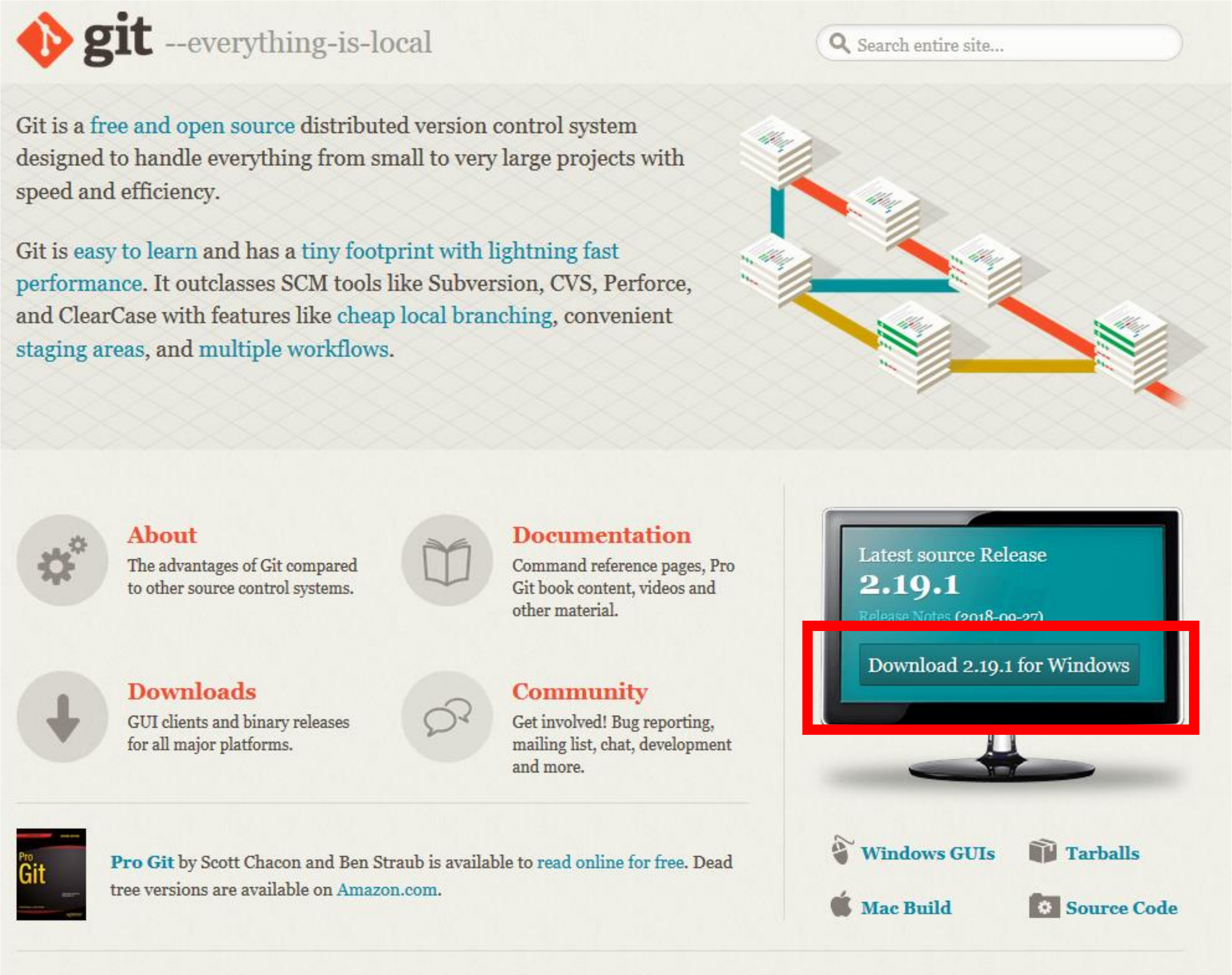
git and GitHub on Rstudio without the command line

Pedro Neves

university of groningen / faculty of science and engineering / groningen institute for evolutionary life sciences

Installing git



git --everything-is-local

Search entire site...

Git is a free and open source distributed version control system designed to handle everything from small to very large projects with speed and efficiency.

Git is easy to learn and has a tiny footprint with lightning fast performance. It outclasses SCM tools like Subversion, CVS, Perforce, and ClearCase with features like cheap local branching, convenient staging areas, and multiple workflows.

About
The advantages of Git compared to other source control systems.

Documentation
Command reference pages, Pro Git book content, videos and other material.

Downloads
GUI clients and binary releases for all major platforms.

Community
Get involved! Bug reporting, mailing list, chat, development and more.

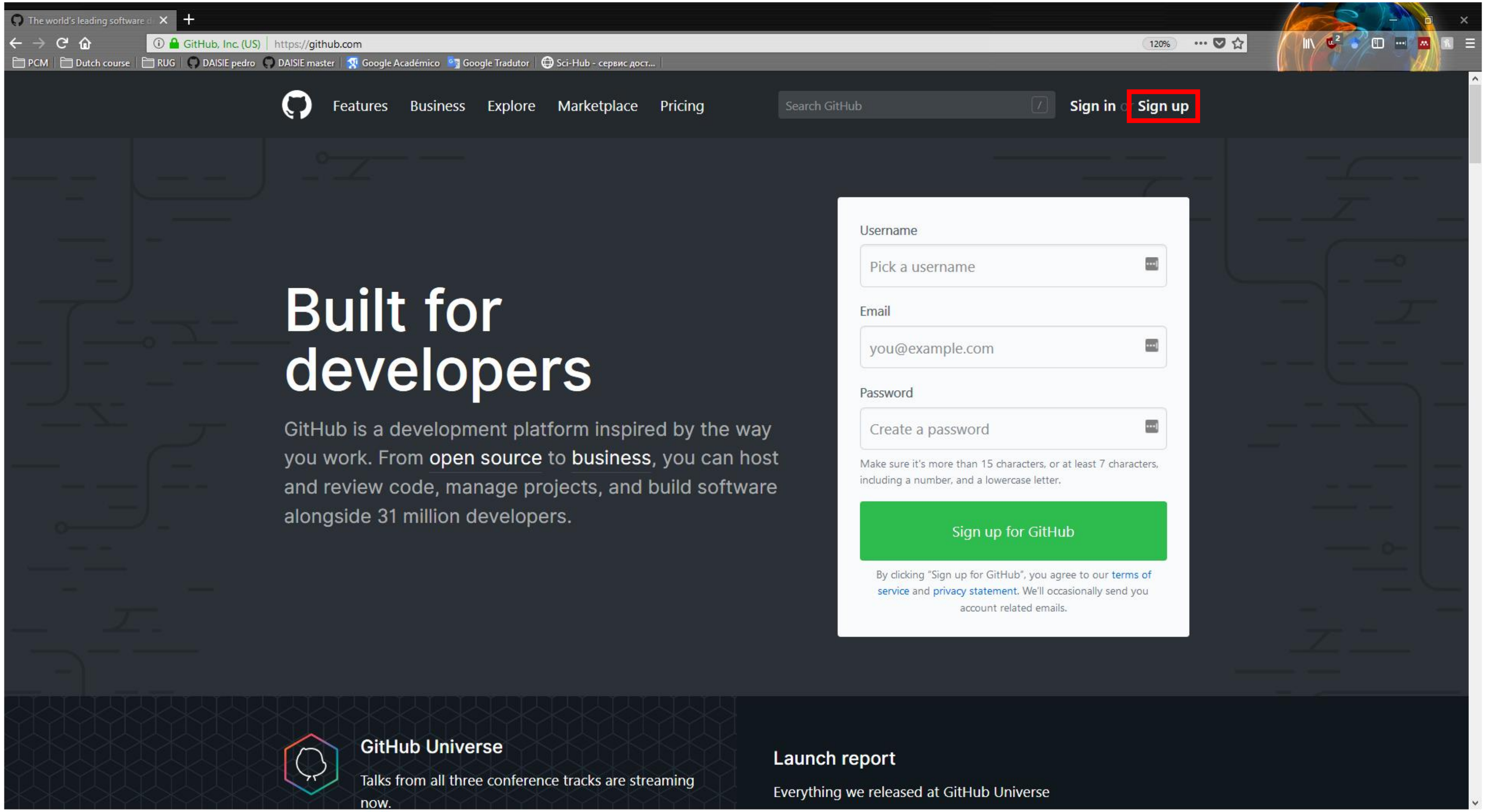
Latest source Release
2.19.1
Release Notes (2018-09-27)

Download 2.19.1 for Windows

Windows GUIs Tarballs
Mac Build Source Code

Pro Git by Scott Chacon and Ben Straub is available to read online for free. Dead tree versions are available on Amazon.com.

Getting a GitHub account



Built for developers

GitHub is a development platform inspired by the way you work. From open source to business, you can host and review code, manage projects, and build software alongside 31 million developers.

Username

Pick a username

Email

you@example.com

Password

Create a password

Make sure it's more than 15 characters, or at least 7 characters, including a number, and a lowercase letter.

Sign up for GitHub

By clicking "Sign up for GitHub", you agree to our terms of service and privacy statement. We'll occasionally send you account related emails.

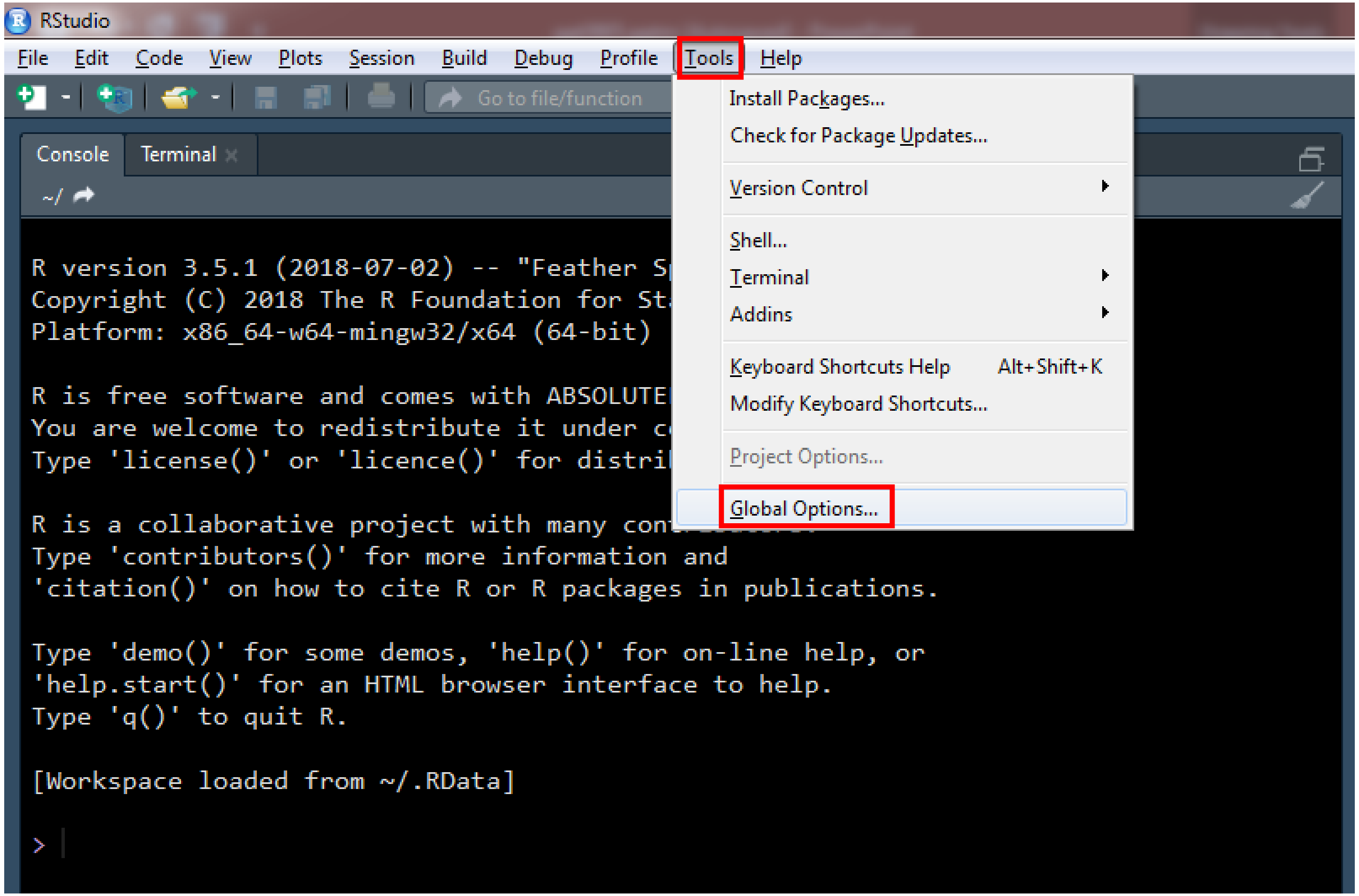
GitHub Universe

Talks from all three conference tracks are streaming now.

