

A photograph of a modern building with a glass facade and a courtyard. The building has a white brick wall on the left and a glass facade on the right. The courtyard is in the foreground, with a paved path and some greenery. The sky is blue with a few clouds.

R and Rstudio

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The difference between R and Rstudio

R is first of all a **programming language** whose main goal is to analyze data and produce graphic representations.

But it is also open source, free and open source software that can be installed on all standard operating systems (Mac, Windows and Linux).

In addition, the community of R users provides 18261 (on 09/24/2021) packages which allow all imaginable statistical procedures to be applied, from the most classic to the most recent.

Rstudio is both the name of a non-profit company (*B Corps*™) which provides the community with, among other things, Open Source, free and open source software. Among these softwares: the eponymous program editor Rstudio.

Rstudio is also available on all classic operating systems (Mac, Windows and Linux).

Rstudio allows programming in R in a reliable, rich and very complete environment. Its graphical interface has been designed to allow novice users to benefit from features to help them master the language, and many advanced features for seasoned users!

Comprehensive R Archive Network

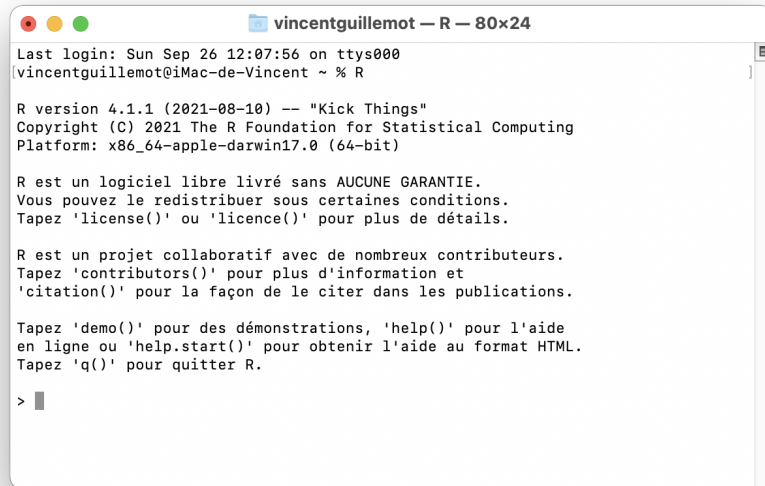


Site : <https://cran.r-project.org/>

- Installation : <https://cran.r-project.org/bin/>
- Packages : <https://cran.r-project.org/web/packages/index.html>
- Task Views : <https://cran.r-project.org/web/views/>

Without Rstudio (Mac OS X)

Terminal

A screenshot of a macOS Terminal window titled "vincentguillemot — R — 80x24". The window shows the output of the R startup process. It includes the last login time, the R version (4.1.1), copyright information, and platform details. It also displays the R license and a list of useful commands like 'demo()', 'help()', 'help.start()', and 'q()'. The prompt is currently ">".

```
vincentguillemot — R — 80x24
Last login: Sun Sep 26 12:07:56 on ttys000
vincentguillemot@iMac-de-Vincent ~ % R

R version 4.1.1 (2021-08-10) -- "Kick Things"
Copyright (C) 2021 The R Foundation for Statistical Computing
Platform: x86_64-apple-darwin17.0 (64-bit)

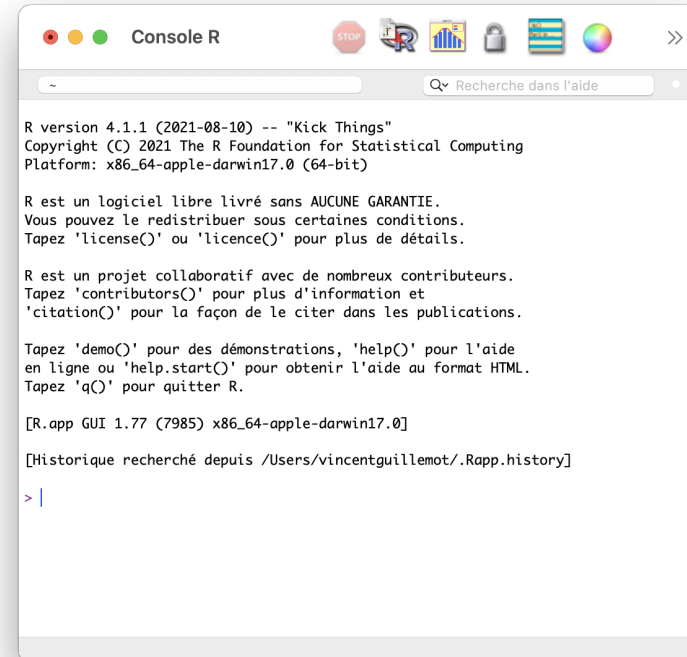
R est un logiciel libre livré sans AUCUNE GARANTIE.
Vous pouvez le redistribuer sous certaines conditions.
Tapez 'license()' ou 'licence()' pour plus de détails.

R est un projet collaboratif avec de nombreux contributeurs.
Tapez 'contributors()' pour plus d'information et
'citation()' pour la façon de le citer dans les publications.

Tapez 'demo()' pour des démonstrations, 'help()' pour l'aide
en ligne ou 'help.start()' pour obtenir l'aide au format HTML.
Tapez 'q()' pour quitter R.

> |
```

