO031MB27.csv*) inside the folder **analysis_bank_data_2020_NJ** you created earlier. This folder is within the folder named **myR_scripts** you had created. You are all set!