Launch report

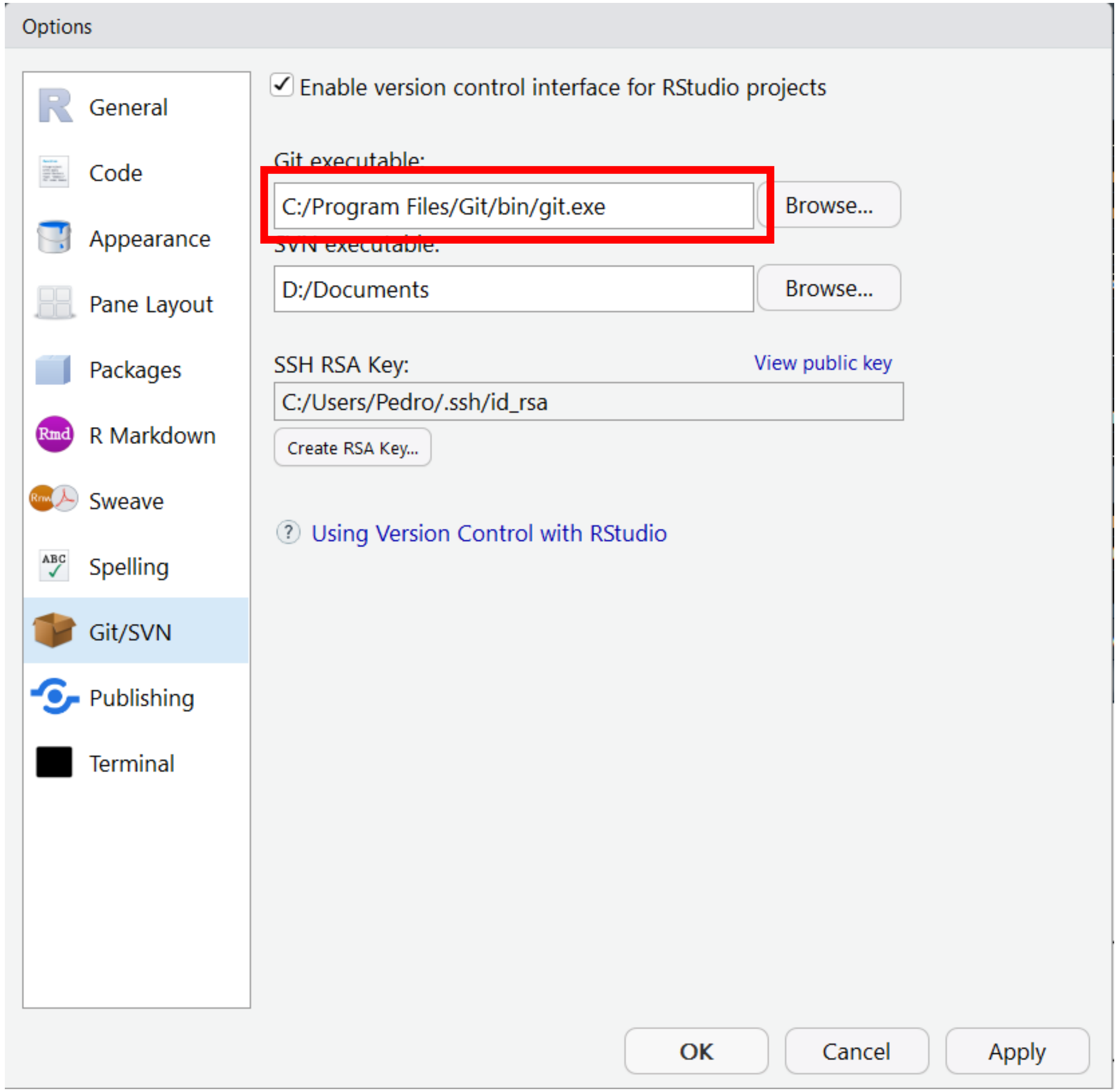
Everything we released at GitHub Universe

Setting up git in RStudio



```
R version 3.5.1 (2018-07-02) -- "Feather S
Copyright (C) 2018 The R Foundation for St
Platform: x86_64-w64-mingw32/x64 (64-bit)

R is free software and comes with ABSOLUTE
You are welcome to redistribute it under c
Type 'license()' or 'licence()' for distri

R is a collaborative project with many con
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]

>
```

Enabling git



☑ Enable version control interface for RStudio projects

Git executable:
C:/Program Files/Git/bin/git.exe

SVN executable:
D:/Documents

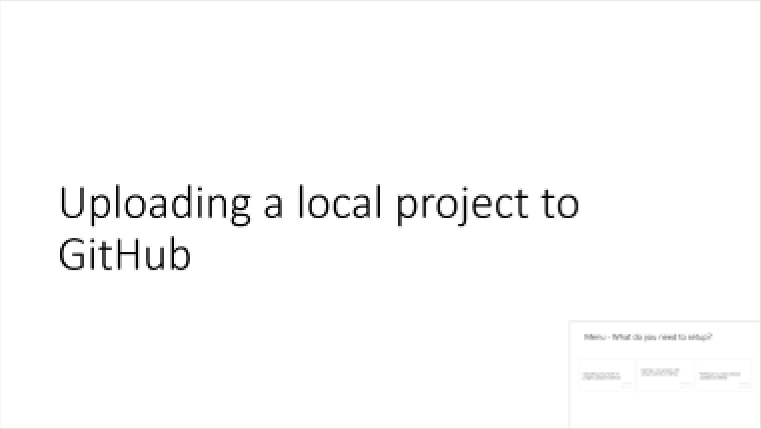
SSH RSA Key:
C:/Users/Pedro/.ssh/id_rsa

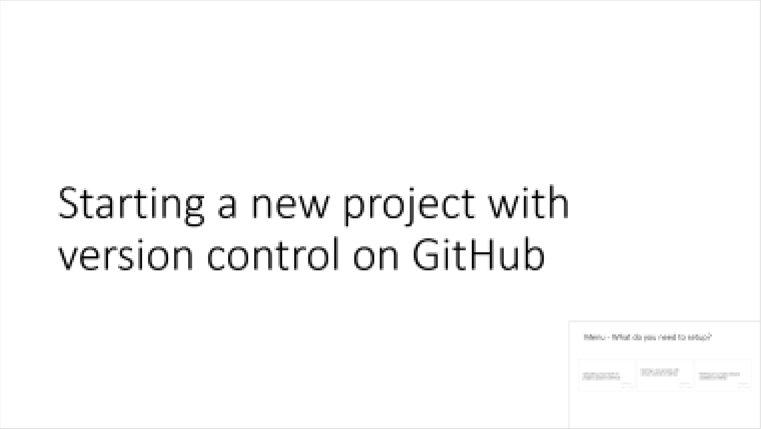
Using Version Control with RStudio

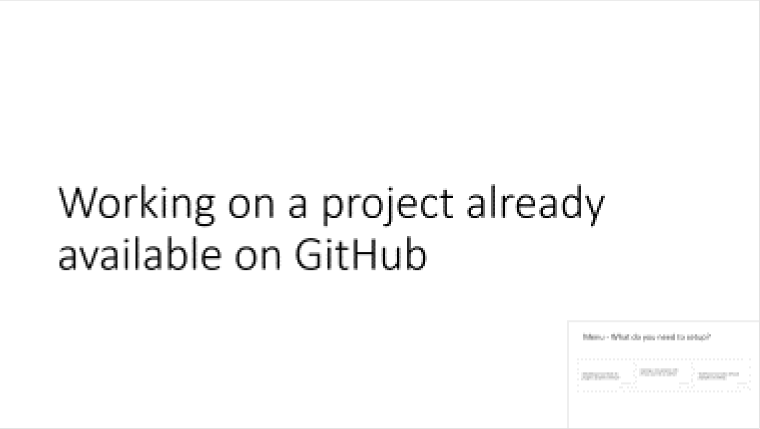
Make sure the path to git points to Git/bin/git.exe! Not Git/git-bash.exe

The correct path should appear automatically after you install git and enable version control, but occasionally it will point to the wrong location

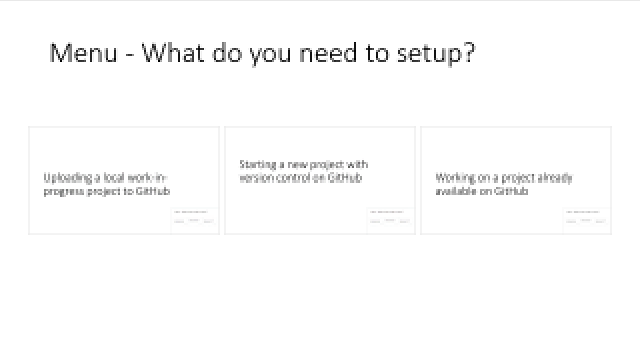
Menu - What do you need to setup?


Uploading a local project to GitHub


Starting a new project with version control on GitHub


Working on a project already available on GitHub

Uploading a local project to GitHub



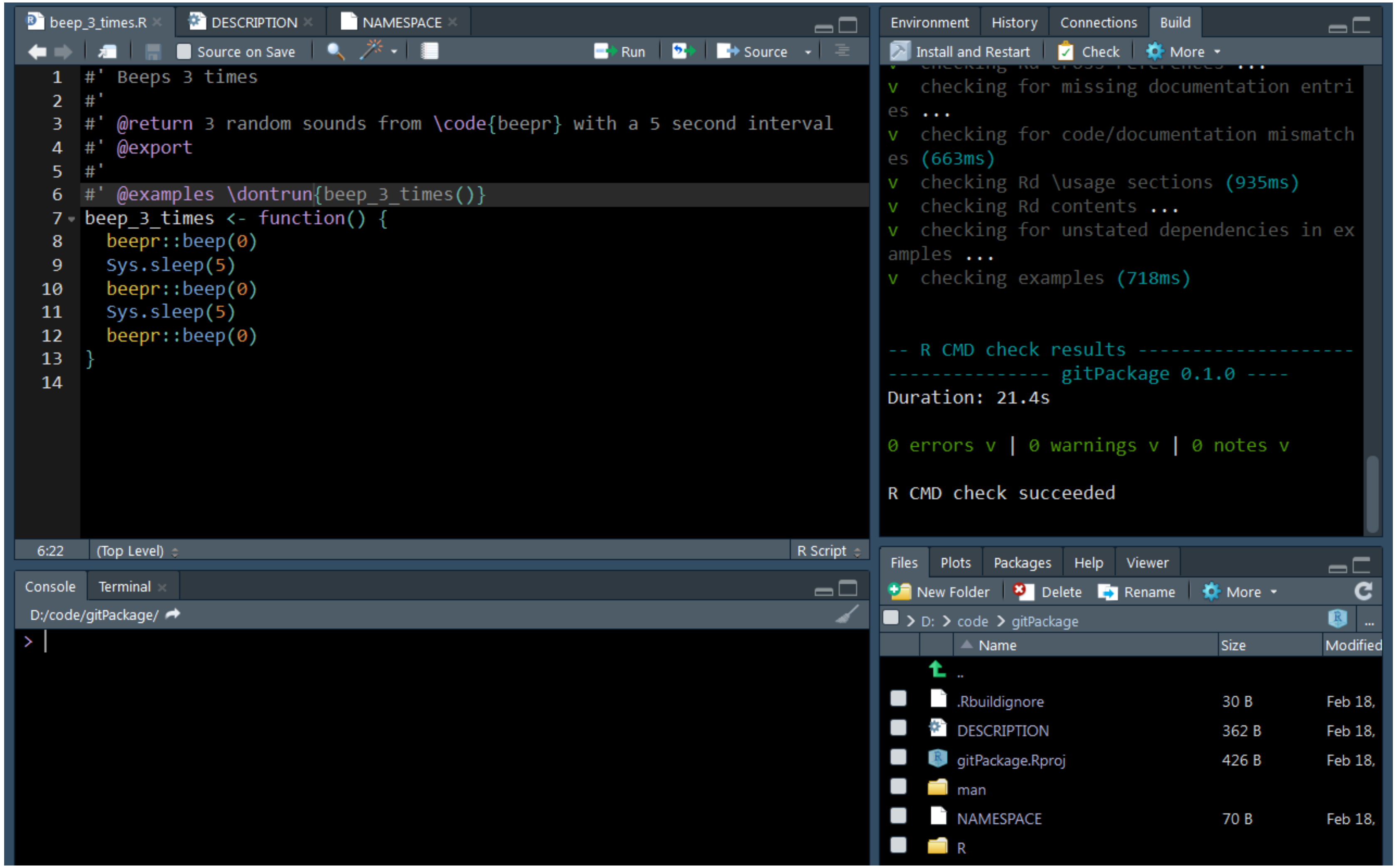
Menu - What do you need to setup?

