

# R and R Studio Installation

UEB - VHIR

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# 1. Install R

Go to the R Project web page: <https://cran.r-project.org/>

## 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.

Select the file to download depending on the operation system running in your computer

## If you select “Windows”



Subdirectories:

[base](#)

Binaries for base distribution. This is what you want to [install R for the first time](#).

[contrib](#)

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.

[old contrib](#)

Binaries of contributed CRAN packages for outdated versions of R (for R  $<$  2.13.x; managed by Uwe Ligges).

[Rtools](#)

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.

If you select “Windows”

R-4.0.2 FOR WINDOWS (32/64 BIT)



[Download R 4.0.2 for Windows](#) (84 megabytes, 32/64 bit)

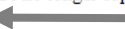
[Installation and other instructions](#)

[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.

## If you select “Mac” OS X

### 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 release of R for these systems (which is R 1.7.1) [here](#). Releases for old Mac OS X systems (through Mac OS X 10.5) and PowerPC Macs can be found in the [old](#) directory.  **For older macOS versions**

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.

### R 4.0.2 "Taking Off Again" released on 2020/06/22

Please check the MD5 checksum of the downloaded image to ensure that it has not been tampered with or corrupted during the mirroring process. For example type

```
md5 R-4.0.2.pkg
```

in the *Terminal* application to print the MD5 checksum for the R-4.0.2.pkg image. On Mac OS X 10.7 and later you can also validate the signature using

```
pkgutil --check-signature R-4.0.2.pkg
```

### Latest release:

[R-4.0.2.pkg](#) (notarized and signed)  
SHA1-hash: 7e4e1f0d407ccd475eaeadd96a126ee9c83db3b  
(ca. 84MB)

**R 4.0.2** binary for macOS 10.13 (High Sierra) and higher, signed and notarized package. Contains R 4.0.0 framework, R.app GUI 1.72 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.

**Important:** this release uses Xcode 10.1 and GNU Fortran 8.2. If you wish to compile R packages from sources, you will need to download and GNU Fortran 8.2 - see the [tools](#) directory.

News features and changes in the R.app Mac GUI

Sources for the R.app GUI 1.72 for Mac OS X. This file is only needed if you want to join the development of the GUI, it is not intended for regular users. Read the `INSTALL` file for further instructions.

[NEWS](#) (for Mac GUI)

[Mac-GUI-1.72.tar.gz](#)

SHA1-hash: 27d145e55d147a2bd27ba791840a4801cd9e1713

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



**For latest macOS versions**



If you select “Linux”

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- [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.



Surely, you will have already installed R in your computer. You can open the console and type “R” and press “Enter” to check it

If you select “Linux”: Select your Linux distribution and follow the specific instructions in each case:













## Index of /bin/linux

Name	Last modified	Size	Description
 <a href="#">Parent Directory</a>		-	
 <a href="#">debian/</a>	2020-06-06 15:16	-	
 <a href="#">fedora/</a>	2020-07-07 14:57	-	
 <a href="#">redhat/</a>	2020-07-07 14:57	-	
 <a href="#">suse/</a>	2012-02-16 15:09	-	
 <a href="#">ubuntu/</a>	2020-09-21 03:08	-	

*Apache Server at cran.r-project.org Port 443*



## Index of /bin/linux/ubuntu

Name	Last modified	Size	Description
 <a href="#">Parent Directory</a>		-	
 <a href="#">README</a>	2020-04-29 20:09	9.5K	
 <a href="#">README.html</a>	2020-04-29 20:10	26K	
 <a href="#">bionic-cran35/</a>	2020-09-21 03:07	-	
 <a href="#">bionic-cran40/</a>	2020-09-21 03:08	-	
 <a href="#">eoan-cran35/</a>	2020-09-21 03:07	-	
 <a href="#">focal-cran40/</a>	2020-09-21 03:08	-	
 <a href="#">trusty-cran35/</a>	2020-09-21 03:05	-	
 <a href="#">trusty/</a>	2020-09-21 03:04	-	
 <a href="#">xenial-cran35/</a>	2020-09-21 03:06	-	
 <a href="#">xenial-cran40/</a>	2020-09-21 03:07	-	
 <a href="#">xenial/</a>	2020-09-21 03:05	-	

