

Starting your journey with R

How to set up your R projects

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Use .Rproj !

Please use an `.Rproj` for every project you do. Save all your related files in this project. I will only accept submissions that are `.Rproj`.

Use .Rproj II

The screenshot shows the RStudio interface with a project titled "intro-to-r".

Code Editor: Displays a Quarto document named "Starting-with-R.qmd". The code includes instructions for setting up an R project, using GitHub for version control, and a section on "downloading files". It also contains a code block for R with a note about eval: false.

Project Explorer: Shows the project structure under "Files".

Name	Type	Date	Size
ignore	file	Nov 10, 2023	3:48
Rhistory	file	Dec 7, 2023	8.5 KB
01-Introduction	directory		
02-Visualize	directory		
03-Transform	directory		
04-Report	directory		
05-Regression	directory		
Assignment	directory		
grateful-nfts.bib	file	Dec 7, 2023	9:42 /
intro-to-r.Rproj	file	Jan 29, 2024	1:40
intro.qmd	file	Dec 7, 2023	9:41 /
Islands.csv	file	Dec 5, 2023	3:35 /
LICENSE	file	Nov 10, 2023	1:38
README.md	file	Nov 20, 2023	5:03
Starting-with-R.qmd	file	Jan 29, 2024	3:34
assets	directory		

Console: Displays the R command "R 4.3.0 ~/github/intro-to-r" and the R license notice.

Help: A tooltip for ".Rproj" is visible, listing best practices for R projects.

Use .Rproj III

The screenshot shows the RStudio interface with a project titled "intro-to-r".

Code Editor: Displays the file `Starting-with-R.qmd` containing R code and a note about using `.Rproj`.

Project Explorer: Shows the `.Rproj` file in the project tree.

New Project Wizard: A modal window titled "Create Project" is open, showing three options: "New Directory", "Existing Directory", and "Version Control".

Environment: Shows the "Global Environment" tab with the message "Environment is empty".

File Explorer: Shows the directory structure of the project, including files like `gitignore`, `Rhistory`, and various Rmd files.

Console: Displays the R startup message and the path `~/github/intro-to-r/`.

Help: Shows the R license information.

Use .Rproj IV

New Project Wizard

Back Project Type

-  New Project >
-  R Package >
-  Shiny Application >
-  Quarto Project >
-  Quarto Website >
-  Quarto Blog >
-  Quarto Book >

Cancel

Use .Rproj V

New Project Wizard

Back

Create New Project



Directory name:

my_new_project

Create project as subdirectory of:

C:/Users/s2949359/Documents/github

Browse...

Create a git repository

Use renv with this project

Open in new session

Create Project

Cancel

Use .Rproj VI

my_new_project - RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

R 4.3.0 : /github/my_new_project/

```
R version 4.3.0 (2023-04-21 ucrt) -- "Already Tomorrow"
copyright (C) 2023 The R Foundation for statistical computing
Platform: x86_64-w64-mingw32/x64 (64-bit)

R ist freie Software und kommt OHNE JEGLICHE GARANTIE.
Sie sind eingeladen, es unter bestimmten Bedingungen weiter zu verbreiten.
Tippen Sie 'license()' oder 'licence()' für Details dazu.

R ist ein Gemeinschaftsprojekt mit vielen Beitragenden.
Tippen Sie 'contributors()' für mehr Information und 'citation()' um zu erfahren, wie R oder R packages in Publikationen zitiert werden können.

Tippen Sie 'demo()' für einige Demos, 'help()' für on-line Hilfe, oder
'help.start()', für eine HTML-Browserschnittstelle zur Hilfe.
Tippen Sie 'q()', um R zu verlassen.

> Project '/github/my_new_project' loaded. [renv 1.0.3]
```

Environment History Connections Git Tutorial

Import Dataset 133 MB List

Environment is empty

File Plots Packages Help Viewer Presentation

Home > github > my_new_project

Name	Size	Modified
-.gitignore	44 B	Jan 29, 2024, 3:39
Rhistory	0 B	Jan 29, 2024, 3:39
Rprofile	27 B	Jan 29, 2024, 3:39
my_new_project.Rproj	217 B	Jan 29, 2024, 3:39
renv		
renv.lock	441 B	Jan 29, 2024, 3:39

Use here I



Figure 1: Illustration by Allison Horst

Use here II

When referring to *any* file – data, script, report – please always use the package `here`. You start in your `.Rproj` and then refer to paths like so:

```
library(here)
data <- here("data/my_data.csv") |> read.csv()
```

Use `renv` |

[]{width="100"}

When you want to share your project, the other person needs to download all the needed libraries. `renv` helps with that.

