




Git Installation and first usage

- Know what Git is used for and who created it
- Install Git on your Windows PC
- Use git to download flutter sources from GitHub
- Check if new versions of the sources are available on GitHub and pull them

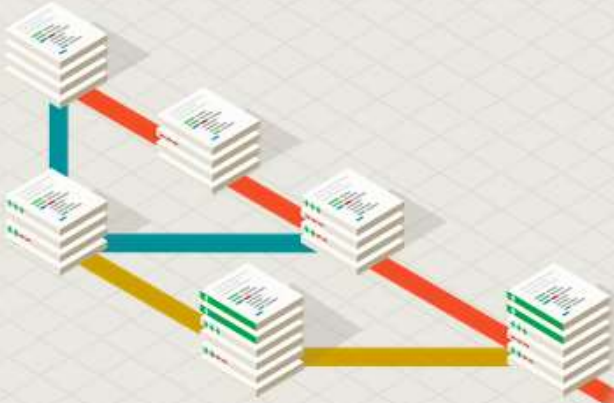


What is Git

 **git** --local-branching-on-the-cheap

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**.



Copied from <https://git-scm.com/>



History of Git

10 Years of Git: An Interview with Git Creator Linus Torvalds

THE LINUX FOUNDATION | 06 APRIL 2015

Ten years ago this week, the Linux kernel community faced a daunting challenge: They could no longer use their revision control system BitKeeper and no other **Source Control Management (SCMs)** met their needs for a distributed system. **Linus Torvalds**, the creator of Linux, took the challenge into his own hands and **disappeared over the weekend to emerge the following week with Git**. Today Git is used for thousands of projects and has ushered in a new level of social coding among programmers.

Copied from <https://www.linuxfoundation.org/blog/blog/10-years-of-git-an-interview-with-git-creator-linus-torvalds> where you can find an interview with Linus Torvalds on Git.

BTW: “to usher in” means in German: “etwas einleiten”



Some questions on Git

What does Git do?

- Manage projects with **Repositories**
- **Clone** a project to work on a local copy
- Control and track changes with **Staging** and **Committing**
- **Branch** and **Merge** to allow for work on different parts and versions of a project
- **Pull** the latest version of the project to a local copy
- **Push** local updates to the main project

Why Git?

- Over 70% of developers use Git!
- Developers can work together from anywhere in the world.
- Developers can see the full history of the project.
- Developers can revert to earlier versions of a project.

What is GitHub?

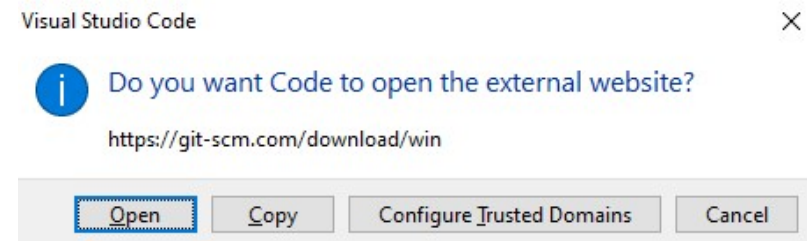
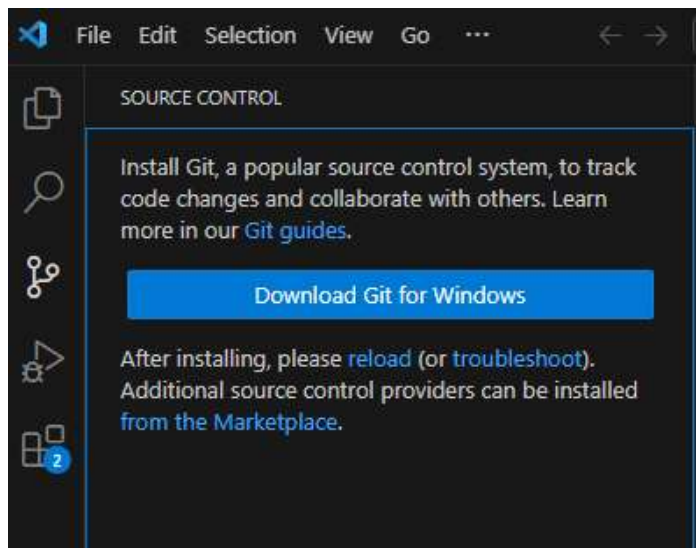
- Git is not the same as GitHub.
- GitHub makes tools that use Git.
- GitHub is the largest host of source code in the world, and has been owned by Microsoft since 2018.