Uploading a local work-in-progress project to GitHub

Starting a new project with version control on GitHub

Working on a project already available on GitHub

Start with some code

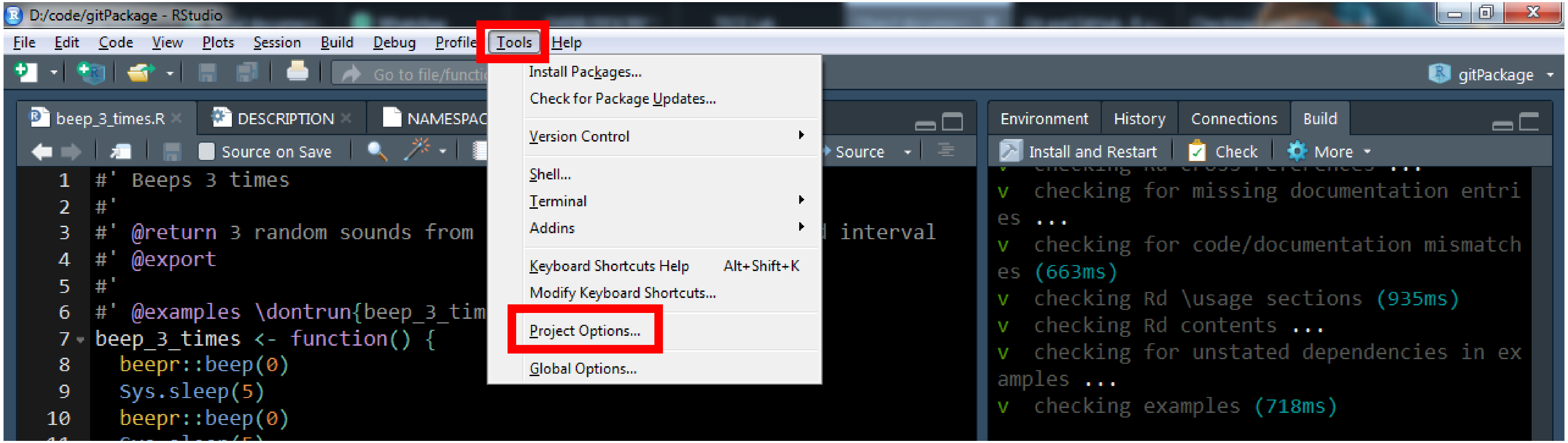


```r
#' Beeps 3 times
#'
#' @return 3 random sounds from \code{beepr} with a 5 second interval
#' @export
#'
#' @examples \dontrun{beep_3_times()}
beep_3_times <- function() {
  beepr::beep(0)
  Sys.sleep(5)
  beepr::beep(0)
  Sys.sleep(5)
  beepr::beep(0)
}
```

```
v  checking Rd cross-references ...
v  checking for missing documentation entri
es ...
v  checking for code/documentation mismatch
es (663ms)
v  checking Rd \usage sections (935ms)
v  checking Rd contents ...
v  checking for unstated dependencies in ex
amples ...
v  checking examples (718ms)


-- R CMD check results --------------------
--------------- gitPackage 0.1.0 ----
Duration: 21.4s

0 errors v | 0 warnings v | 0 notes v

R CMD check succeeded
```

```
>
```

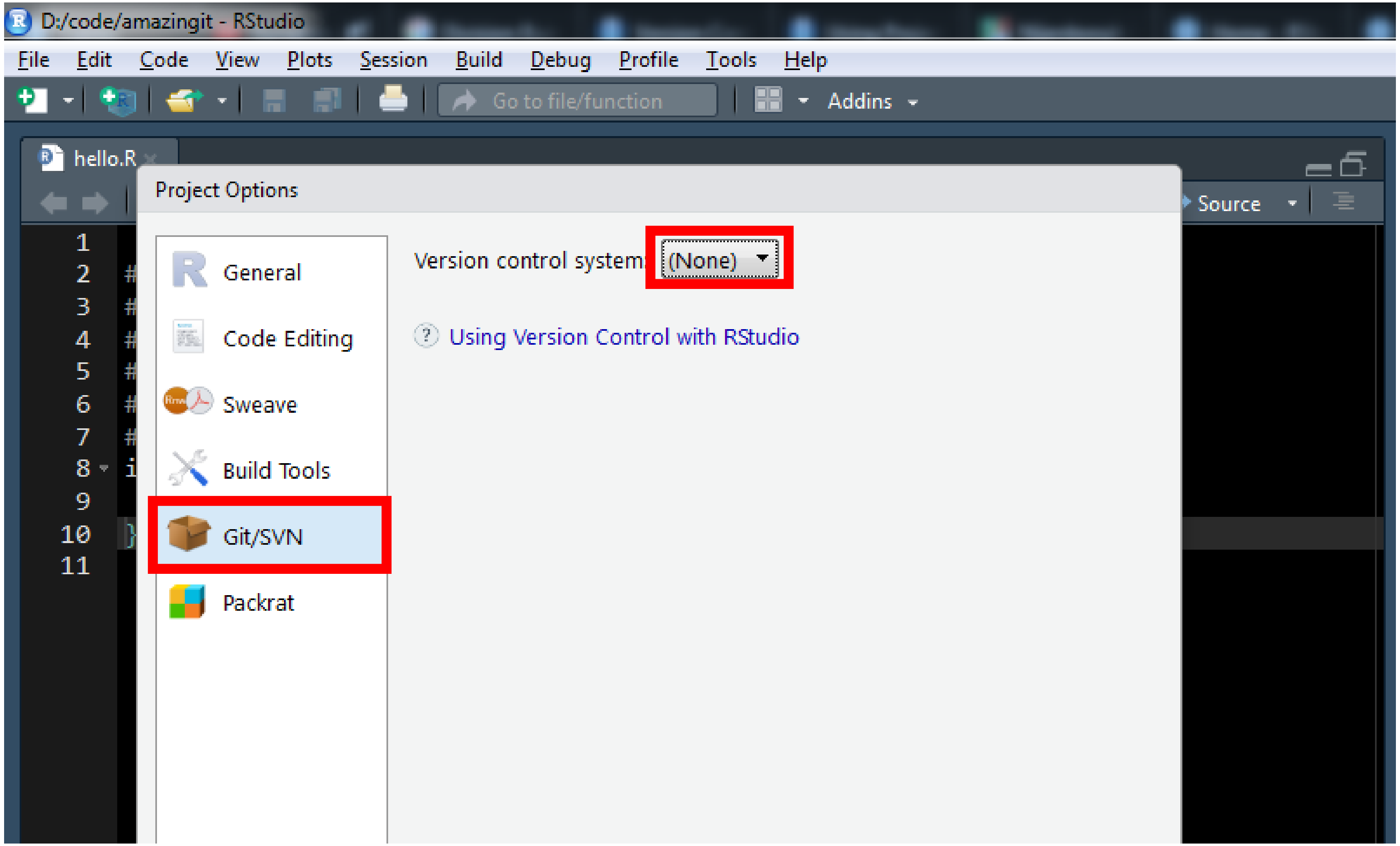
Name	Size	Modified
..		
.Rbuildignore	30 B	Feb 18,
DESCRIPTION	362 B	Feb 18,
gitPackage.Rproj	426 B	Feb 18,
man		
NAMESPACE	70 B	Feb 18,
R		



```
#' Beeps 3 times
#'
#' @return 3 random sounds from                    interval
#' @export
#'
#' @examples \dontrun{beep_3_tim
beep_3_times <- function() {
  beepr::beep(0)
  Sys.sleep(5)
  beepr::beep(0)
```

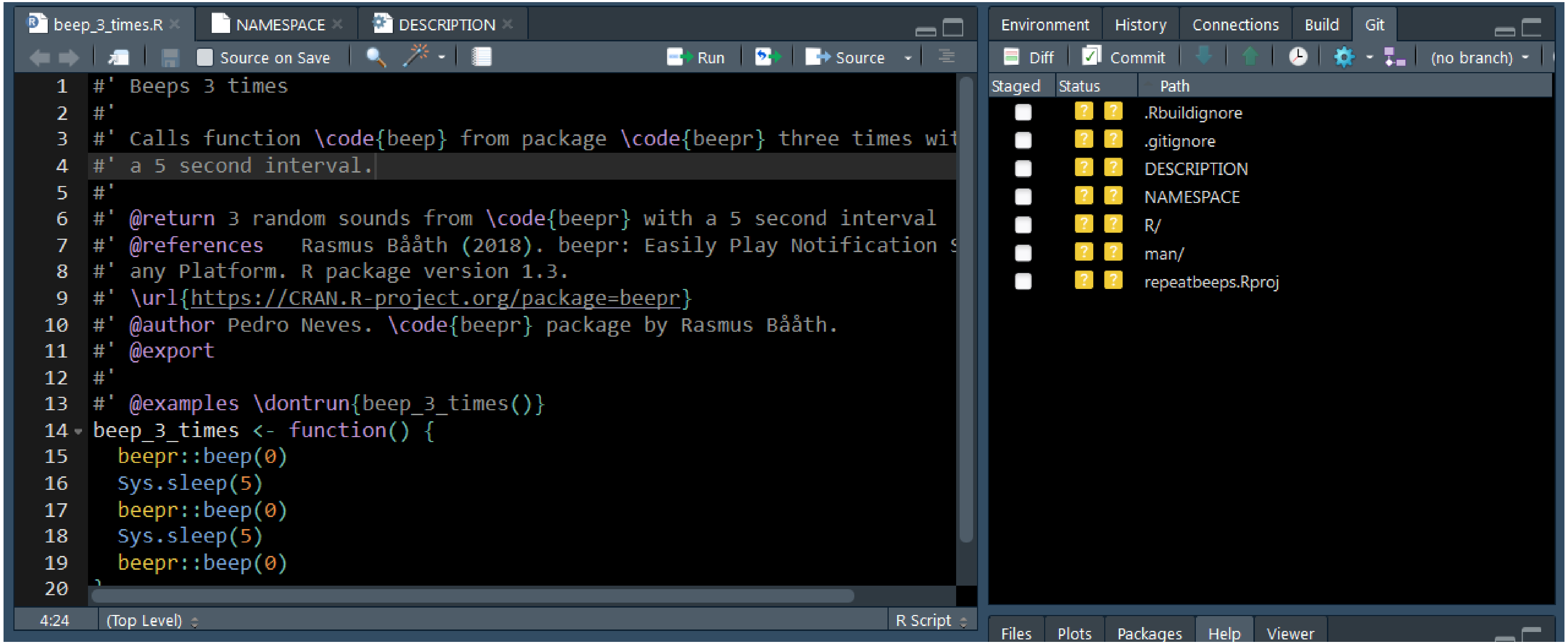
```
v  checking for missing documentation entri
es ...
v  checking for code/documentation mismatch
es (663ms)
v  checking Rd \usage sections (935ms)
v  checking Rd contents ...
v  checking for unstated dependencies in ex
amples ...
v  checking examples (718ms)
```

Enabling git on a new project



Version control system: (None)

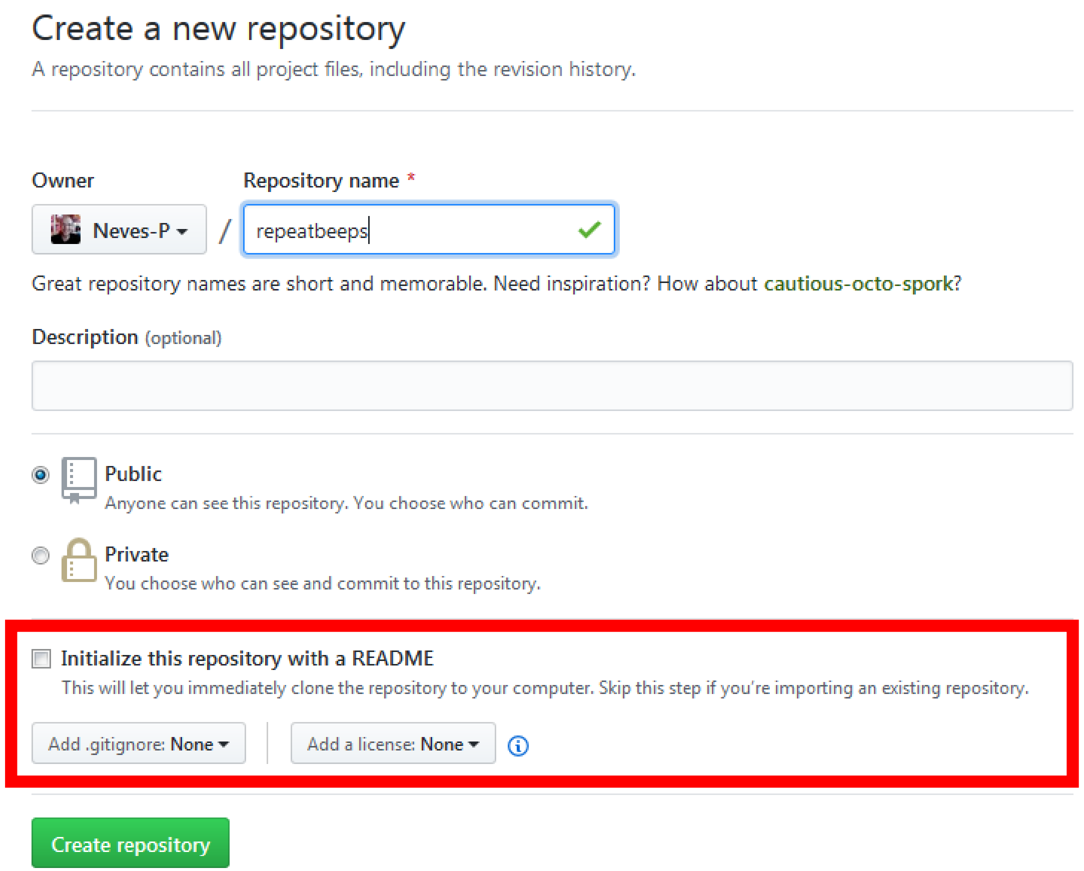
Git panel



```
#' Beeps 3 times
#'
#' Calls function \code{beep} from package \code{beepr} three times wit
#' a 5 second interval.
#'
#' @return 3 random sounds from \code{beepr} with a 5 second interval
#' @references  Rasmus Bååth (2018). beepr: Easily Play Notification S
#' any Platform. R package version 1.3.
#' \url{https://CRAN.R-project.org/package=beepr}
#' @author Pedro Neves. \code{beepr} package by Rasmus Bååth.
#' @export
#'
#' @examples \dontrun{beep_3_times()}
beep_3_times <- function() {
  beepr::beep(0)
  Sys.sleep(5)
  beepr::beep(0)
  Sys.sleep(5)
  beepr::beep(0)
}
```

Staged	Status	Path
☐	? ?	.Rbuildignore
☐	? ?	.gitignore
☐	? ?	DESCRIPTION
☐	? ?	NAMESPACE
☐	? ?	R/
☐	? ?	man/
☐	? ?	repeatbeeps.Rproj

Create repo with same name



Create a new repository

A repository contains all project files, including the revision history.