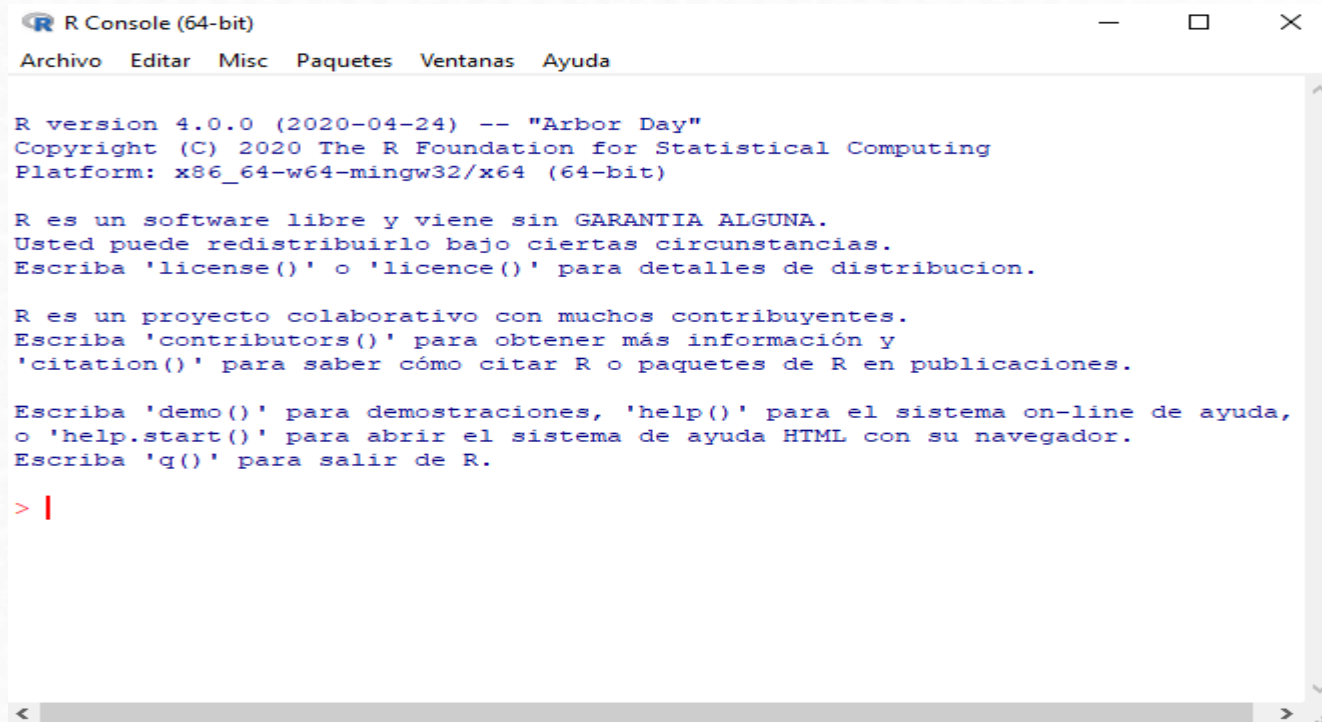
## UBUNTU PACKAGES FOR R

- [Installation](#)
- [Supported Packages](#)
- [Secure APT](#)
- [Administration and Maintanances of R Packages](#)
- [Pathways to R Packages](#)
- [Reporting Problems](#)
- [Acknowledgements](#)

R 4.0 packages for Ubuntu on i386 and amd64 are available for most stable Desktop releases of Ubuntu until their official end of life date. However, only the latest Long Term Support (LTS) release is fully supported. As of April 27, 2020 the supported releases are Xenial Xerus (16.04; LTS), Bionic Beaver and Focal Fossa (20.04, amd64 only). Note, to install R 4.0 packages, a different sources.list entry is needed. See below for details.

