

# DS 2001: R and RStudio Installation

## Introduction

Welcome to DS 2001: Programming for Data Science!

Note that, for now, I assume students have a laptop or desktop computer on which they can install programs. We will be installing R and RStudio. This should all work on a Mac or Windows machine.

Let's get started!

## 1. Getting your environment ready

**R** is an open source statistical analysis/computing environment. **R**'s rapid growth in use places it among the most [popular statistical analysis software](#). Much of **R**'s popularity stems from it being open source (and free!) together with its extensible nature. As a programming language, **R** has become prominent in recent years as a tool for performing high level analytics. As a programming language, **R** has begun borrowing many tools from the programming world. One of the most prominent among them is [R Studio](#), a free, open source and user-friendly [integrated development environment \(IDE\)](#). An integrated development environment is a tool designed specifically for developing code and analyses using a computer language. In the case of RStudio, the environment is specifically designed for developing "data products" using **R**.

For this mini course, we'll be using RStudio for creating open and re-usable code for statistical analysis. You'll need to:

- Install [R for Windows](#) and [R for Mac](#)
- Install [RStudio](#) on your computer.

## 2. Install R

- i. Click link: [R for Windows \(or R for Mac\)](#) [download most recent R]
- ii. Click download -> Click Save

Note that the most recent R version may be different.

For Windows:

The screenshot shows the R project website for Windows. At the top, it says "R-4.0.0 for Windows (32/64 bit)". Below this, there are links for "Download R 4.0.0 for Windows (84 megabytes, 32/64 bit)", "Installation and other instructions", and "New features in this version". A red arrow points to the download link with the text "1. Click download". Below the links, there is a paragraph about double-checking the package using md5sum. Further down, there is a section for "Frequently asked questions" and a link to the "R FAQ". Below that, there is a section for "other builds" with links to "r-patched snapshot build", "r-devel snapshot build", and "Previous releases". At the bottom, there is a note to webmasters and a "Last change: 2020-04-24" timestamp. A red arrow points to the "Save" button in a dialog box with the text "2. Click save".

Download R 4.0.0 for Windows (84 megabytes, 32/64 bit) 1. Click download

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.

Frequently asked questions

- [Does R run under my version of Windows?](#)
- [How do I update packages in my previous version of R?](#)
- [Should I run 32-bit or 64-bit R?](#)

Please see the [R FAQ](#) for general information about R and the [R Windows FAQ](#) for Windows-specific information.

other builds

- Patches to this release are incorporated in the [r-patched snapshot build](#).
- A build of the development version (which will eventually become the next major release of R) is available in the [r-devel snapshot build](#).
- [Previous releases](#)

Note to webmasters: A stable link which will redirect to the current Windows binary release is [<CRAN MIRROR>/bin/windows/base/release.htm](#).

Last change: 2020-04-24

What do you want to do with R-4.0.0-win.exe (83.5 MB)?  
From: cran.r-project.org

Run Save ^ Cancel X

For Mac:

The screenshot shows the R project website for Mac OS X. At the top, it says "R for Mac OS X". Below this, there is a paragraph about the directory containing binaries for Mac OS X. Further down, there is a section for "Important" with links to "NEWS (for Mac GUI)", "Mac-GUI-1.70.tar.gz", and "Previous R versions for El Capitan". A red arrow points to the "Mac-GUI-1.70.tar.gz" link with the text "1. Click link". Below the links, there is a paragraph about the MD5 checksum of the downloaded image. Further down, there is a section for "Binaries for legacy OS X systems:" with links to "R-3.6.3.pkg (signed)", "R-3.3.3.pkg", and "R-3.2.1-snowleopard.pkg". A red arrow points to the "R-3.6.3.pkg (signed)" link with the text "2. Click downloaded pkg". Below the links, there is a paragraph about the use of X11. At the bottom, there is a section for "Binaries for legacy OS X systems:" with links to "R-3.6.3.pkg (signed)", "R-3.3.3.pkg", and "R-3.2.1-snowleopard.pkg". A red arrow points to the "Continue" button in the installer window with the text "3. Click continue".