Owner: Neves-P / Repository name *: repeatbeeps

Great repository names are short and memorable. Need inspiration? How about cautious-octo-spork?

Description (optional)

● Public
Anyone can see this repository. You choose who can commit.

○ Private
You choose who can see and commit to this repository.

□ Initialize this repository with a README
This will let you immediately clone the repository to your computer. Skip this step if you're importing an existing repository.

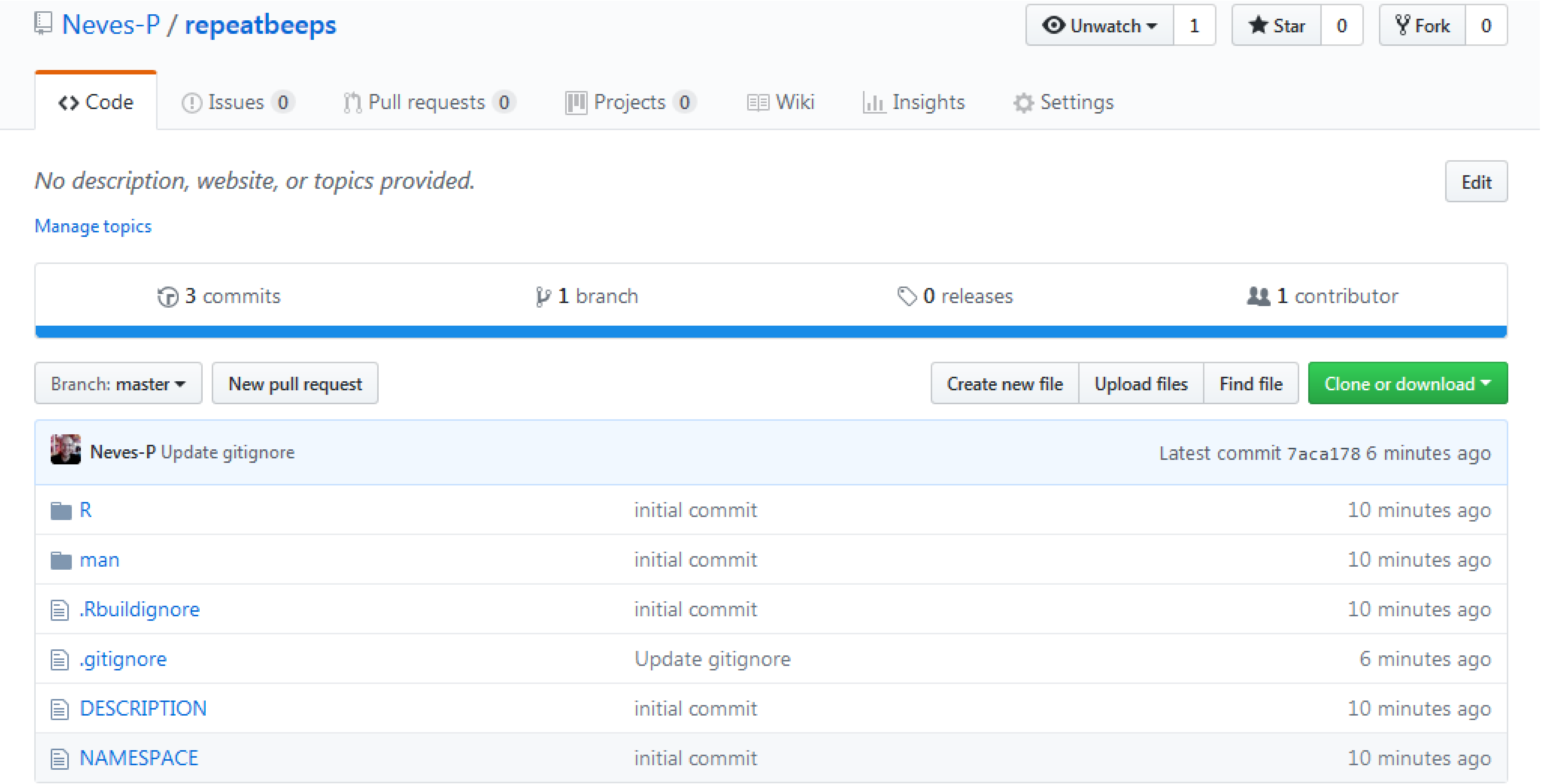
Add .gitignore: None | Add a license: None

Don't initialize with a README or any other file. We'll add them later.

Open terminal in R and run the following code

```
git remote add origin https://github.com/YourUsername/RepoName.git
git add –A
git commit –m “initial commit”
git push –u origin master
```

Package now on GitHub



Neves-P / **repeatbeeps**

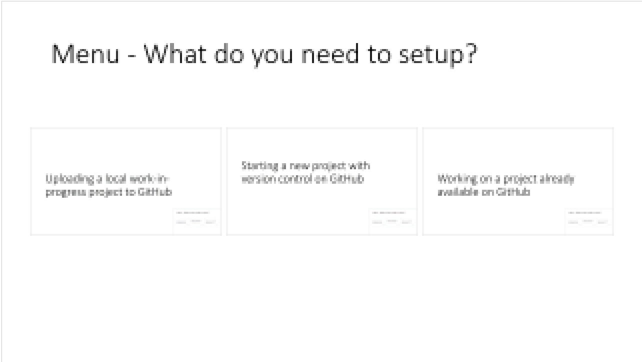
No description, website, or topics provided.

3 commits | 1 branch | 0 releases | 1 contributor

Neves-P Update gitignore — Latest commit 7aca178 6 minutes ago

R	initial commit	10 minutes ago
man	initial commit	10 minutes ago
.Rbuildignore	initial commit	10 minutes ago
.gitignore	Update gitignore	6 minutes ago
DESCRIPTION	initial commit	10 minutes ago
NAMESPACE	initial commit	10 minutes ago

Starting a new project with version control on GitHub

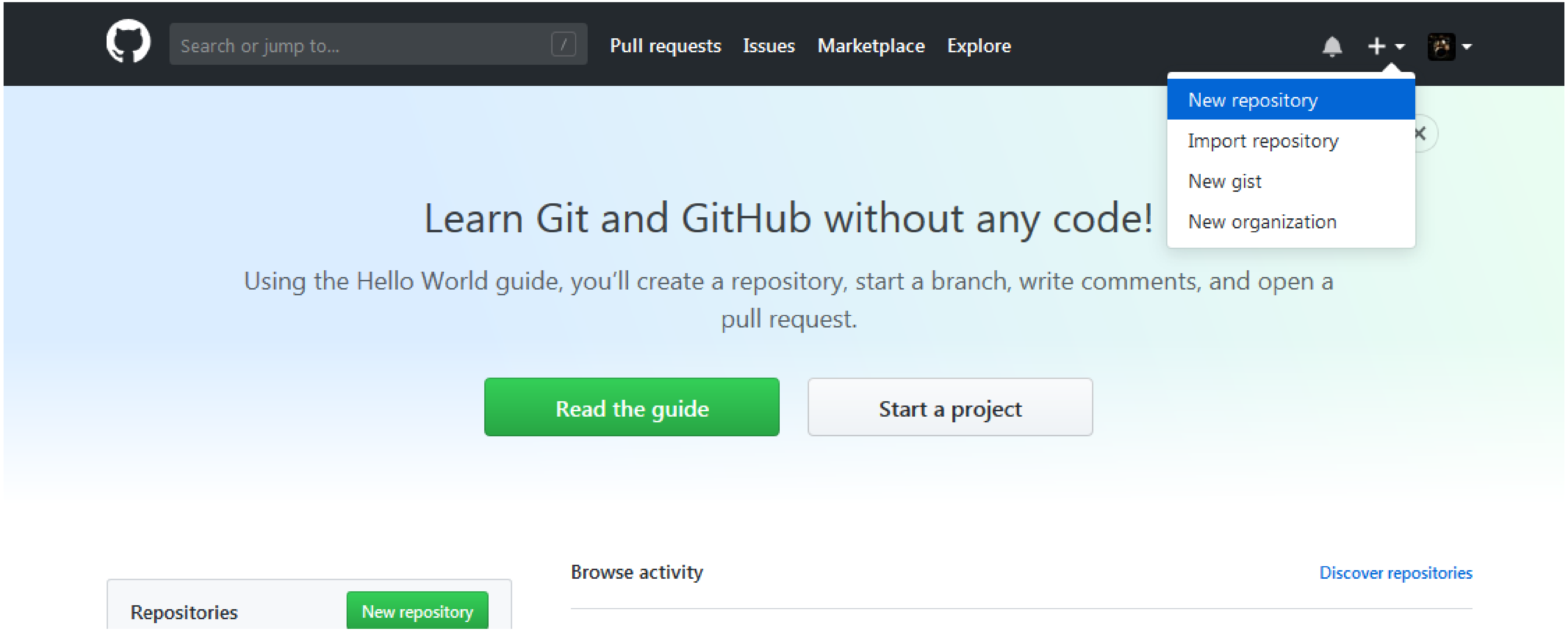


Menu - What do you need to setup?

Uploading a local work-in-progress project to GitHub

Starting a new project with version control on GitHub

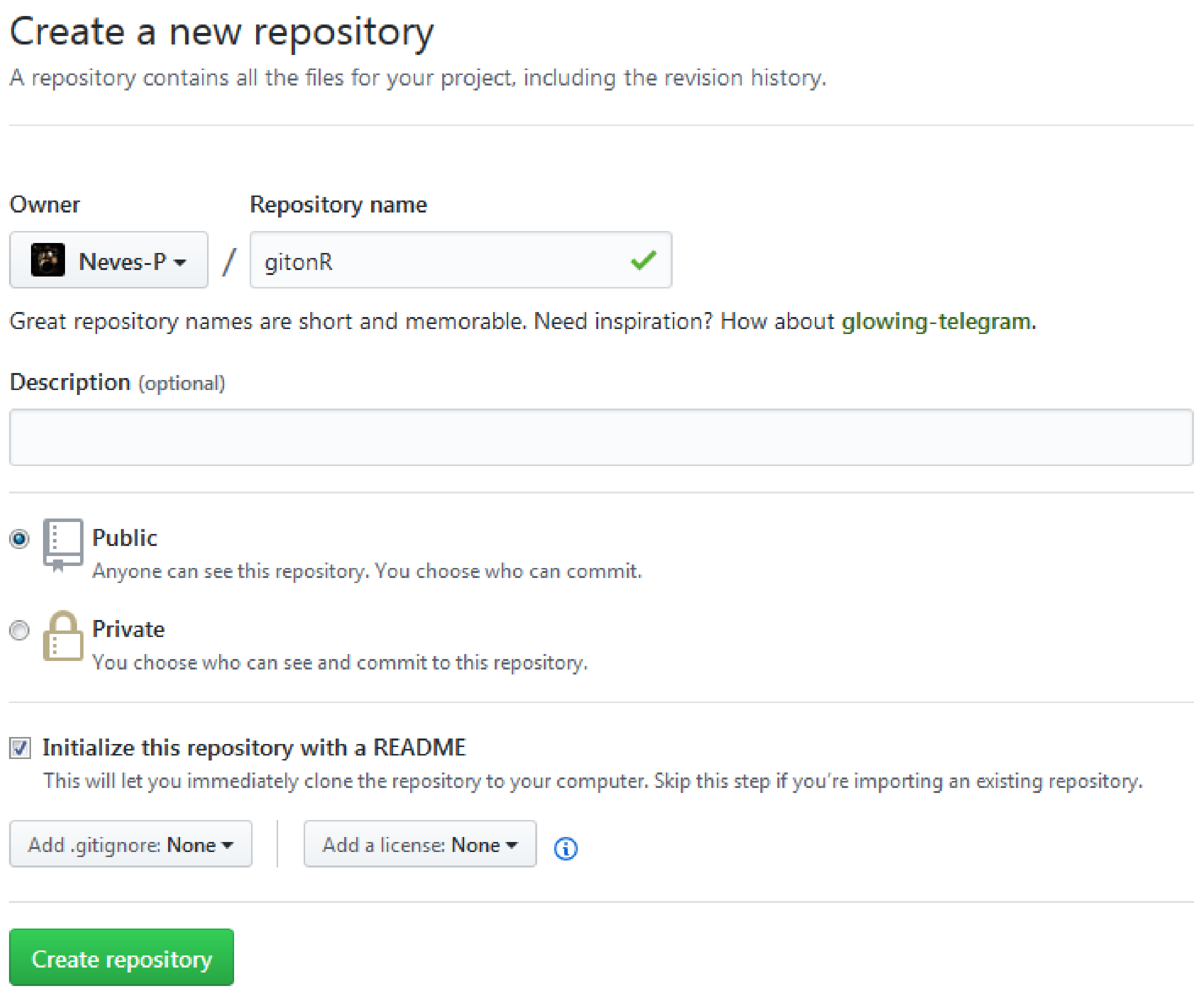
Working on a project already available on GitHub



Learn Git and GitHub without any code!