R 3.6 packages for Ubuntu on i386 and amd64 are available for most stable Desktop releases of Ubuntu until their official end of life date. However, only the latest Long Term Support (LTS) release is fully supported. As of November 18, 2018 the supported releases are Xenial Xerus (16.04; LTS), Trusty Tahr (14.04; LTS), Bionic Beaver (18.04; LTS), and Eoan Ermine (19.10). Note, to install R 3.6 packages, a different sources.list entry is needed. See below for details. Even though R has moved to version 3.6, for compatibility the sources list entry still uses the cran3.5 designation.

This is the aspect of R running in windows



```
R Console (64-bit)
Archivo  Editar  Misc  Paquetes  Ventanas  Ayuda

R version 4.0.0 (2020-04-24) -- "Arbor Day"
Copyright (C) 2020 The R Foundation for Statistical Computing
Platform: x86_64-w64-mingw32/x64 (64-bit)

R es un software libre y viene sin GARANTIA ALGUNA.
Usted puede redistribuirlo bajo ciertas circunstancias.
Escriba 'license()' o 'licence()' para detalles de distribucion.

R es un proyecto colaborativo con muchos contribuyentes.
Escriba 'contributors()' para obtener más información y
'citation()' para saber cómo citar R o paquetes de R en publicaciones.

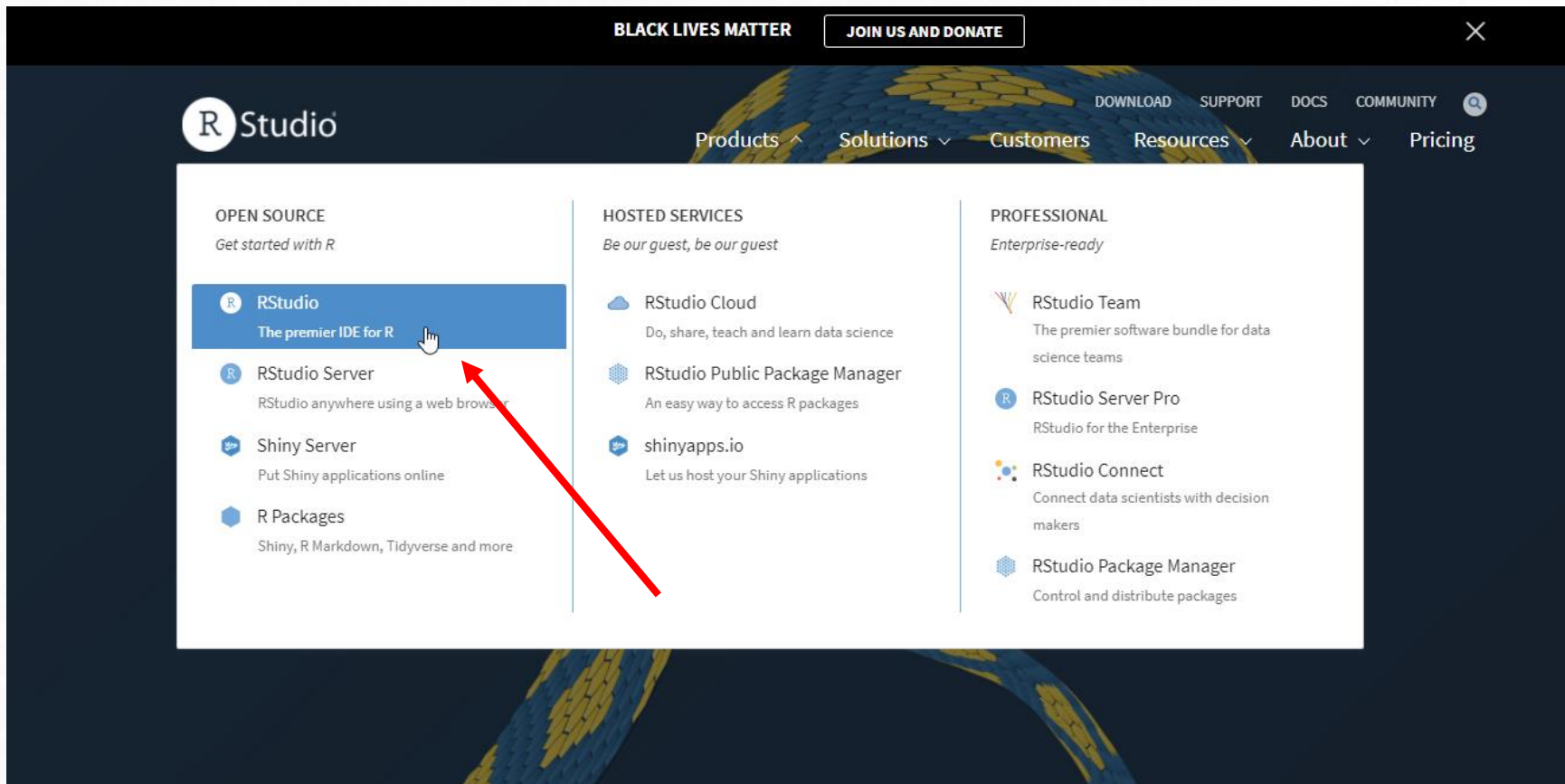
Escriba 'demo()' para demostraciones, 'help()' para el sistema on-line de ayuda,
o 'help.start()' para abrir el sistema de ayuda HTML con su navegador.
Escriba 'q()' para salir de R.

> |
```