Copied from https://www.w3schools.com/git/git_intro.asp?remote=github



Install Git on your Windows PC

Open Visual Studio Code and select  on the left:





Install Git on your Windows PC

The screenshot shows the Git website's download page for Windows. The browser's address bar shows `git-scm.com/download/win`. The page has a sidebar with links for 'About', 'Documentation', 'Downloads' (highlighted), and 'Community'. The main content area is titled 'Download for Windows' and contains a link 'Click here to download' which is circled in red and labeled with a red '1'. Below this, there are sections for 'Other Git for Windows downloads' including 'Standalone Installer' (with links for 32-bit and 64-bit Setup) and 'Portable ("thumbdrive edition")' (with links for 32-bit and 64-bit Portable). A download progress window is open in the top right, showing 'Aktueller Downloadverlauf' with a file named 'Git-2.45.2-64-bit.exe' (65.0 MB, downloaded 4 minutes ago) and a link to 'Vollständiger Downloadverlauf'. An arrow points from this window to a grey box labeled 'In Feb. 2025 this is Git-2.48.1-64-bit.exe'. Another grey box labeled '2' contains the instruction 'Open your Download Folder and start this exe.'.

Git - Downloading Package

git-scm.com/download/win

git --local-branching-on-the-cheap

About
Documentation
Downloads
GUI Clients
Logos
Community

The entire **Pro Git book** written by Scott Chacon and Ben Straub is available to read [online for free](#). Dead tree versions are available on [Amazon.com](#).

Download for Windows

1 [Click here to download](#) the latest (2.45.2) 64-bit version of **Git for Windows**. This is the most recent [maintained build](#). It was released **22 days ago**, on 2024-06-03.

Other Git for Windows downloads

Standalone Installer
[32-bit Git for Windows Setup.](#)
[64-bit Git for Windows Setup.](#)

Portable ("thumbdrive edition")
[32-bit Git for Windows Portable.](#)
[64-bit Git for Windows Portable.](#)