Using the Hello World guide, you'll create a repository, start a branch, write comments, and open a pull request.

Creating repository on GitHub



Create a new repository

A repository contains all the files for your project, including the revision history.

Owner: Neves-P / Repository name: gitonR ✓

Great repository names are short and memorable. Need inspiration? How about glowing-telegram.

Description (optional)

● Public
Anyone can see this repository. You choose who can commit.

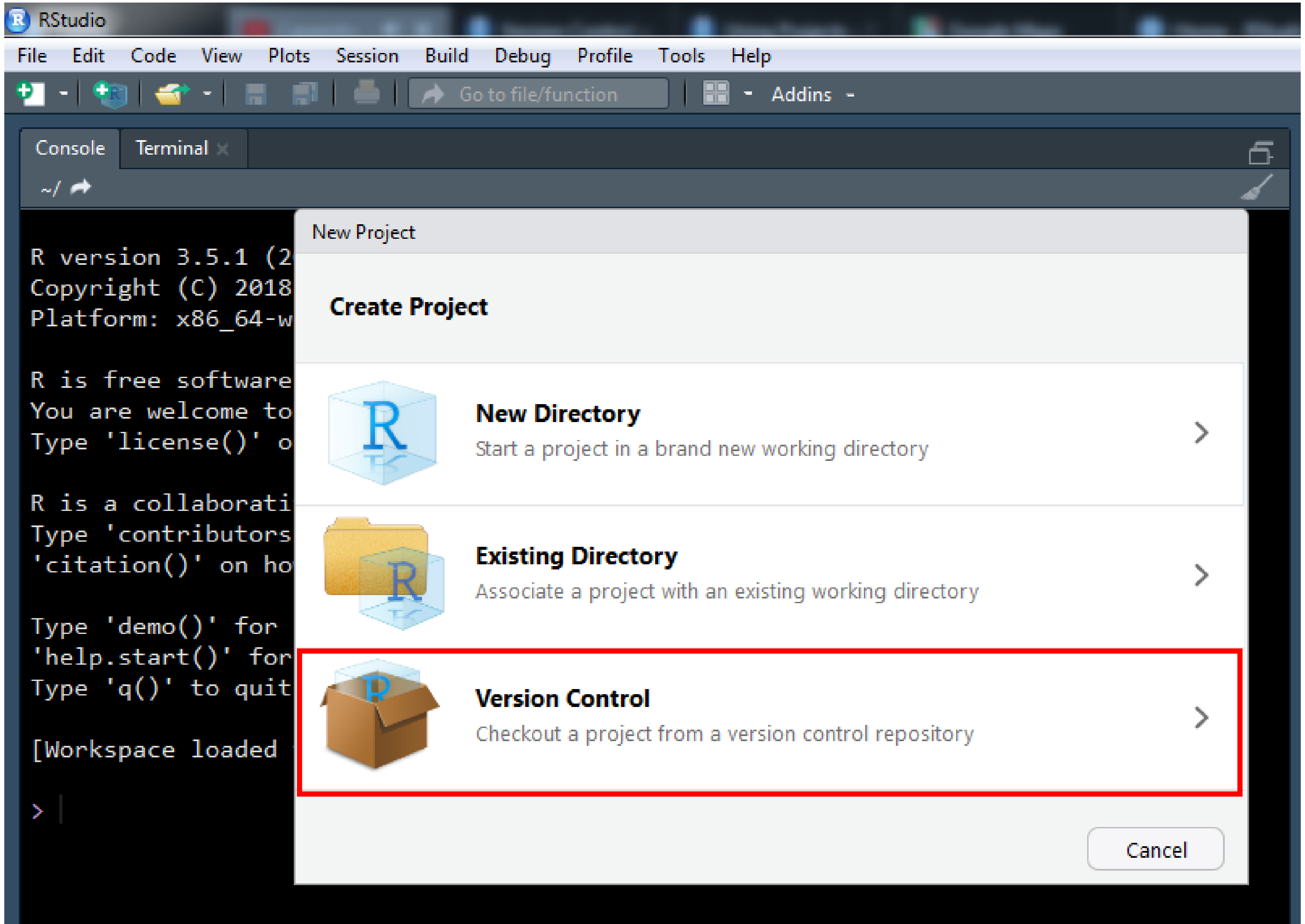
○ Private
You choose who can see and commit to this repository.

☑ Initialize this repository with a README
This will let you immediately clone the repository to your computer. Skip this step if you're importing an existing repository.

Choose a name for the repository and initialize it with a README file. Keep in mind that R packages must start with a letter and only contain ASCII numbers and letters. Dashes, underscores and slashes are not allowed.

This will let you clone to your local computer right away.

Downloading (cloning) the newly created repository



```
R version 3.5.1 (2
Copyright (C) 2018
Platform: x86_64-w

R is free software
You are welcome to
Type 'license()' o

R is a collaborati
Type 'contributors
'citation()' on ho

Type 'demo()' for
'help.start()' for
Type 'q()' to quit

[Workspace loaded

>
```

New Project

Create Project

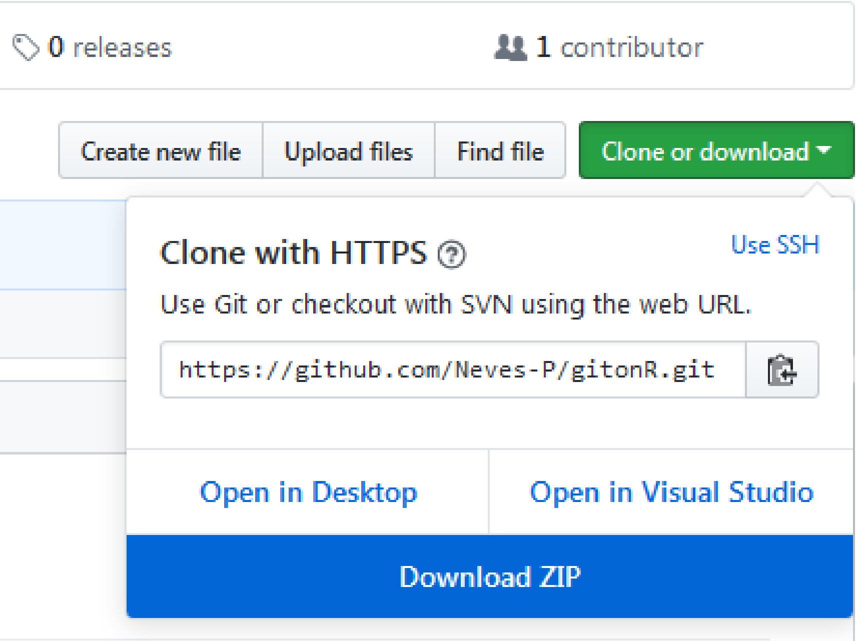
New Directory
Start a project in a brand new working directory

Existing Directory
Associate a project with an existing working directory

Version Control
Checkout a project from a version control repository

RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Go to file/function
Addins
Console
Terminal
~/
Cancel

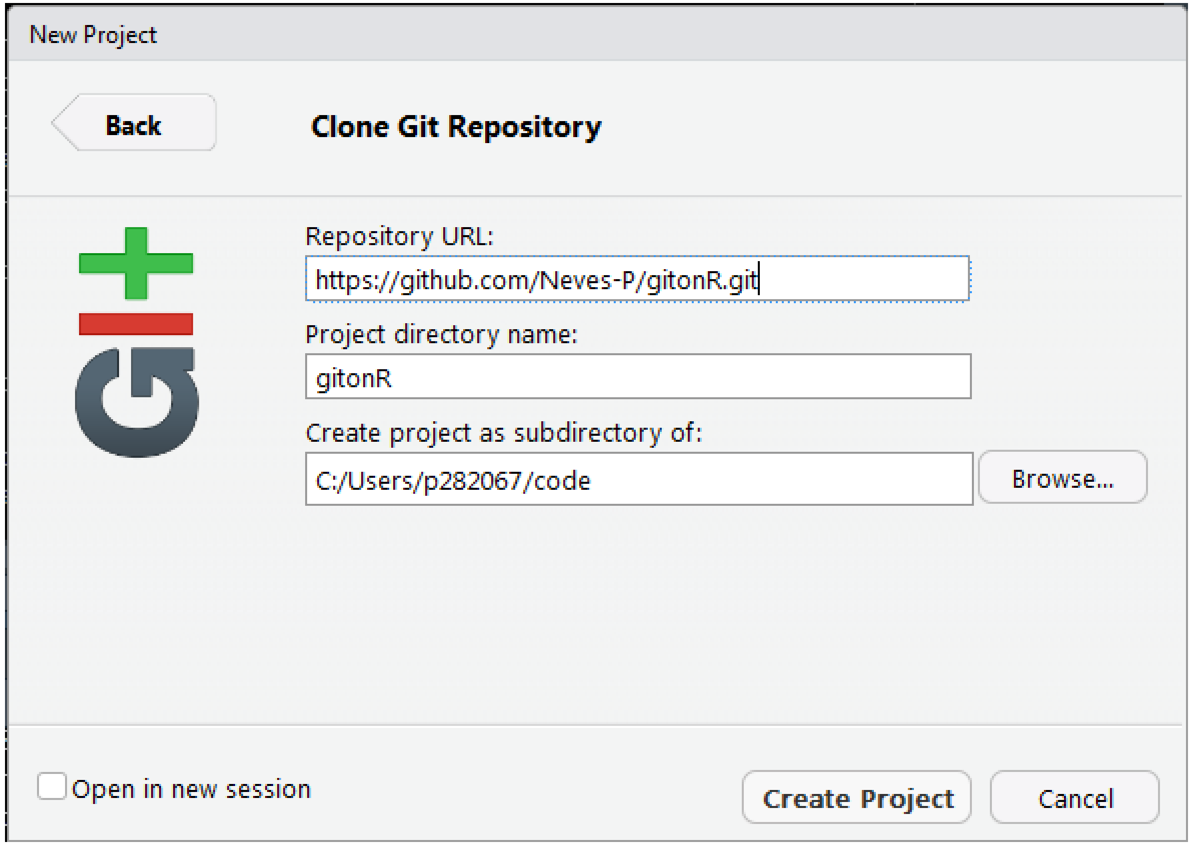
Cloning a repository



Clone with HTTPS

Use Git or checkout with SVN using the web URL.

```
https://github.com/Neves-P/gitonR.git
```



Clone Git Repository

Repository URL: https://github.com/Neves-P/gitonR.git

Project directory name: gitonR

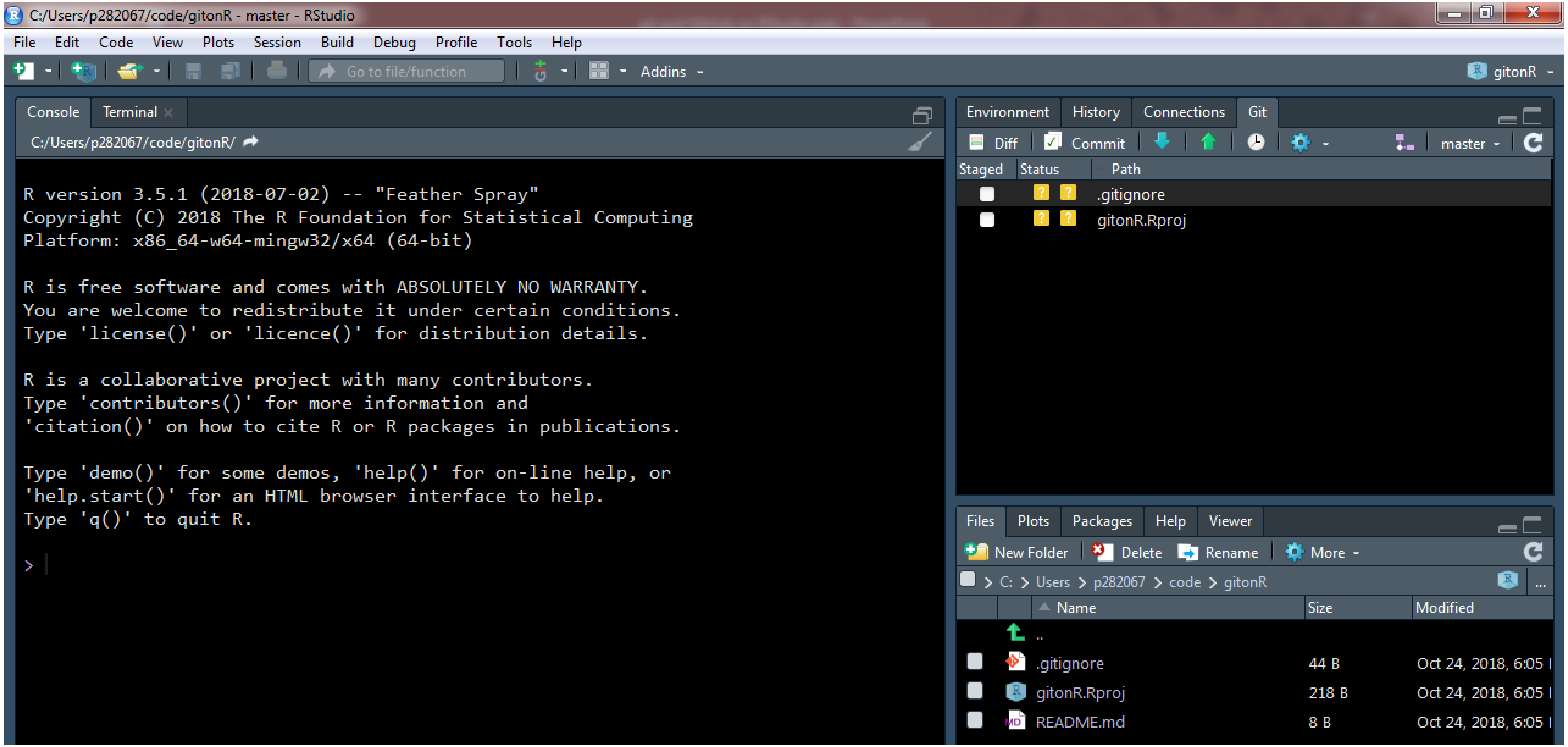
Create project as subdirectory of: C:/Users/p282067/code

