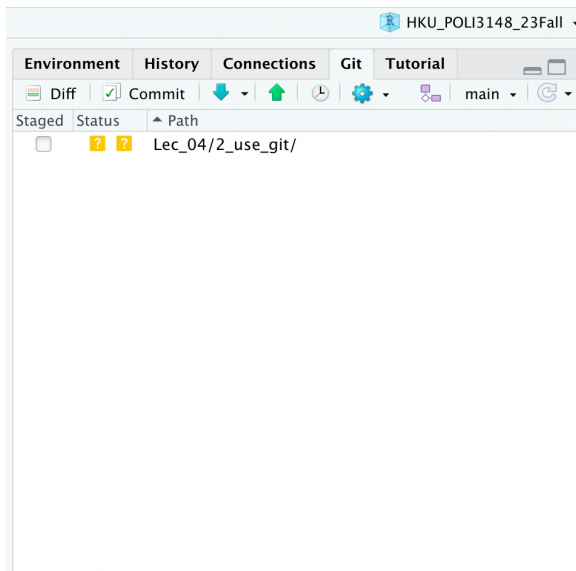


How to synchronize your GitHub repo

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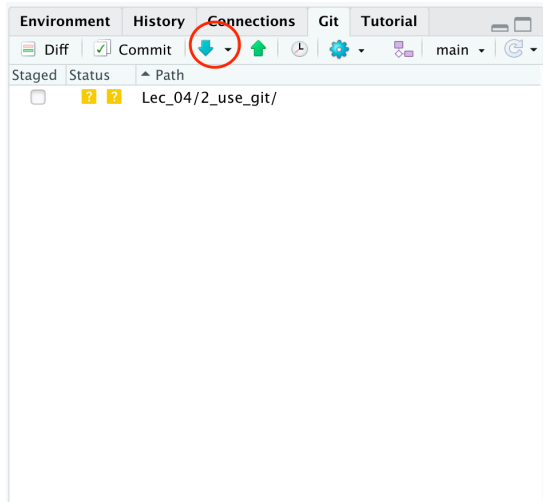
After you have set up a *Version Control* R project following instructions in 1_setup_git, you can then use Rstudio to synchronize your local repository with your online repositories on GitHub. You can perform these operations using the “Git” panel that by default shows up at the top-left area of your Rstudio interface. See below a screenshot of the panel.



In this note, I will introduce how you may retrieve updates from an online GitHub repo and upload local updates to your online GitHub repo.

Retrieve Updates from an Online Repo

To retrieve update from an online GitHub repo, simply click the blue downward arrow. Clicking the button will render a pop-up window. When the update is done, a line of text “Already up to date” will show up in the pop-up window. And you will need to manually close it by clicking “Close.”



Note: a small drop-down menu to the right of the “Pull” button gives you an option to “Pull with Rebase.” This is a function you should use with extreme caution. If you choose to pull with rebase, then, the update will **OVERWRITE ALL YOUR LOCAL CHANGES**. If you are working with a project folder that you are updating locally, doing it will cause loss of all recent updates!

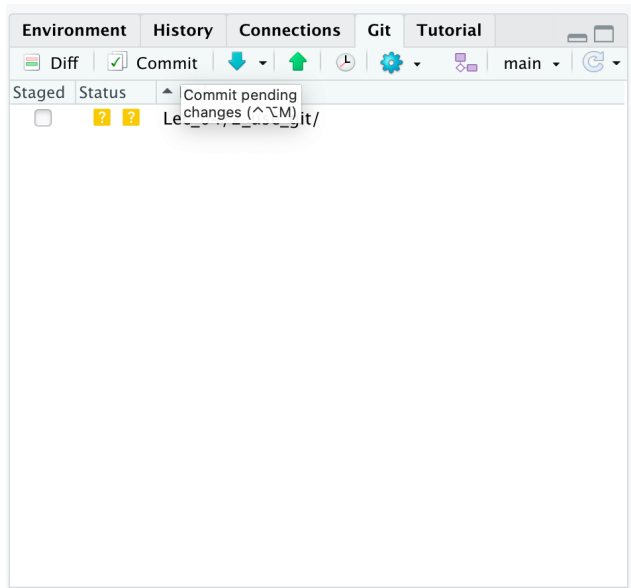
Upload Local Updates to an Online Repo

Updating your folder takes two steps: commit and push — I assume the two-step process to be less intuitive for new Git users and requires some elaboration.