Aktueller Downloadverlauf

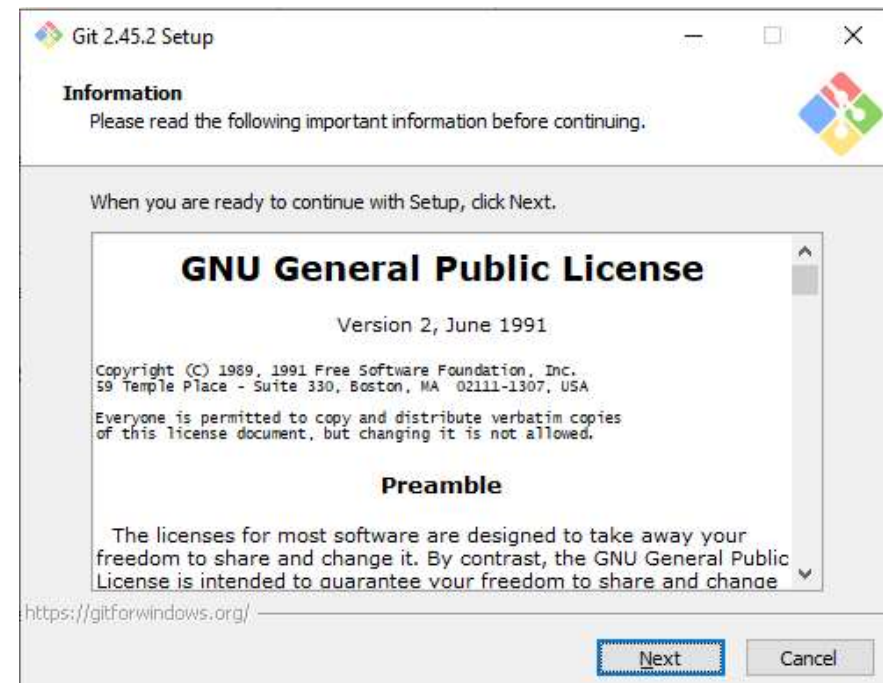
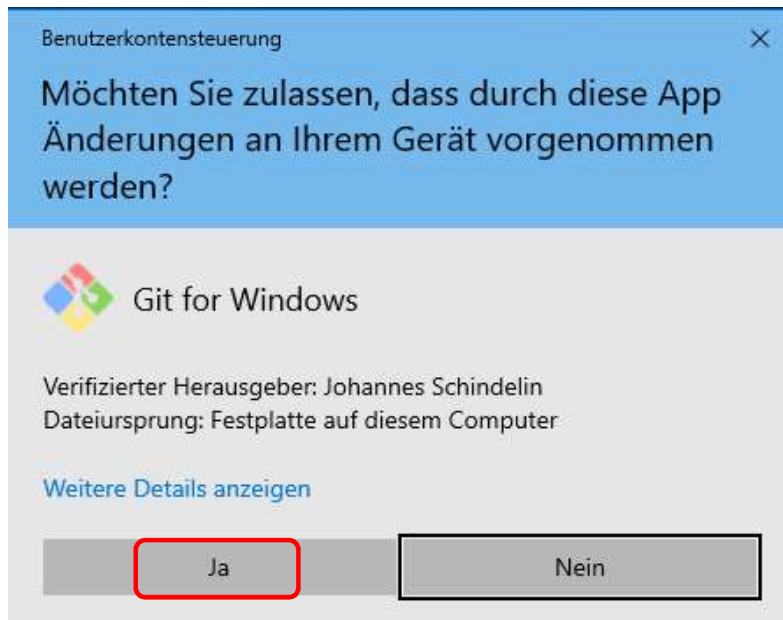
	Git-2.45.2-64-bit.exe	
65,0 MB • vor 4 Minuten		

[Vollständiger Downloadverlauf](#)