With the “GUI”^{*}

A screenshot of the R Console GUI window titled "Console R". The window has a search bar at the top with the text "Recherche dans l'aide". The main area displays the same R startup output as the terminal window, including version information, copyright, and license details. At the bottom, it shows the R.app GUI version (1.77) and the platform (x86_64-apple-darwin17.0). The prompt is currently "> |".

```
Console R
Recherche dans l'aide

R version 4.1.1 (2021-08-10) -- "Kick Things"
Copyright (C) 2021 The R Foundation for Statistical Computing
Platform: x86_64-apple-darwin17.0 (64-bit)

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Tapez 'q()' pour quitter R.

[R.app GUI 1.77 (7985) x86_64-apple-darwin17.0]

[Historique recherché depuis /Users/vincentguillemot/.Rapp.history]

> |
```

Type R, then “Enter”

Start “R”

^{*} GUI = *Graphical User Interface*

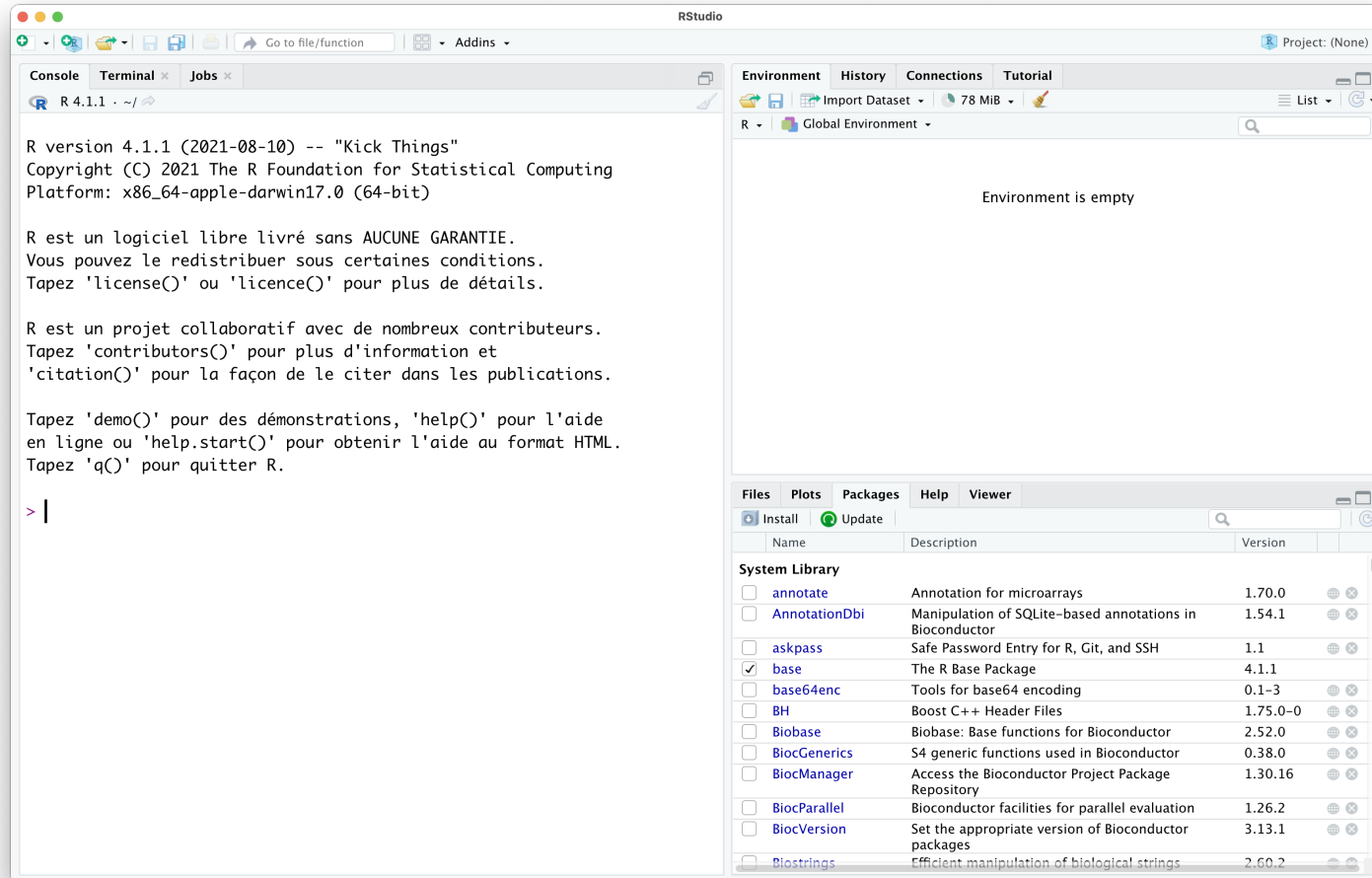
Rstudio



Site : <https://www.rstudio.com/>

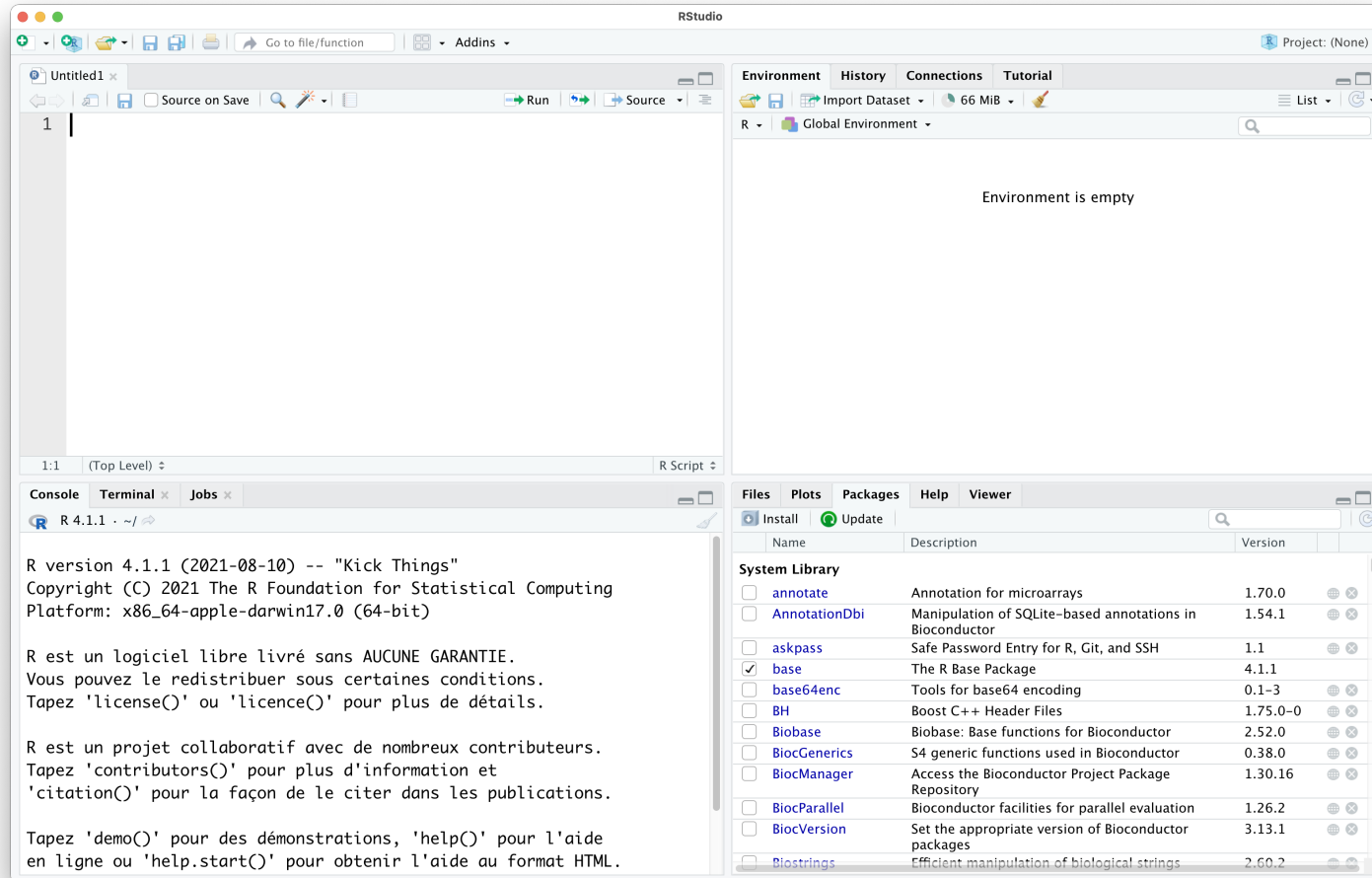
- Installation : <https://www.rstudio.com/products/rstudio/download/#download>
- Tutorials : <https://www.rstudio.com/collections/rstudio-essentials/>
- Cheat-sheets : <https://www.rstudio.com/resources/cheatsheets/>