To use:

```
renv::activate()  
renv::snapshot()
```

To recover the libraries:

```
renv::hydrate()
```

Use version control with github I

- ▶ use gitmojis, if you want to
- ▶ extensively use `.gitignore` for sensible data and output

Use version control with github II

my_new_project - RStudio

Für Edit Code View Plots Session Build Debug Profile Tools Help

Console Terminal Background Jobs

R 4.3.0 --/github/my_new_project/

```
R version 4.3.0 (2023-04-21 ucrt) -- "Already Tomorrow"
Copyright (C) 2023 The R Foundation for statistical computing
Platform: x86_64-w64-mingw32/x64 (64-bit)

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Tippen Sie 'demo()' für einige Demos, 'help()' für on-line Hilfe, oder
'help.start()' für eine HTML-Browserschnittstelle zur Hilfe.
Tippen Sie 'q()' um R zu verlassen.

- Project '/github/my_new_project' loaded. [renv 1.0.3]
> |
```

Environment History Connections Git Tutorial

Staged Status Path

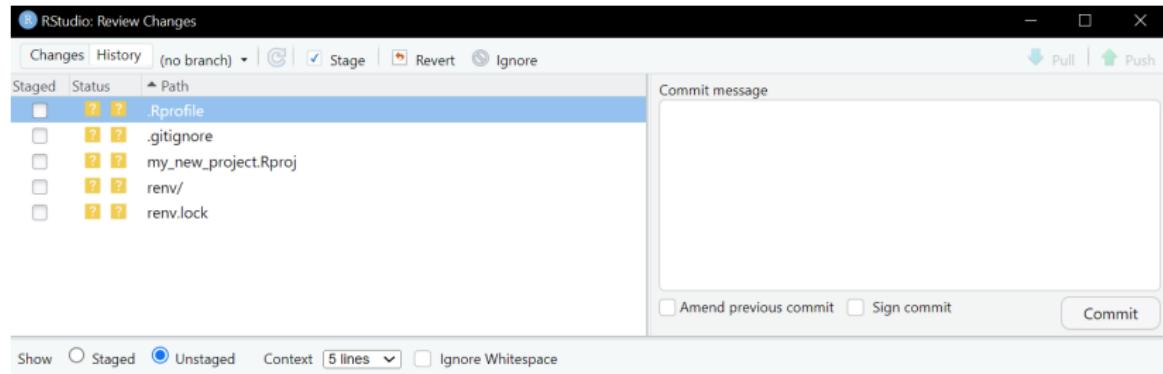
	.Rprofile	
	.gitignore	
	my_new_project.Rproj	
	renv	
	renv.lock	

