Using Git within RStudio

Jean-Michel Marin

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CNRS – IMAG (Montpellier, France)

Make sure RStudio can find Git (1)

If everything installed correctly...

- File > New Project. Do you see an option to create from Version Control? If yes, good.
- Select New Directory > Empty Project. Do you see a checkbox "Create a git repository"? If yes, good. Check it.
- Give this test project a name and click "Create Project". Do you see a "Git" tab in the upper right pane, the same one that has "Environment" and "History"? If yes, good.

If this worked, you can delete the project. You've set everything up correctly.

Make sure RStudio can find Git (2)

If this didn't work...

RStudio can only act as a GUI front-end for Git if Git has been successfully installed AND RStudio can find it.

A basic test for successful installation of git is to simply enter git in the shell. If you get a complaint about git not being found, it means installation was unsuccessful or that it is not being found, i.e. it is not on your PATH.

If you are not sure where the git executable lives, try this in a shell:

```
which git (Mac, Linux)
where git (most versions of Windows)
```

Make sure RStudio can find Git (3)

If Git appears to be installed and findable, launch RStudio and try again. If it still doesn't work, quit and re-launch RStudio if there's any doubt in your mind about whether you opened RStudio before or after installing Git.

From RStudio, go to Tools > Global Options > Git/SVN and make sure that the box Git executable points to the Git executable. It should read something like:

```
/usr/bin/git (Mac, Linux)
C:/Program Files (x86)/Git/bin/git.exe (Windows)
```

Test Drive RStudio and GitHub (1)

Step 1: Make a new repo on GitHub

- Go to GitHub.com and login.
- Click the green "New Repository" button
  - Repository name: myrepo
  - Public
  - Check Initialize this repository with a README
- Click the green "Create repository" button
- Copy the URL to your clipboard via the green "Clone or Download" button

Test Drive RStudio and GitHub (2)

Step 2: Clone the new GitHub repository to your computer via RStudio

In RStudio, start a new Project:

- File > New Project > Version Control > Git. In the "repository URL" paste the URL of your new GitHub repository.
- Decide where to store the local directory for the project.
- I suggest you check "Open in new session", as that's what you'll usually do in real life.
- Click "Create Project" to create a new sub-directory, which will be all of these things:
  - a directory on your computer
  - a Git repository, linked to a remote GitHub repository
  - an RStudio Project

Test Drive RStudio and GitHub (2)

- Whenever possible, this will be the preferred route for setting up your R projects.
- This should download the README.md file that we created on GitHub in the previous step. Look in RStudio's file browser pane for the README.md file.
- There's a big advantage to the "Github first, then RStudio workflow: the remote GitHub repo is now the "upstream" remote for your local repo.

Test Drive RStudio and GitHub (3)

Step 3: Make local changes, save, commit

Do this every time you finish a valuable chunk of work, probably many times a day.

From RStudio, modify the README.md file by adding the line

This is a line from RStudio.

Save your changes.

Next, commit these changes to your local repo. How? From RStudio:

- Click the "Git" tab in the upper right pane.
- Check the "Staged" box for any files whose existence or modifications you want to commit.
- To see more detail on what's changed in file since the last commit, click on

Test Drive RStudio and GitHub (4)

Step 4: Push your local changes online to GitHub

- Do this a few times a day, but possibly less often than you commit.
- You have new work in your local Git repository, but the changes are not online yet.

Before you push your changes to GitHub, first you should pull from GitHub.

- Click the blue "Pull" button in the "Git" tab in RStudio. I doubt anything will happen, i.e. you'll get the message "Already up-to-date". This is just to establish a habit.
- Now click the green "Push" button to send your local changes to GitHub.