In Feb. 2025 this is **Git-2.48.1-64-bit.exe**

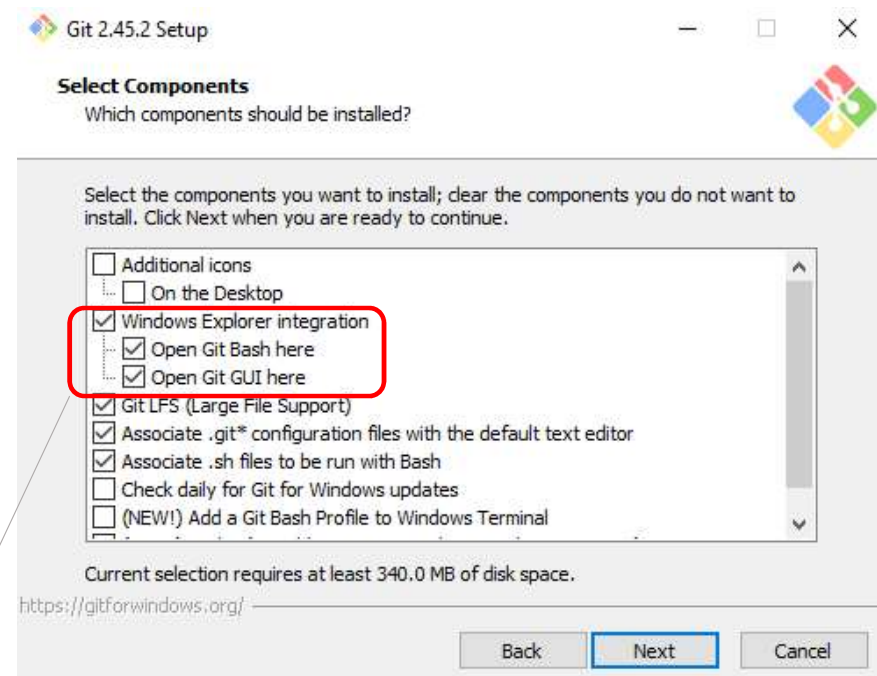
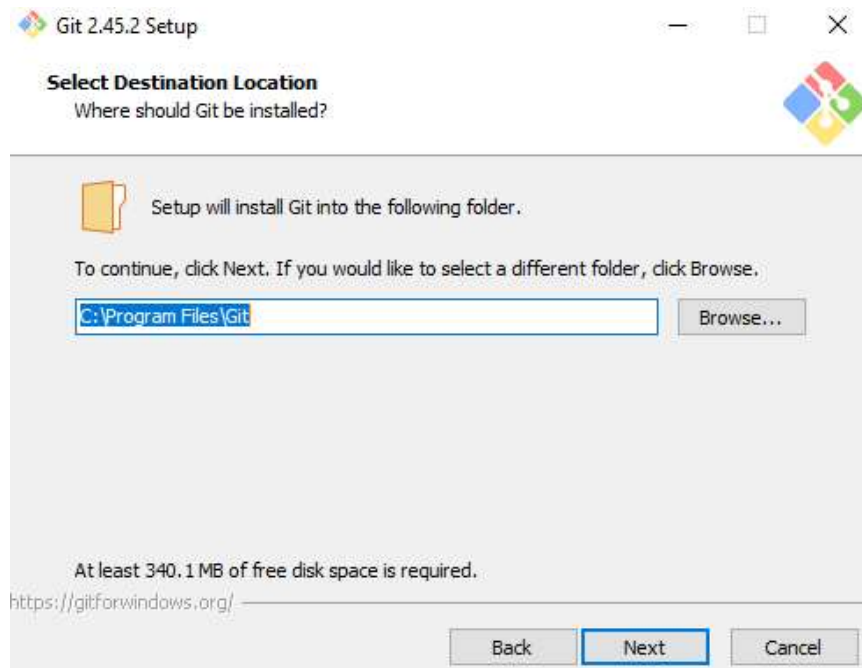
2 Open your Download Folder and start this exe.