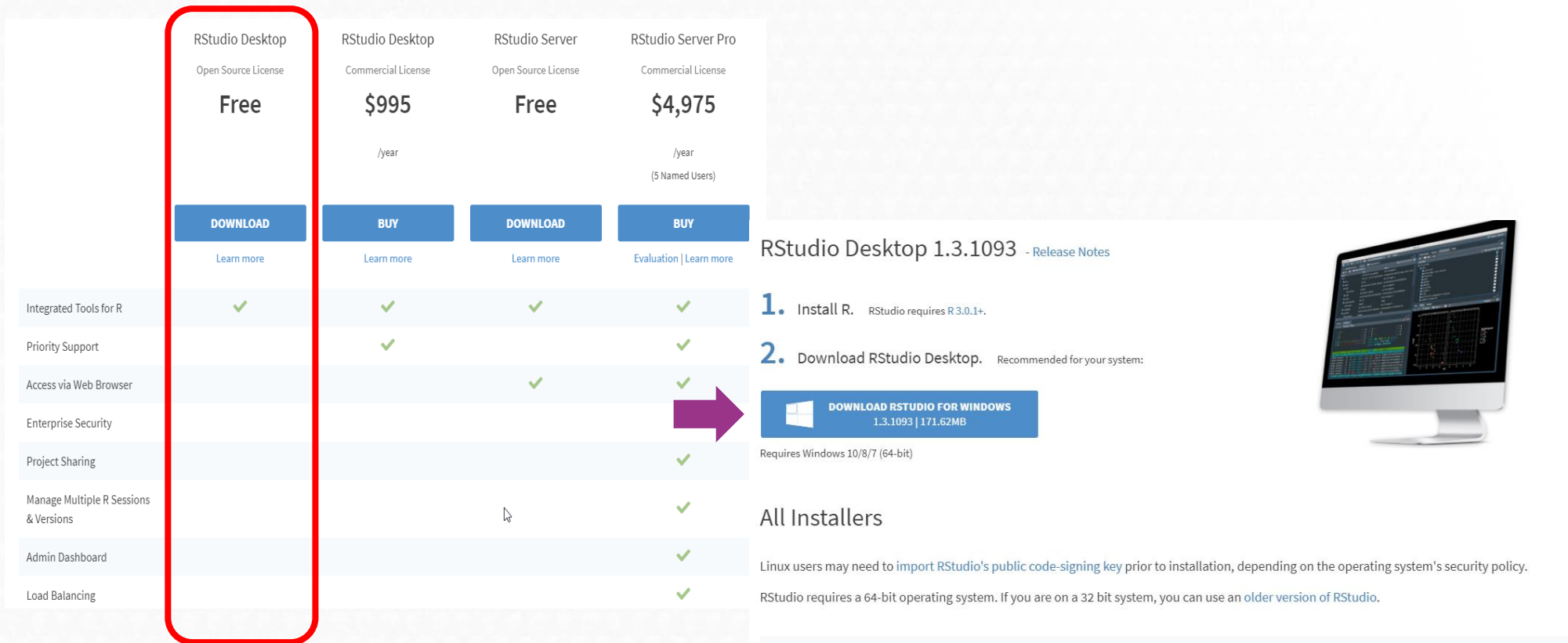
# Install R-Studio

Go to the rstudio web page: <https://rstudio.com/>



# Install R-Studio

Go to the rstudio web page: <https://rstudio.com/>



	RStudio Desktop Open Source License	RStudio Desktop Commercial License	RStudio Server Open Source License	RStudio Server Pro Commercial License
	Free	\$995 /year	Free	\$4,975 /year (5 Named Users)
	<a href="#">DOWNLOAD</a>	<a href="#">BUY</a>	<a href="#">DOWNLOAD</a>	<a href="#">BUY</a>
	<a href="#">Learn more</a>	<a href="#">Learn more</a>	<a href="#">Learn more</a>	<a href="#">Evaluation   Learn more</a>
Integrated Tools for R	✓	✓	✓	✓
Priority Support		✓		✓
Access via Web Browser			✓	✓
Enterprise Security				✓
Project Sharing				✓
Manage Multiple R Sessions & Versions				✓
Admin Dashboard				✓
Load Balancing				✓

**RStudio Desktop 1.3.1093 - Release Notes**

1. Install R. RStudio requires R 3.0.1+.
2. Download RStudio Desktop. Recommended for your system:

[DOWNLOAD RSTUDIO FOR WINDOWS](#)  
1.3.1093 | 171.62MB

Requires Windows 10/8/7 (64-bit)