R for Mac OS X

This directory contains binaries for a base distribution and packages to run on Mac OS X (release 10.6 and above). Mac OS 8.6 to 9.2 (and Mac OS X 10.1) are no longer supported but you can find the last supported releases for old Mac OS X systems (through Mac OS X 10.5) and PowerPC Macs can be found in the [old](#) directory.

Note: CRAN does not have Mac OS X systems and cannot check these binaries for viruses. Although we take precautions when assembling binaries, please use the normal precautions with downloaded executables.

Package binaries for R versions older than 3.2.0 are only available from the [CRAN archive](#) so users of such versions should adjust the CRAN mirror setting (<https://cran-archive.r-project.org>) accordingly.

Please check the MD5 checksum of the downloaded image to ensure that it has not been corrupted. In the *Terminal* application to print the MD5 checksum for the R-4.0.0.pkg image:

```
md5 R-4.0.0.pkg  
pgutil --check-signature R-4.0.0.pkg
```

R-4.0.0.pkg (notarized and signed)  
SHA1 hash: 9f3a9a0d7726411302468a48846a5a1641  
(ca. 84MB)

1. Click link

NEWS (for Mac GUI)  
Mac-GUI-1.70.tar.gz  
MD5 hash: 31a1c528533464669b22965a88808

Note: Previous R versions for El Capitan can be found in the [el-capitan/base](#) directory.

Binaries for legacy OS X systems:

R-3.6.3.pkg (signed)  
SHA1 hash: c46259b19b45d778959b8ba25d9123b35514  
(ca. 77MB)

R-3.3.3.pkg  
MD5 hash: 893ba10f030466c1986a4800f18f  
SHA1 hash: 5a71a000815805953b08c49972a51cc58027  
(ca. 71MB)

R-3.2.1-snowleopard.pkg  
MD5 hash: 501a911143123270707c0114095

R-3.6.3 binary for OS X 10.11 (El Capitan) and higher, signed package. Contains R 3.6.3 framework, Rapp GUI 1.70 in 64-bit for Intel Macs, Tcl/Tk 8.6.6 X11 libraries and Texpinfo 5.2. 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.

R-3.3.3 binary for Mac OS X 10.9 (Mavericks) and higher, signed package. Contains R 3.3.3 framework, Rapp GUI 1.69 in 64-bit for Intel Macs, Tcl/Tk 8.6.0 X11 libraries and Texpinfo 5.2. The latter two components are optional and can be omitted when choosing "custom install", it is 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 OS X to a new major version.

R-3.2.1 legacy binary for Mac OS X 10.6 (Snow Leopard) - 10.8 (Mountain Lion), signed package. Contains R 3.2.1 framework, Rapp GUI 1.66 in 64-bit for Intel Macs, Tcl/Tk 8.6.6 X11 libraries and Texpinfo 5.2. 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.

2. Click downloaded pkg

3. Click continue

- iii. Click view downloads (or go to downloads folder) and click R-4.0.0-win.exe

**R-4.0.0 for Windows (32/64 bit)**

[Download R 4.0.0 for Windows](#) (84 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.

**Frequently asked questions**

- [Does R run under my version of Windows?](#)
- [How do I update packages in my previous version of R?](#)
- [Should I run 32-bit or 64-bit R?](#)

Please see the [R FAQ](#) for general information about R and the [R Windows FAQ](#) for Windows-specific information.

**Other builds**

- Patches to this release are incorporated in the [r-patched snapshot build](#).
- A build of the development version (which will eventually become the next major release of R) is available in the [r-devel snapshot build](#).
- [Previous releases](#)

Note to webmasters: A stable link which will redirect to the current Windows binary release is [<CRAN MIRROR>/bin/windows/base/release.htm](#).

Last change: 2020-04-24

R-4.0.0-win.exe finished downloading. Run Open folder View downloads ×

3. Click view downloads

**R-4.0.0 for Windows (32/64 bit)**

[Download R 4.0.0 for Windows](#) (84 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.