□ Open in new session

Copy your new GitHub repo’s URL to the Clone Git Repository Window in RStudio. GitHub will give you the right address, it should end in .git

Choose a directory on your local computer where the local files will live

After cloning the repository



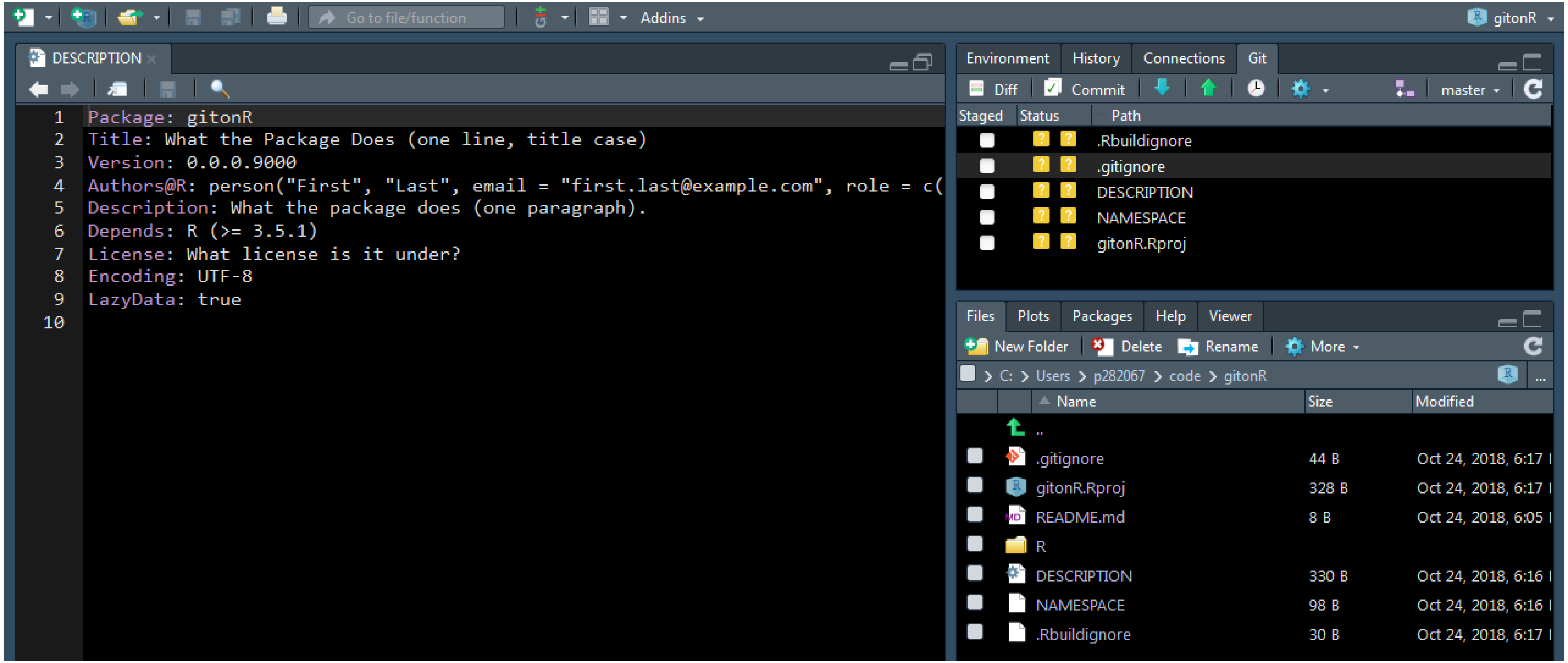
C:/Users/p282067/code/gitonR - master - RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Go to file/function
Addins
gitonR
Console
Terminal
C:/Users/p282067/code/gitonR/
Environment History Connections Git
Diff Commit
master
Files Plots Packages Help Viewer
New Folder Delete Rename More
C: > Users > p282067 > code > gitonR

```
R version 3.5.1 (2018-07-02) -- "Feather Spray"
Copyright (C) 2018 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.

>
```

Staged	Status	Path
□	? ?	.gitignore
□	? ?	gitonR.Rproj

	Name	Size	Modified
	..		
□	.gitignore	44 B	Oct 24, 2018, 6:05
□	gitonR.Rproj	218 B	Oct 24, 2018, 6:05
□	README.md	8 B	Oct 24, 2018, 6:05

Creating and pushing package skeleton



```
Package: gitonR
Title: What the Package Does (one line, title case)
Version: 0.0.0.9000
Authors@R: person("First", "Last", email = "first.last@example.com", role = c(
Description: What the package does (one paragraph).
Depends: R (>= 3.5.1)
License: What license is it under?
Encoding: UTF-8
LazyData: true

```

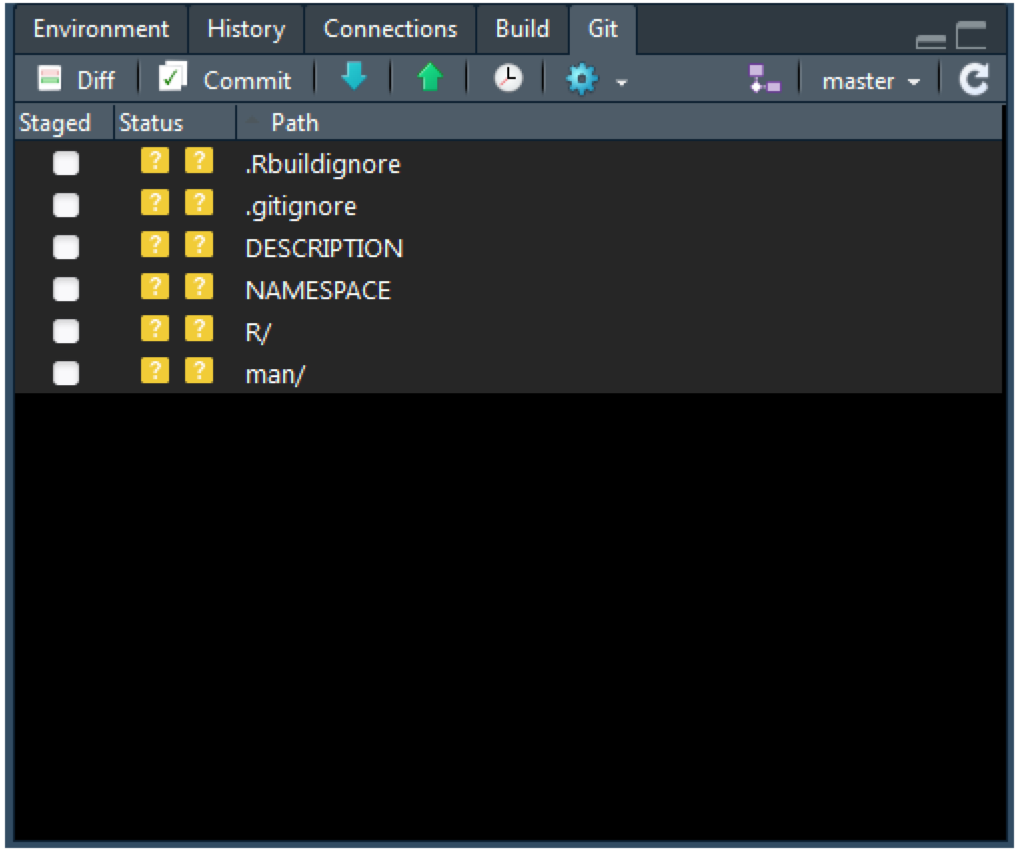
Staged	Status	Path
□	? ?	.Rbuildignore
□	? ?	.gitignore
□	? ?	DESCRIPTION
□	? ?	NAMESPACE
□	? ?	gitonR.Rproj

□ > C: > Users > p282067 > code > gitonR

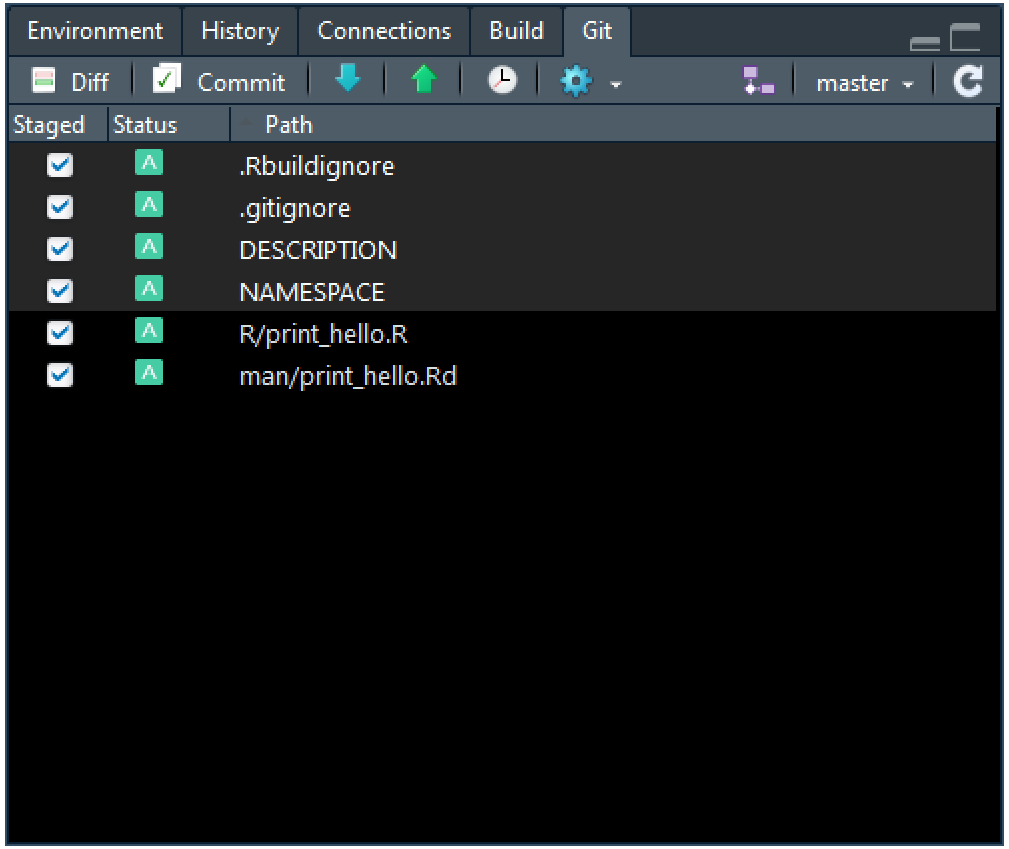
	Name	Size	Modified
	..		
□	.gitignore	44 B	Oct 24, 2018, 6:17
□	gitonR.Rproj	328 B	Oct 24, 2018, 6:17
□	README.md	8 B	Oct 24, 2018, 6:05
□	R		
□	DESCRIPTION	330 B	Oct 24, 2018, 6:16
□	NAMESPACE	98 B	Oct 24, 2018, 6:16
□	.Rbuildignore	30 B	Oct 24, 2018, 6:17

Package folder structure and temporary files can easily be created by running `devtools::setup()`.
I recommend also running `devtools::document()` to start documenting with roxygen2

Using git!