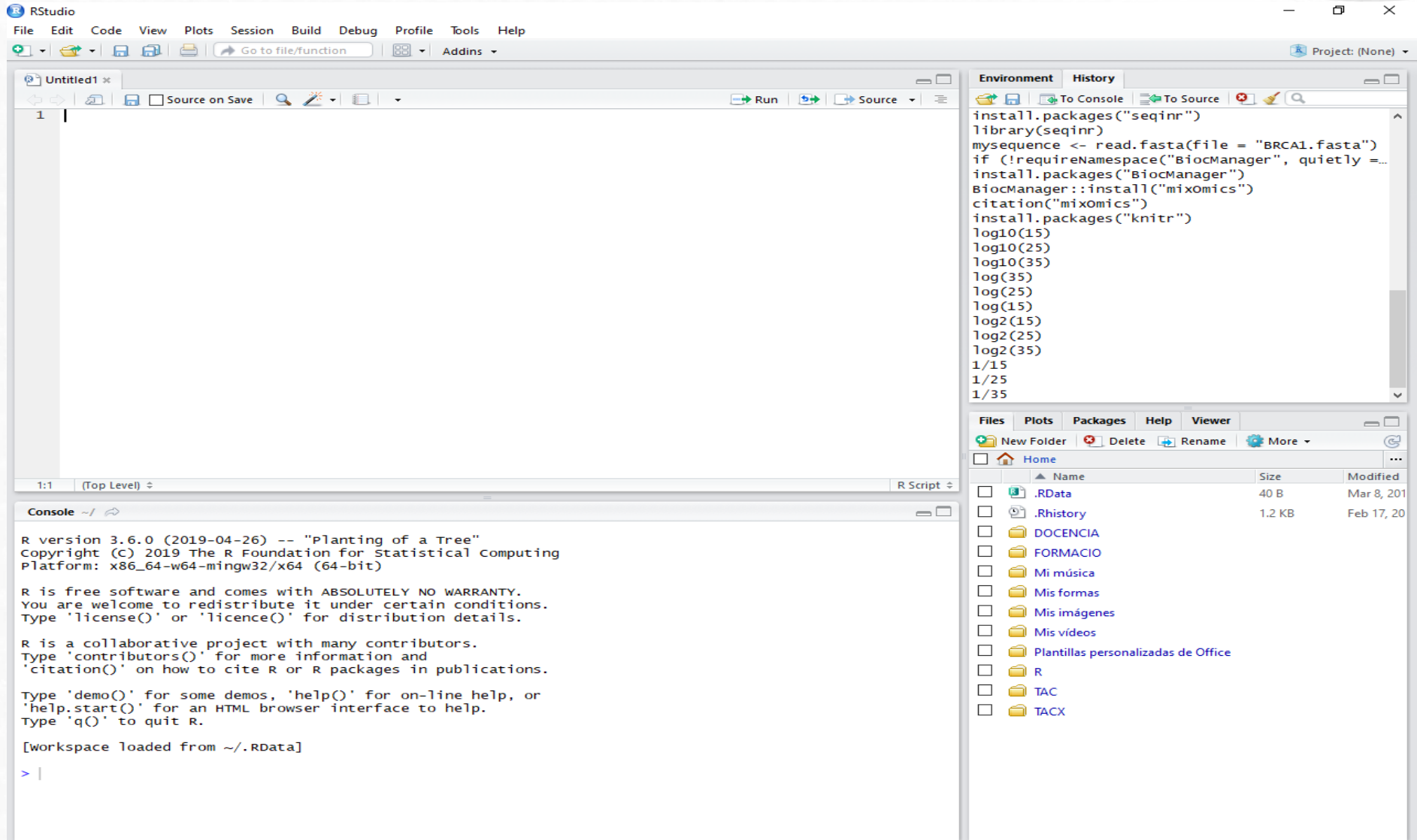
**All Installers**

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 10/8/7	<a href="#">RStudio-1.3.1093.exe</a>	171.62 MB	62b9e60a
macOS 10.13+	<a href="#">RStudio-1.3.1093.dmg</a>	148.66 MB	bdc4d3a4
Ubuntu 16	<a href="#">rstudio-1.3.1093-amd64.deb</a>	124.33 MB	72f05048
Ubuntu 18/Debian 10	<a href="#">rstudio-1.3.1093-amd64.deb</a>	126.80 MB	ff222177

Here you can select the file to download depending on the operation system running in your computer

# Install R-Studio



The screenshot displays the RStudio environment with the following components:

- Source Editor:** Contains a single line of code: `1`.
- Environment/History Panel:** Shows a list of installed packages and their versions:

```
install.packages("seqinr")
library(seqinr)
mysequence <- read.fasta(file = "BRCA1.fasta")
if (!requireNamespace("BiocManager", quietly =...
install.packages("BiocManager")
BiocManager::install("mixomics")
citation("mixomics")
install.packages("knitr")
log10(15)
log10(25)
log10(35)
log(35)
log(25)
log(15)
log2(15)
log2(25)
log2(35)
1/15
1/25
1/35
```
- Files Panel:** Displays a file explorer view of the home directory with the following files and folders:

Name	Size	Modified
.RData	40 B	Mar 8, 201
.Rhistory	1.2 KB	Feb 17, 20
DOCENCIA		
FORMACIO		
Mi música		
Mis formas		
Mis imágenes		
Mis vídeos		
Plantillas personalizadas de Office		
R		
TAC		
TACX		
- Console:** Displays the R startup message and workspace information:

```
R version 3.6.0 (2019-04-26) -- "Planting of a Tree"
Copyright (C) 2019 The R Foundation for Statistical Computing
Platform: x86_64-w64-mingw32/x64 (64-bit)

R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

[workspace loaded from ~/.RData]
> |
```