**Frequently asked questions**

- [Does R run under my version of Windows?](#)
- [How do I update packages in my previous version of R?](#)
- [Should I run 32-bit or 64-bit R?](#)

Please see the [R FAQ](#) for general information about R and the [R Windows FAQ](#) for Windows-specific information.

**Other builds**

- Patches to this release are incorporated in the [r-patched snapshot build](#).
- A build of the development version (which will eventually become the next major release of R) is available in the [r-devel snapshot build](#).
- [Previous releases](#)

Note to webmasters: A stable link which will redirect to the current Windows binary release is [<CRAN MIRROR>/bin/windows/base/release.htm](#).

Last change: 2020-04-24

**Downloads** Open folder +

Past downloads Clear all

R-4.0.0-win.exe  
cran.r-project.org

- iv. Follow the instructions that appear on your screen for both Windows and Mac

### 3. Install RStudio

- i. Click link: [RStudio](#)
- ii. Click FREE download

Download RStudio

Choose Your Version

RStudio is a set of integrated tools designed to help you be more productive with R. 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 workspace.

[LEARN MORE ABOUT RSTUDIO FEATURES](#)

RStudio Team

RStudio's new solution for every professional data science team. RStudio Team includes RStudio Server Pro, RStudio Connect and RStudio Package Manager.

[LEARN MORE](#)

Product	License	Price	Action
RStudio Desktop	Open Source License	Free	<a href="#">DOWNLOAD</a>
RStudio Desktop	Commercial License	\$995 /year	<a href="#">BUY</a>
RStudio Server	Open Source License	Free	<a href="#">DOWNLOAD</a>
RStudio Server Pro	Commercial License	\$4,975 /year (5 Named Users)	<a href="#">BUY</a>

- iii. Click Windows or MacOS link -> Click Save

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 1.2 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 10/8/7	<a href="#">RStudio-1.3.959.exe</a>	171.41 MB	3d493ae5
macOS 10.13+	<a href="#">RStudio-1.3.959.dmg</a>	148.57 MB	7c5b695d
Ubuntu 16	<a href="#">rstudio-1.3.959-amd64.d</a>	124.57 MB	c2931495
Ubuntu 18/Debian 10	<a href="#">rstudio-1.3.959-amd64.d</a>	126.11 MB	411ab500
Fedora 19/Red Hat 7	<a href="#">rstudio-1.3.959-x86_64.rpm</a>	146.24 MB	a144e4e6
Fedora 28/Red Hat 8	<a href="#">rstudio-1.3.959-x86_64.rpm</a>	150.32 MB	57169bee
Debian 9	<a href="#">rstudio-1.3.959-amd64.deb</a>	126.42 MB	b2d9366f
SLES/OpenSUSE 12	<a href="#">rstudio-1.3.959-x86_64.rpm</a>	119.02 MB	bbc9387e
OpenSUSE 15	<a href="#">rstudio-1.3.959-x86_64.rpm</a>	127.59 MB	a4f404f0

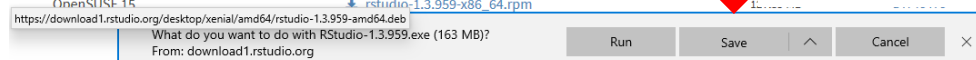
## All Installers

Linux users may need to [import RStudio's public code-signing key](#) prior to installation, depending on the operating system's security policy.

RStudio 1.2 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 10/8/7	📄 RStudio-1.3.959.exe	171.41 MB	3d493ae5
macOS 10.13+	📄 RStudio-1.3.959.dmg	148.57 MB	7c5b695d
Ubuntu 16	📄 rstudio-1.3.959-amd64.deb	124.57 MB	c2931495
Ubuntu 18/Debian 10	📄 rstudio-1.3.959-amd64.deb	126.11 MB	411ab500
Fedora 19/Red Hat 7	📄 rstudio-1.3.959-x86_64.rpm	146.24 MB	a144e4e6
Fedora 28/Red Hat 8	📄 rstudio-1.3.959-x86_64.rpm	150.32 MB	57169bee
Debian 9	📄 rstudio-1.3.959-amd64.deb	126.42 MB	b2d9366f
SLES/OpenSUSE 12	📄 rstudio-1.3.959-x86_64.rpm		
OpenSUSE 15	📄 rstudio-1.3.959-x86_64.rpm		