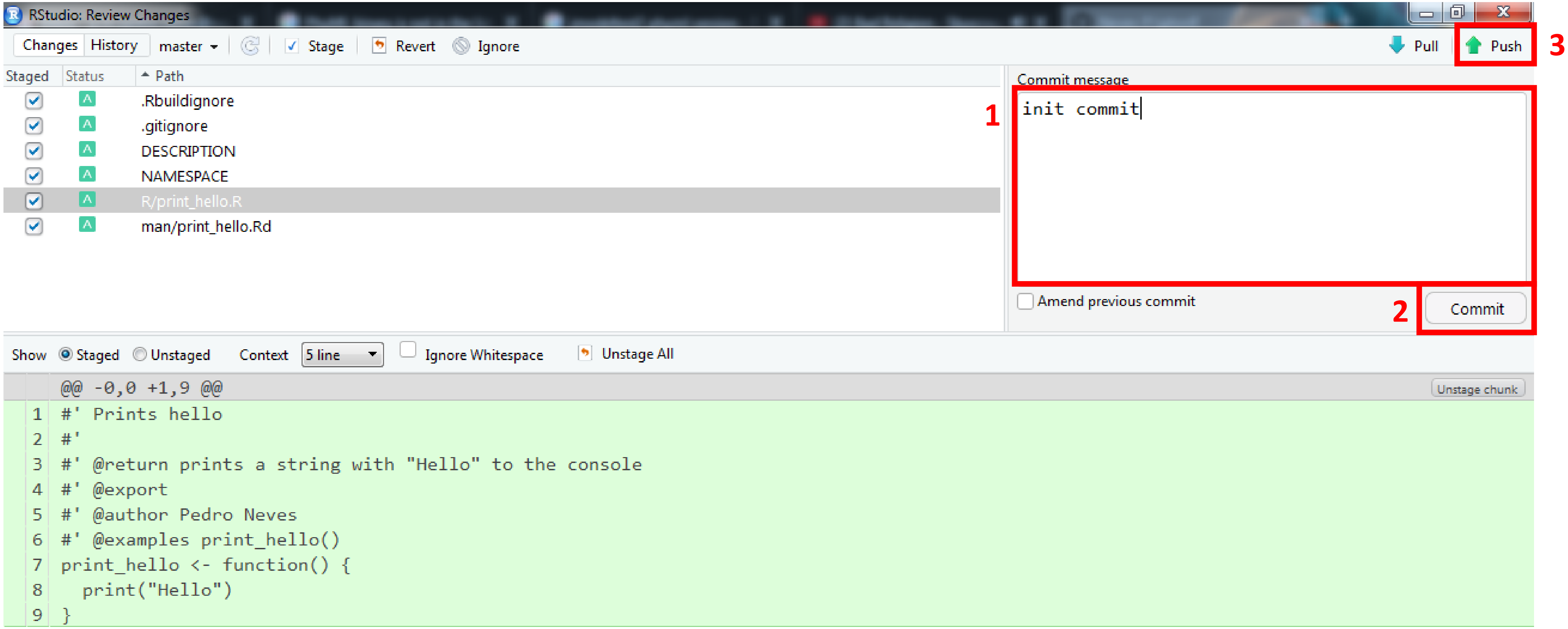


Staged	Status	Path
□	? ?	.Rbuildignore
□	? ?	.gitignore
□	? ?	DESCRIPTION
□	? ?	NAMESPACE
□	? ?	R/
□	? ?	man/



Staged	Status	Path
☑	A	.Rbuildignore
☑	A	.gitignore
☑	A	DESCRIPTION
☑	A	NAMESPACE
☑	A	R/print_hello.R
☑	A	man/print_hello.Rd

Review changes panel



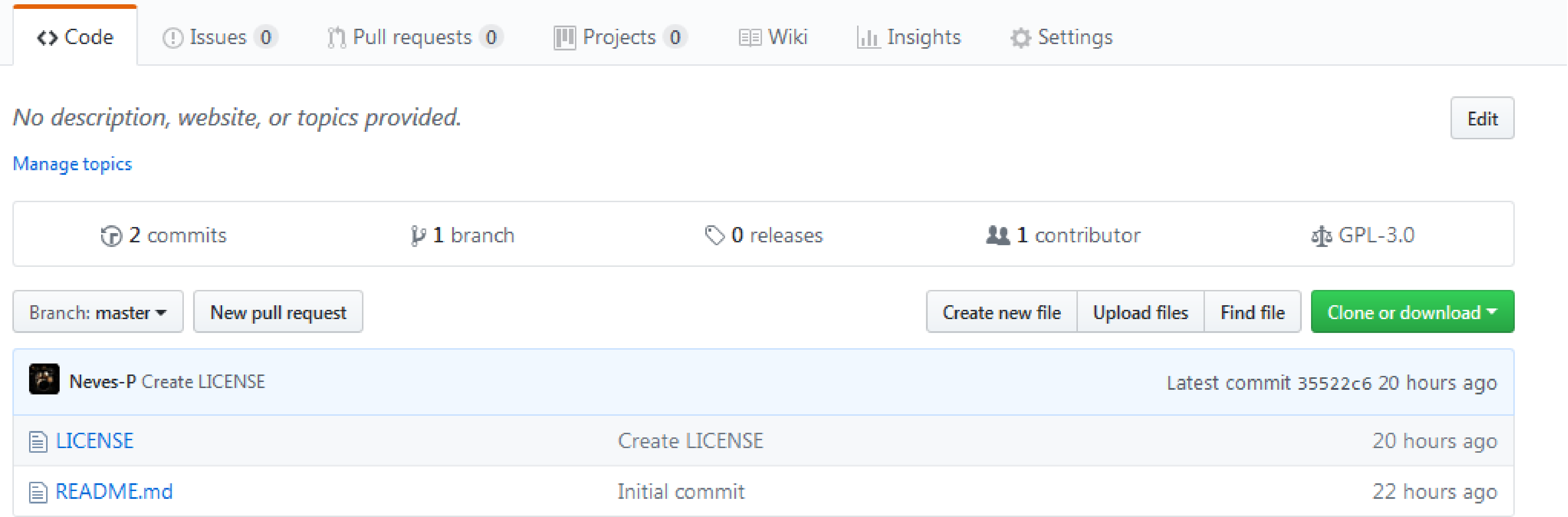
Staged	Status	Path
☑	A	.Rbuildignore
☑	A	.gitignore
☑	A	DESCRIPTION
☑	A	NAMESPACE
☑	A	R/print_hello.R
☑	A	man/print_hello.Rd

Commit message: init commit

□ Amend previous commit

Show ● Staged ○ Unstaged Context 5 line □ Ignore Whitespace

```
@@ -0,0 +1,9 @@
#' Prints hello
#'
#' @return prints a string with "Hello" to the console
#' @export
#' @author Pedro Neves
#' @examples print_hello()
print_hello <- function() {
  print("Hello")
}
```

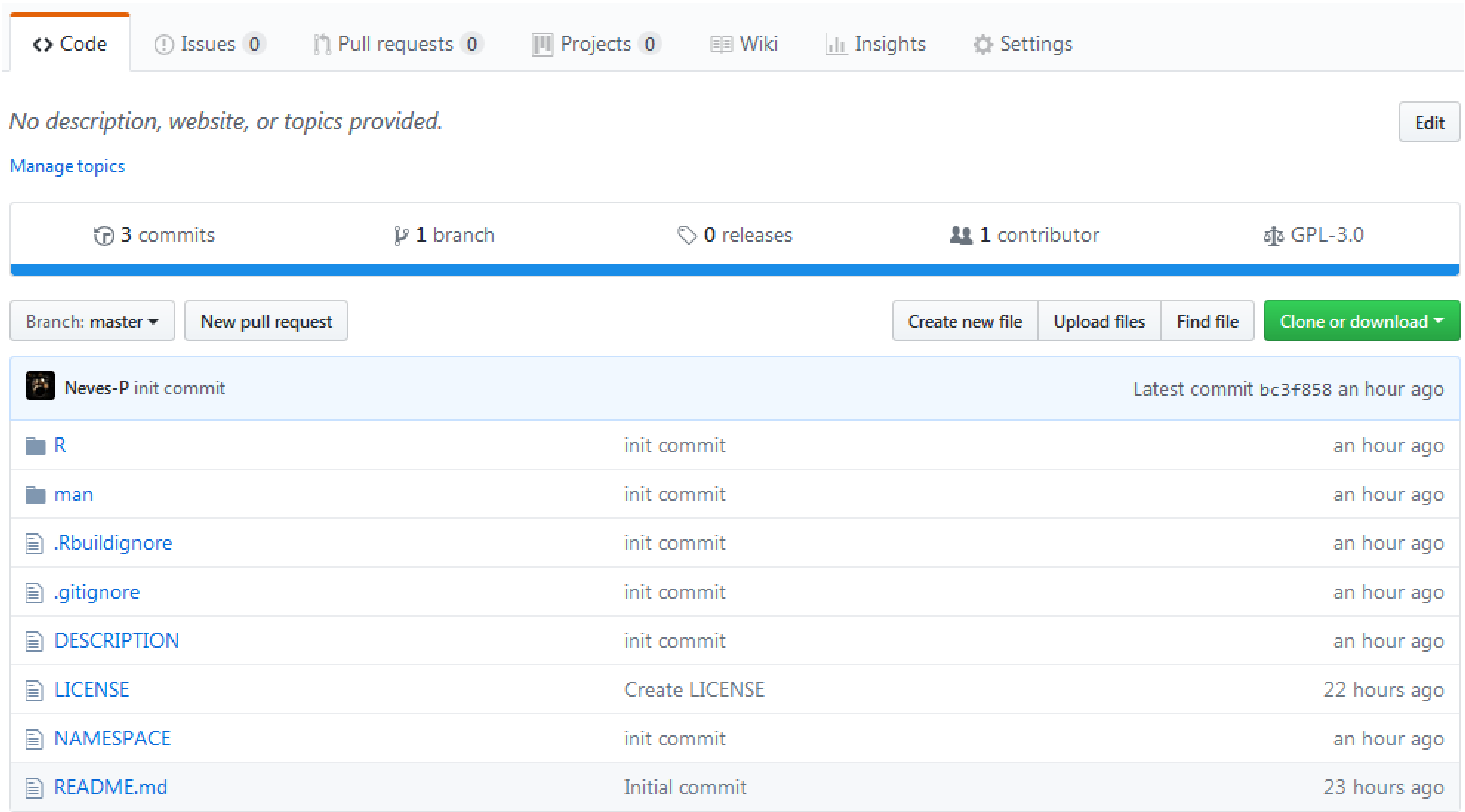


No description, website, or topics provided.

2 commits | 1 branch | 0 releases | 1 contributor | GPL-3.0

Neves-P Create LICENSE — Latest commit 35522c6 20 hours ago

LICENSE	Create LICENSE	20 hours ago
README.md	Initial commit	22 hours ago



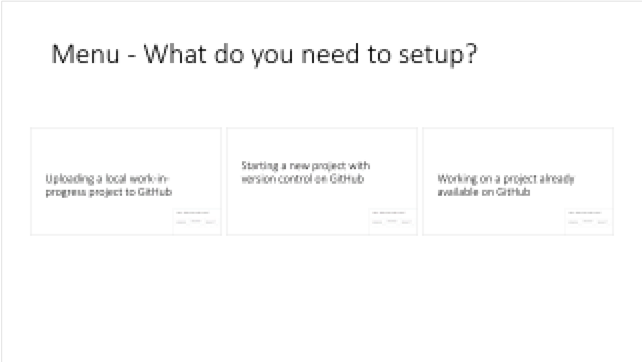
No description, website, or topics provided.

3 commits | 1 branch | 0 releases | 1 contributor | GPL-3.0

Neves-P init commit — Latest commit bc3f858 an hour ago

R	init commit	an hour ago
man	init commit	an hour ago
.Rbuildignore	init commit	an hour ago
.gitignore	init commit	an hour ago
DESCRIPTION	init commit	an hour ago
LICENSE	Create LICENSE	22 hours ago
NAMESPACE	init commit	an hour ago
README.md	Initial commit	23 hours ago

Working on a project already available on GitHub



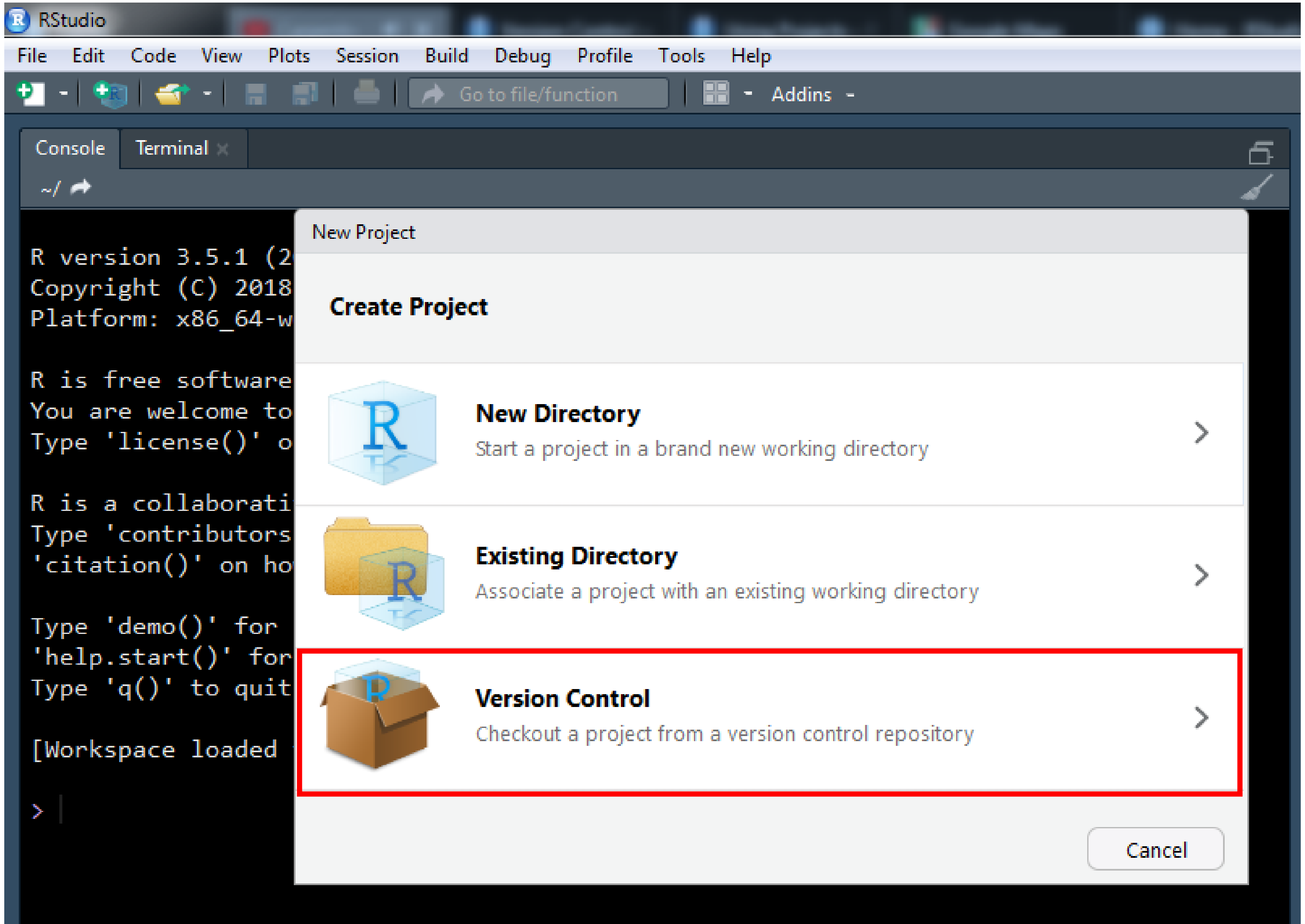
Menu - What do you need to setup?