Explore Rstudio



After start-up

The 4 panes



After creating a new script

The 4 panes -bis

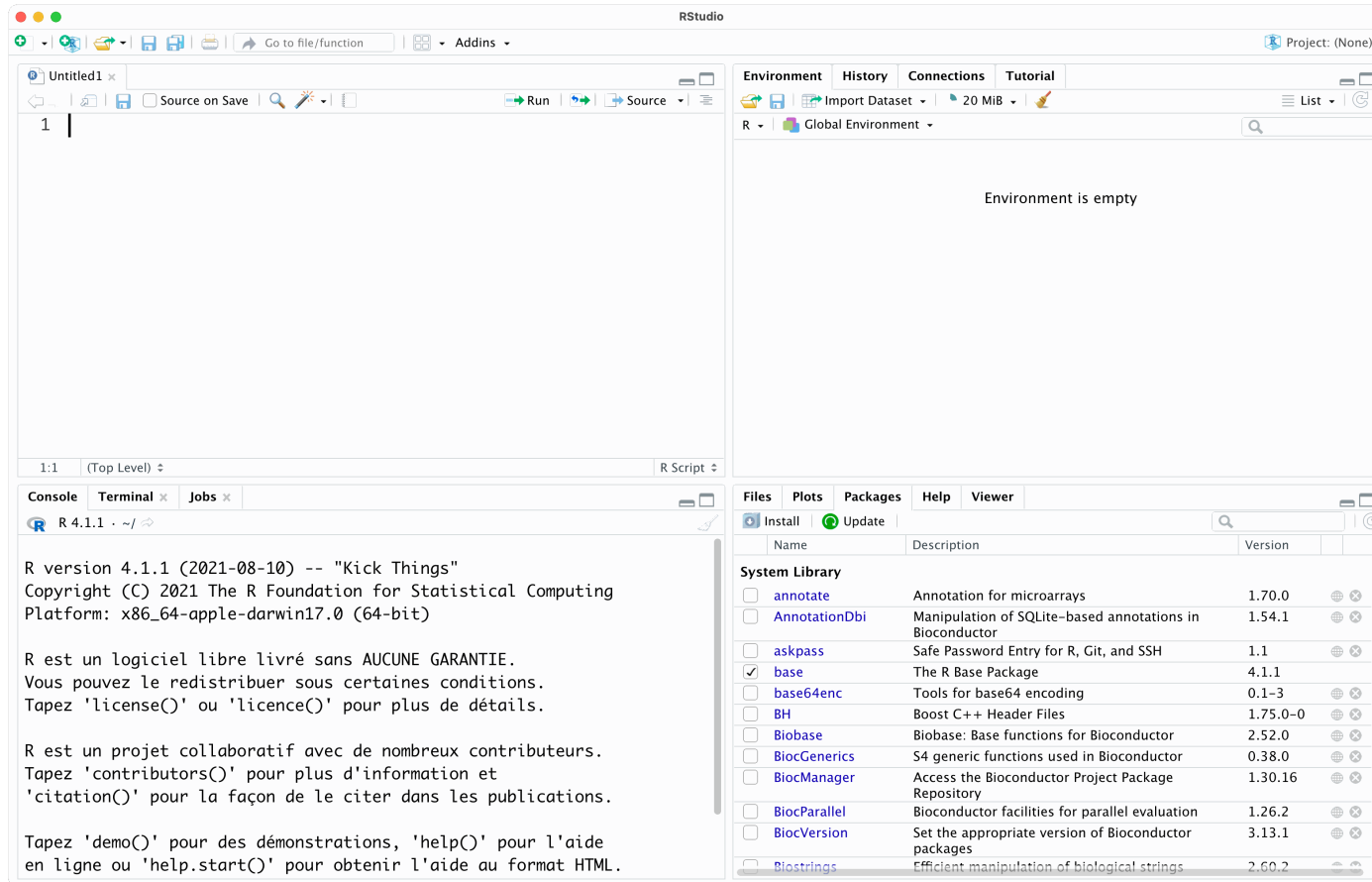


The 4 panes -ter



1. Script
2. Environnement, history, tutorials
3. Console (the brain!)
4. Plots, packages, (files)

Create a project



Create a project at the beginning of each class!

Why create a project?

Short answer

"Because it will make your life easier!" -Anonymous

Less short answer:

- No need to think (too much) about the working directory
- An Rstudio project = an analysis project
- It's easier to organize
- It forces you to organize your analyzes ...
- In files whose names make sense!

Exercise 1

Create a project. What is your “working directory”?

Exercise 2

Go to the “Help” menu then select “About Rstudio”. What is your version of Rstudio?