1  
3. Click save



iv. Click view downloads (or go to the downloads folder) and click RStudio-1.3.959.exe

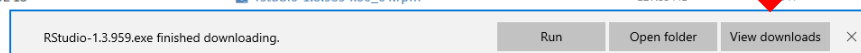
## All Installers

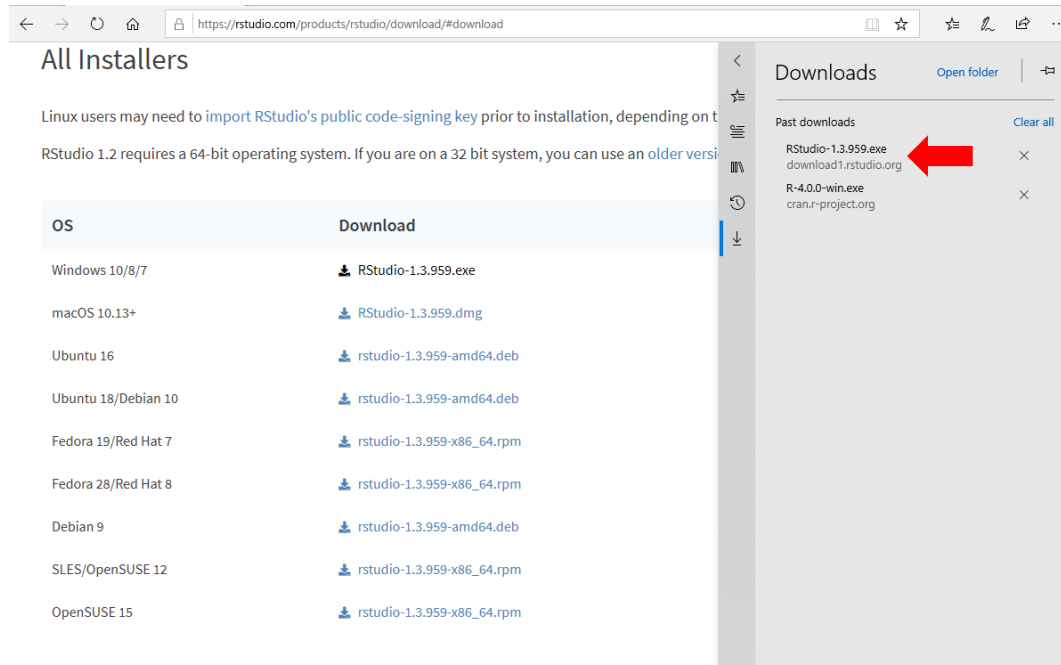
Linux users may need to [import RStudio's public code-signing key](#) prior to installation, depending on the operating system's security policy.

RStudio 1.2 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 10/8/7	📄 RStudio-1.3.959.exe	171.41 MB	3d493ae5
macOS 10.13+	📄 RStudio-1.3.959.dmg	148.57 MB	7c5b695d
Ubuntu 16	📄 rstudio-1.3.959-amd64.deb	124.57 MB	c2931495
Ubuntu 18/Debian 10	📄 rstudio-1.3.959-amd64.deb	126.11 MB	411ab500
Fedora 19/Red Hat 7	📄 rstudio-1.3.959-x86_64.rpm	146.24 MB	a144e4e6
Fedora 28/Red Hat 8	📄 rstudio-1.3.959-x86_64.rpm	150.32 MB	57169bee
Debian 9	📄 rstudio-1.3.959-amd64.deb	126.42 MB	b2d9366f
SLES/OpenSUSE 12	📄 rstudio-1.3.959-x86_64.rpm	119.02 MB	
OpenSUSE 15	📄 rstudio-1.3.959-x86_64.rpm	127.59 MB	

4. Click view downloads





- v. Follow the instructions that appear on your screen