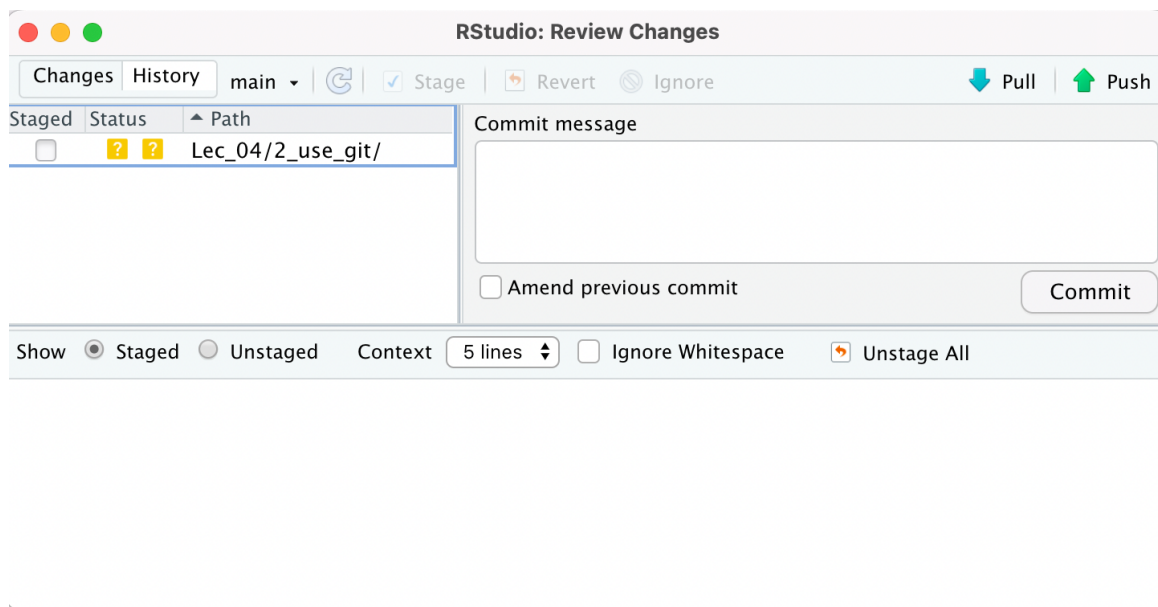
Commit

First, to upload your local changes, you need “commit” your changes — I take this step as an intermediate step where you can (1) examine what exact changes have been made, (2) select a subset of changes you want to upload (but for most of the time I’d go with ALL to avoid confusion, and (3) add a note describing the nature of your changes.