Install Git on your Windows PC



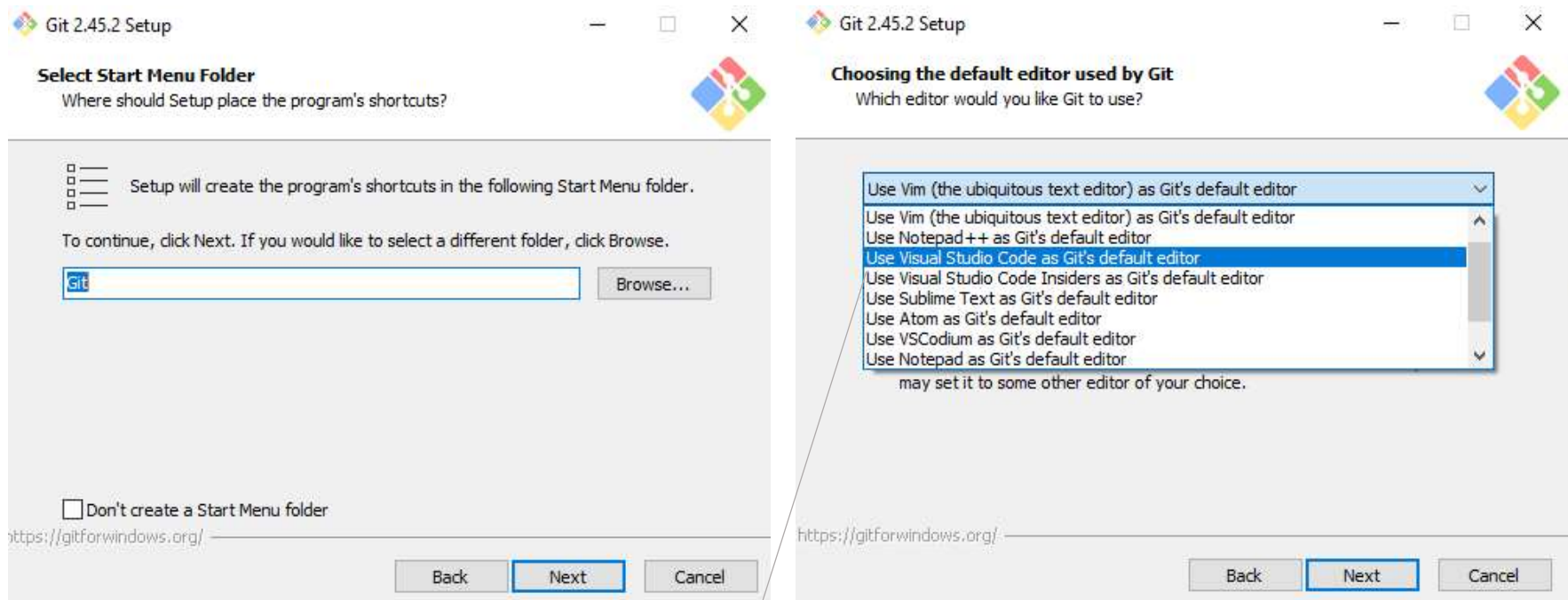


Install Git on your Windows PC



Can be unselected (we will not use Git Bash and Git GUI).

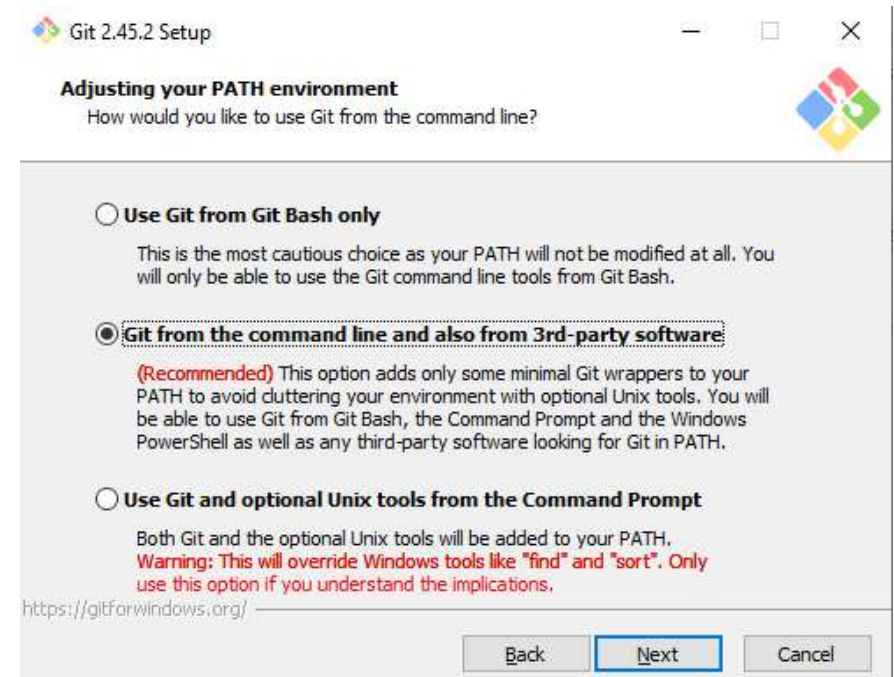
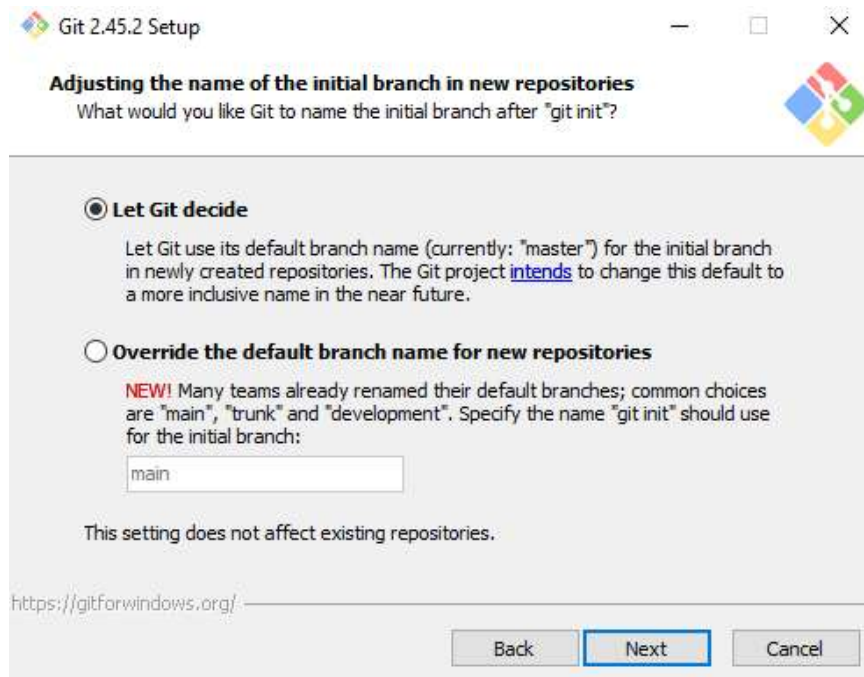
Install Git on your Windows PC