# Install R libraries

The screenshot shows the RStudio interface with the 'Install Packages' dialog box open. The dialog box has three red circles highlighting key elements: 1. The 'Repository (CRAN)' dropdown menu. 2. The 'Packages (separate multiple with space or comma):' text box containing 'tidyverse'. 3. The 'Install dependencies' checkbox, which is checked. The 'Environment' pane on the right shows a list of installed packages, with 'tidyverse' highlighted. The console at the bottom displays the R version and copyright information.

RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

Go to file/function Addins

Untitled1 x

Source on Save Run Source

1

Install Packages

Install from: ? Configuring Repositories

Repository (CRAN)

Packages (separate multiple with space or comma):

tidyverse

tidyverse ary:

C:/Users/usuari/Documents/R/win-library/3.6 [Default]

☒ Install dependencies

Install Cancel

Environment History

Project: (None)

install.packages("seqinr")  
library(seqinr)  
mysequence <- read.fasta(file = "BRCA1.fasta")  
if (!requireNamespace("BiocManager", quietly = ...  
install.packages("BiocManager")  
BiocManager::install("mixOmics")  
citation("mixOmics")  
install.packages("knitr")  
log10(15)  
log10(25)  
log10(35)  
log(35)  
log(25)  
log(15)  
log2(15)  
log2(25)  
log2(35)  
1/15  
1/25  
1/35

Files Plots Packages Help Viewer

Install Update

Name	Description	Versi...
<input checked="" type="checkbox"/> tidyverse	ACE and AVAS for Selecting Multiple Regression Transformations	1.4.1
<input type="checkbox"/> affxparser	Affymetrix File Parsing SDK	1.56.0
<input type="checkbox"/> affy	Methods for Affymetrix Oligonucleotide Arrays	1.62.0
<input type="checkbox"/> affyio	Tools for parsing Affymetrix data files	1.54.0
<input type="checkbox"/> affyPLM	Methods for fitting probe-level models	1.60.0
<input type="checkbox"/> annaffy	Annotation tools for Affymetrix biological metadata	1.56.0
<input type="checkbox"/> annotate	Annotation for microarrays	1.62.0
<input type="checkbox"/> Annotation...	Manipulation of SQLite-based annotations in Bioconductor	1.46.1
<input type="checkbox"/> Annotation...	Facilities for Filtering Bioconductor Annotation Resources	1.8.0
<input type="checkbox"/> Annotation...	Tools for building SQLite-based annotation data packages	1.26.0

R version 3.6.0 (2019-04-26) -- "Planting of a Tree"  
Copyright (C) 2019 The R Foundation for Statistical Computing  
Platform: x86\_64-w64-mingw32/x64 (64-bit)

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Type 'demo()' for some demos, 'help()' for on-line help, or  
'help.start()' for an HTML browser interface to help.  
Type 'q()' to quit R.

[workspace loaded from ~/.RData]

Repeat the last operation with the following packages:

- tidyverse
- agricolae
- dunn.test
- ggplot2

If you have problems or doubts during the installation process, please don't hesitate to contact [ueb@vhir.org](mailto:ueb@vhir.org)



## R manuals

- Intro for beginners [http://cran.r-project.org/doc/contrib/rdebuts\\_es.pdf](http://cran.r-project.org/doc/contrib/rdebuts_es.pdf)
- SimpleR <http://cran.r-project.org/doc/contrib/Verzani-SimpleR.pdf>
- Quick-R <http://www.statmethods.net/>
- <http://cran.r-project.org/doc/contrib/Saez-Castillo-RRCmdrv21.pdf>

## R books

- [Introductory Statistics with R](#)
- [R for SPSS and SAS users](#)
- [ggplot2: Elegant Graphics for Data Analysis](#)