Files Plots Packages Help Viewer Presentation

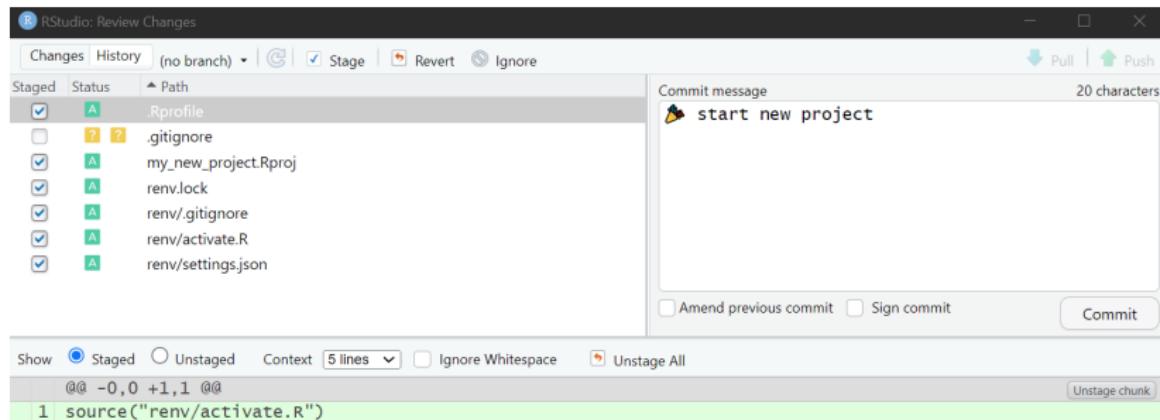
Home > github > my_new_project

Name	Size	Modified
..		
.gitignore	44 B	Jan 29, 2024, 3:39
Rhistory	0 B	Jan 29, 2024, 3:39
.Rprofile	27 B	Jan 29, 2024, 3:39
my_new_project.Rproj	217 B	Jan 29, 2024, 3:39
renv		
renv.lock	441 B	Jan 29, 2024, 3:39

Use version control with github III



Use version control with github IV



Download files explicitly – two options

1. Download files the following way:

```
library(here)
```

```
download.file(  
  url,  
  here("output/file.csv")  
)
```

2. Describe how you downloaded files and where you saved them in your README:

```
I downloaded data  
from [url] and saved it  
to [output/some_file.csv].
```

Use dotenv

Never hardcode your credentials. If you need credentials to download things, use dotenv. With this, you create a file called .env in your root folder. The contents look like this:

```
password="1234"
```

Then, when you need to use the password:

```
library(dotenv)
```

```
some_function(password = Sys.getenv("password"))
```

Use a README

In your root folder, you should have a file called README.md. In this, you describe what you are doing, and how to replicate it.

Please also describe how to replicate your analysis. One way of doing this is including a chunk like this:

```
library(here)
here("R/load/01-load-first-data.R") |> source()
here("R/load/02-load-second-data.R") |> source()
...
```

Make sure your code runs

I need to run your code in the end. Please make sure your code runs, for example by simply copying the files you're giving to me into a new Project and re-running them.

Folder structure

A folder structure I would strongly recommend is the following.
Please make sure to separate loading, wrangling, analysing data,
and then reporting the results.

- ▶ input
- ▶ output
- ▶ R
 - ▶ load
 - ▶ wrangle
 - ▶ analysis
- ▶ report

Don't save your workspace image !

Don't save your workspace image II

The screenshot shows the RStudio interface with several windows open:

- Code Editor:** The main window displays R code. A tooltip is visible over the line "Rproj here", listing options like "Rprof", "here", "rvm", "Version control w...", "Downloading files...", "Use a 'README'", "Make sure your c...", "Folder structure", "Don't save your ...", "Structure your code", and "Report with quarto".
- File Browser:** The right-hand sidebar shows a file tree under "intro-to-r/assets". The contents are:

Name	Size	Modified
rstudio-create-project-02.PNG	40.1 kB	Jan 29, 2024, 3:37
rstudio-create-project-03.PNG	108.3 kB	Jan 29, 2024, 3:38
rstudio-create-project.PNG	395.3 kB	Jan 29, 2024, 3:37
rstudio-git-01.PNG	195.8 kB	Jan 29, 2024, 3:40
rstudio-git-02.PNG	41.8 kB	Jan 29, 2024, 3:41
rstudio-git-03.PNG	65 kB	Jan 29, 2024, 3:41
rstudio-new-rproj.PNG	185.7 kB	Jan 29, 2024, 3:40
rstudio-rproj.PNG	351.9 kB	Jan 29, 2024, 3:36
rstudio.PNG	326 kB	Jan 29, 2024, 3:35

Console: Shows the command "R 4.3.0 --/github/intro-to-r" and a message about R being free software.

Help: Displays the "R" help page, which includes sections on licensing, community, and basic usage.

Structure your code

- ▶ load librarys in the beginning
- ▶ use a linter (mark everything with `Ctrl + A`, then lint with `Ctrl + Shift + A`)

Report with quarto

- ▶ using a .qmd file to report your findings is handy
- ▶ you can export to html, but also as a pdf or docx