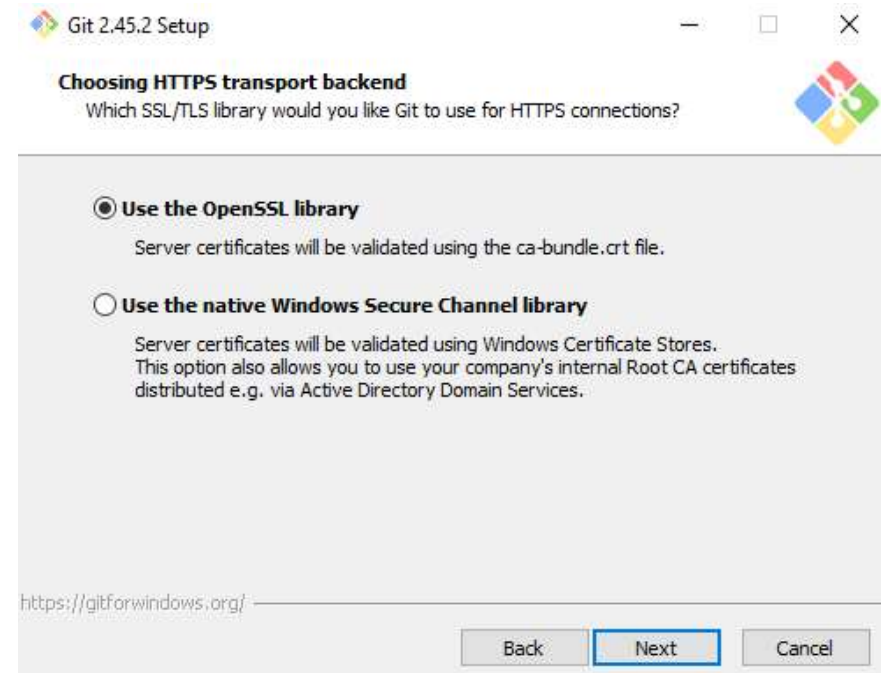
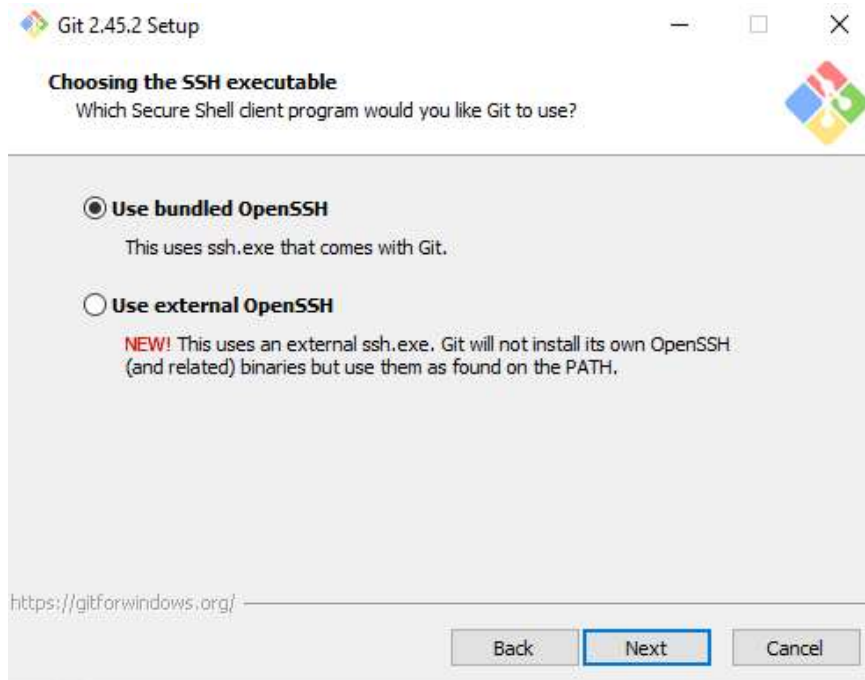
Select "Visual Studio Code" here instead of "Vim"