Uploading a local work-in-progress project to GitHub

Starting a new project with version control on GitHub

Working on a project already available on GitHub

Downloading (cloning) an existing repository


RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Go to file/function
Addins
Console
Terminal
~/

```
R version 3.5.1 (2
Copyright (C) 2018
Platform: x86_64-w

R is free software
You are welcome to
Type 'license()' o

R is a collaborati
Type 'contributors
'citation()' on ho

Type 'demo()' for
'help.start()' for
Type 'q()' to quit

[Workspace loaded

>
```

New Project

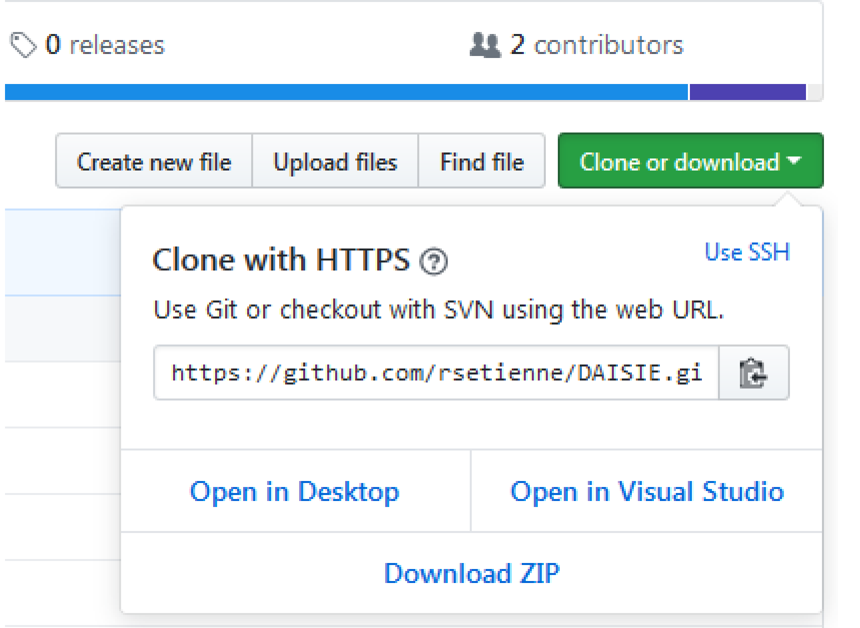
Create Project

New Directory
Start a project in a brand new working directory

Existing Directory
Associate a project with an existing working directory

Version Control
Checkout a project from a version control repository

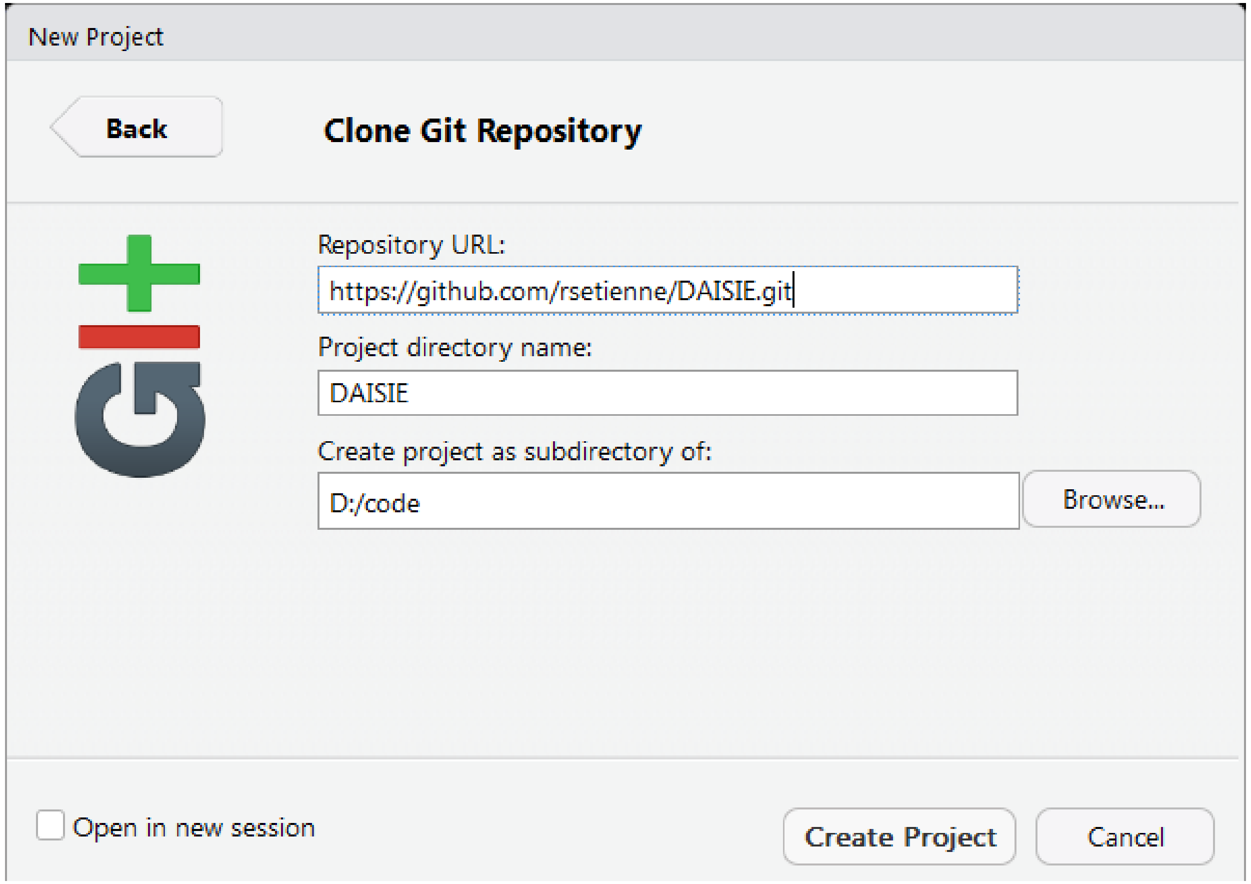
Cloning a repository



Clone with HTTPS

Use Git or checkout with SVN using the web URL.

https://github.com/rsetienne/DAISIE.gi



Repository URL: https://github.com/rsetienne/DAISIE.git

Project directory name: DAISIE

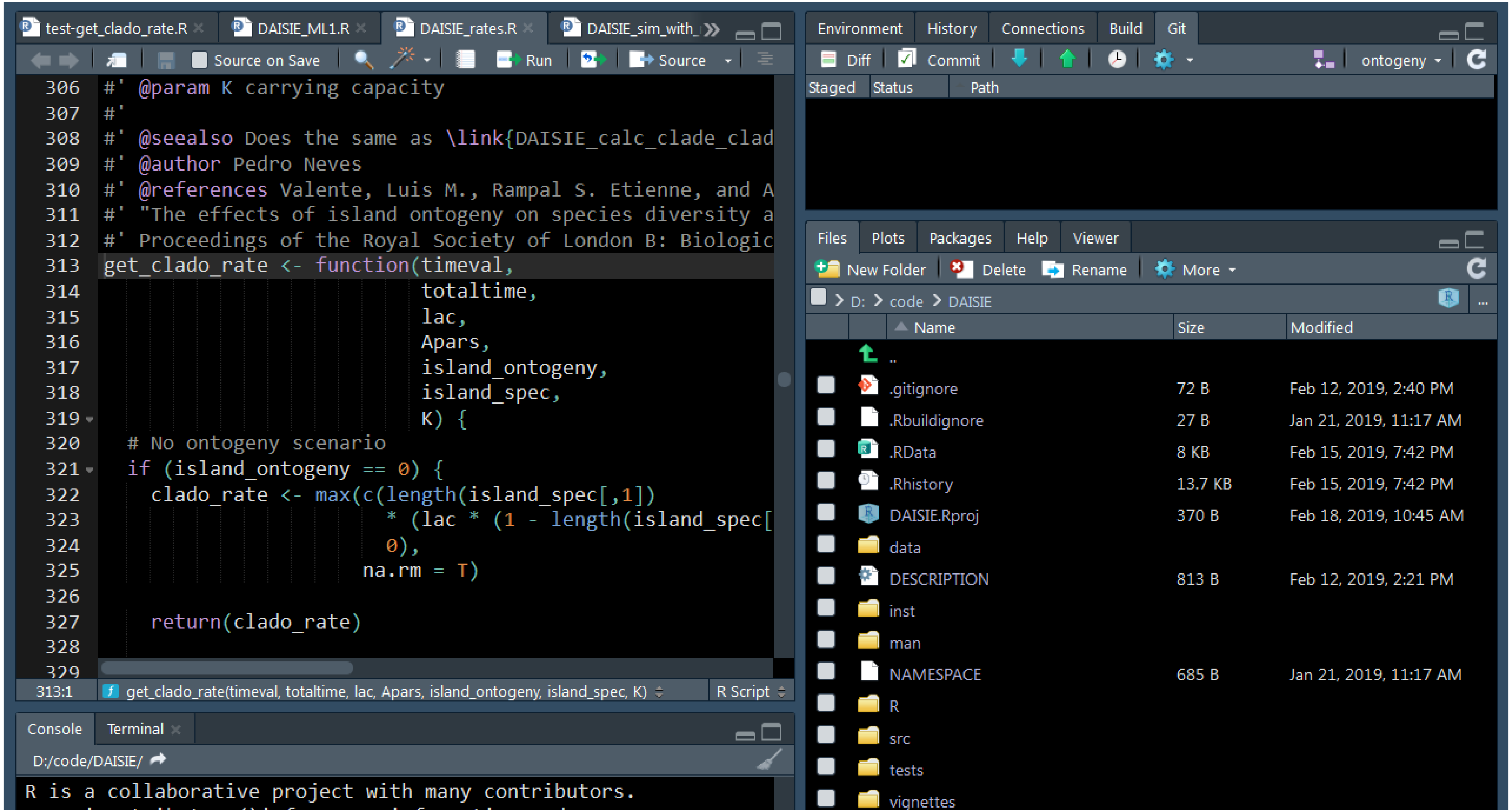
Create project as subdirectory of: D:/code

☐ Open in new session

Copy your new GitHub repo’s URL to the Clone Git Repository Window in RStudio. GitHub will give you the right address, it should end in .git

Choose a directory on your local computer where the local files will live

Start working!



```r
#' @param K carrying capacity
#'
#' @seealso Does the same as \link{DAISIE_calc_clade_clad
#' @author Pedro Neves
#' @references Valente, Luis M., Rampal S. Etienne, and A
#' "The effects of island ontogeny on species diversity a
#' Proceedings of the Royal Society of London B: Biologic
get_clado_rate <- function(timeval,
                           totaltime,
                           lac,
                           Apars,
                           island_ontogeny,
                           island_spec,
                           K) {
  # No ontogeny scenario
  if (island_ontogeny == 0) {
    clado_rate <- max(c(length(island_spec[,1])
                        * (lac * (1 - length(island_spec[
                        0)),
                      na.rm = T)

    return(clado_rate)

```

313:1 get_clado_rate(timeval, totaltime, lac, Apars, island_ontogeny, island_spec, K) R Script

Staged	Status	Path

D: > code > DAISIE

Name	Size	Modified
..		
.gitignore	72 B	Feb 12, 2019, 2:40 PM
.Rbuildignore	27 B	Jan 21, 2019, 11:17 AM
.RData	8 KB	Feb 15, 2019, 7:42 PM
.Rhistory	13.7 KB	Feb 15, 2019, 7:42 PM
DAISIE.Rproj	370 B	Feb 18, 2019, 10:45 AM
data		
DESCRIPTION	813 B	Feb 12, 2019, 2:21 PM
inst		
man		
NAMESPACE	685 B	Jan 21, 2019, 11:17 AM
R		
src		
tests		
vignettes		

```
D:/code/DAISIE/
R is a collaborative project with many contributors.
```