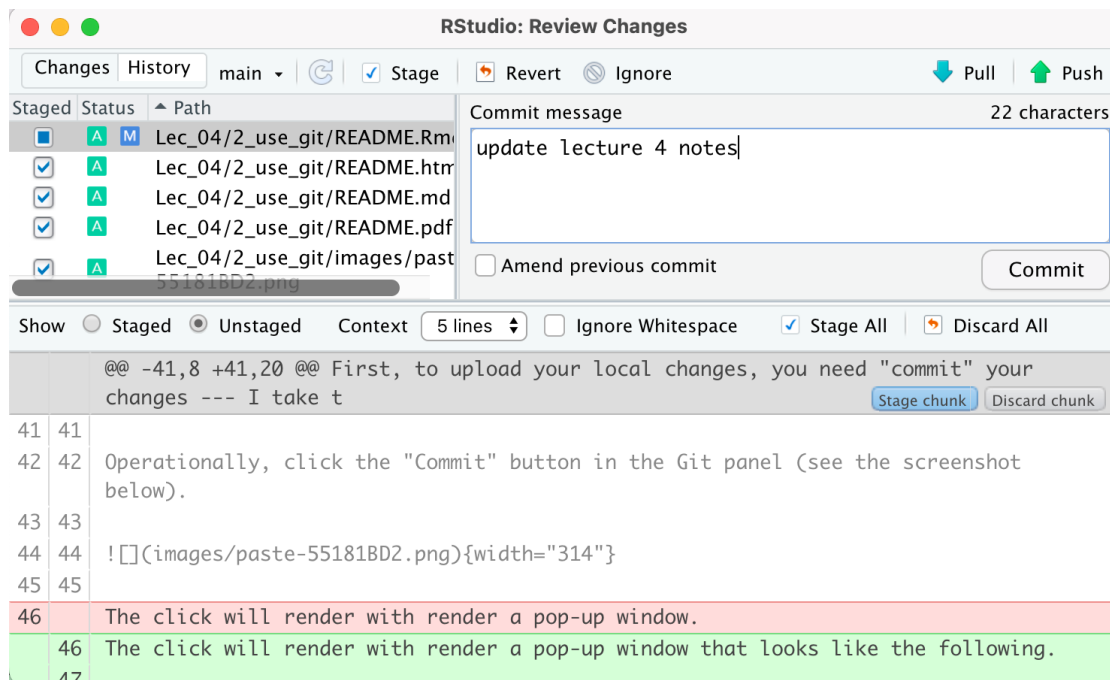
Operationally, click the “Commit” button in the Git panel (see the screenshot below).



The click will render with render a pop-up window that looks like the following.



The top-left panel list all the changes you have made since the latest synchronization. The first operation I'd do is to select ("stage") all by clicking the checkboxes under the "staged" column. To save time, instead of clicking on the checkboxes, I'd select-all using Control+A or Cmd+A and press SPACE or ENTER to check all the boxes. After you do so, the interface will change into something that looks like the screenshot below.

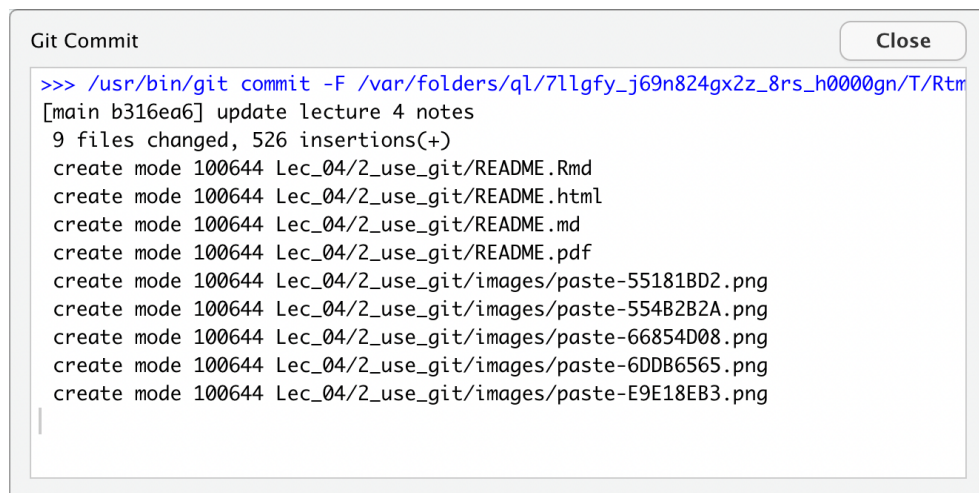


You may observe two things. First, the list of files at the top-left panel gets longer. That is because before after checking the checkboxes, it shows each changed files individually (as oppose to showing folder names prior checking).

Second and more importantly, you will start to see content in the bottom panel. This shows the exact changes you have made to your files. Text with a GREEN background means addition. Text with a RED background means deletion. You can click on the paths of different files to track changes in individual files (but don't click on the checkboxes because that will "unstage" them).

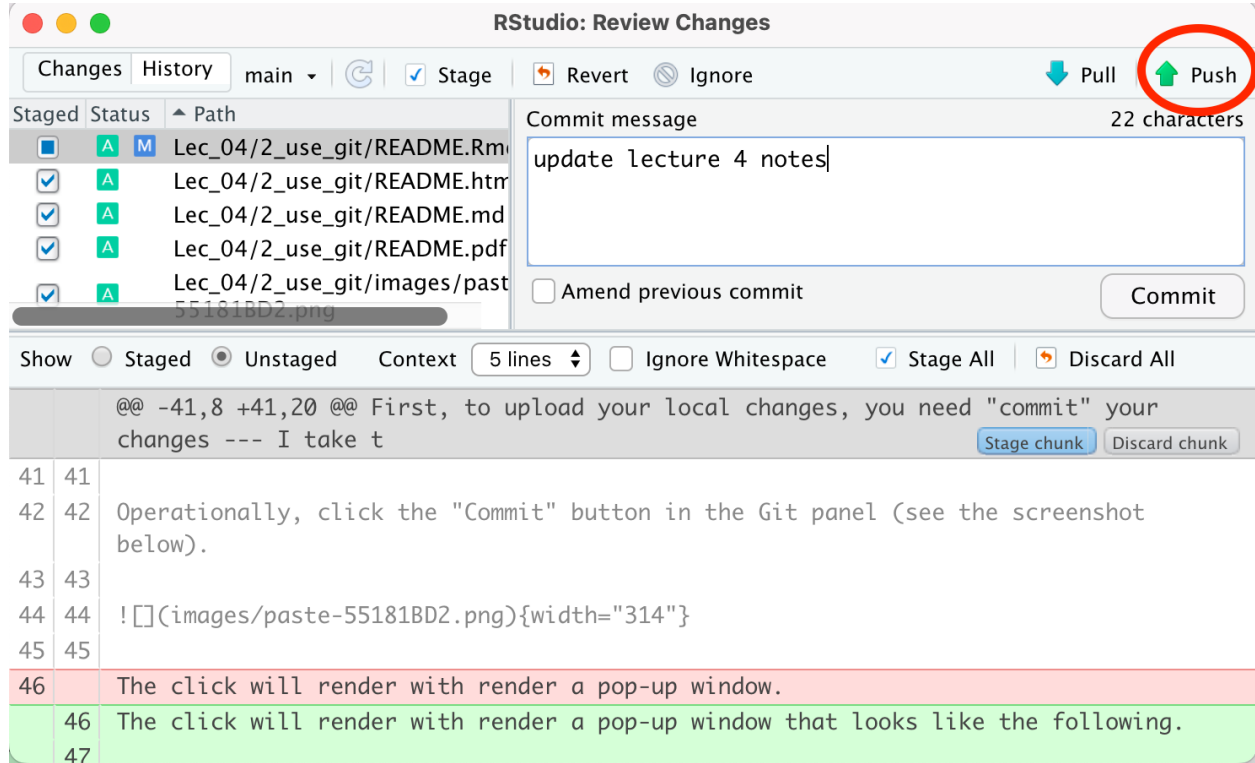
Here comes the final step. After you have examined your changes and are satisfied with them, use the top-right panel "Commit message" to briefly summarize the nature of your update. Keep it brief and do not use any special character in this message. For example, I type "update lecture 4 notes" for this one.

After adding your "Commit message," you may click the "Commit" button. It will render a pop-up window that shows the progress (see the screenshot below for an example). When it stops moving, click the "Close" button.



“Push”

After taking the time to review and confirm your changes in the “Commit” step, you are ready to “push” the update online. This step is much more straightforward. Simply click the “Push” button at the top-right corner (see the screenshot below).



Note: If this is a collaborative project (i.e., others may be simultaneously updating the GitHub repo), then after “Commit,” you should first “Pull” updates in the online folder before you “Push.” In this case, after you “Commit,” first click “Pull” to retrieve the latest updates and then click “Push” to upload your local updates.