Install Git on your Windows PC

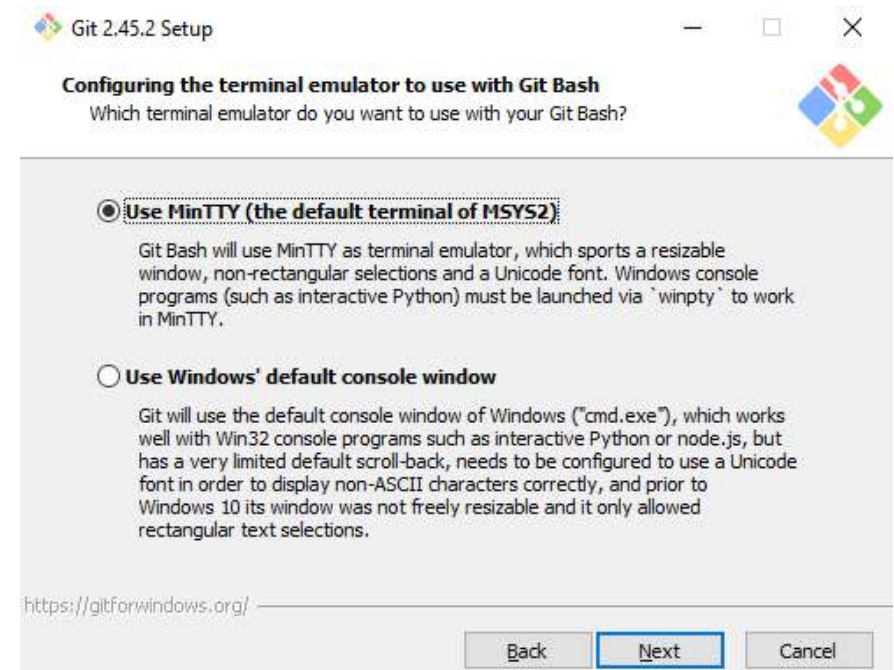
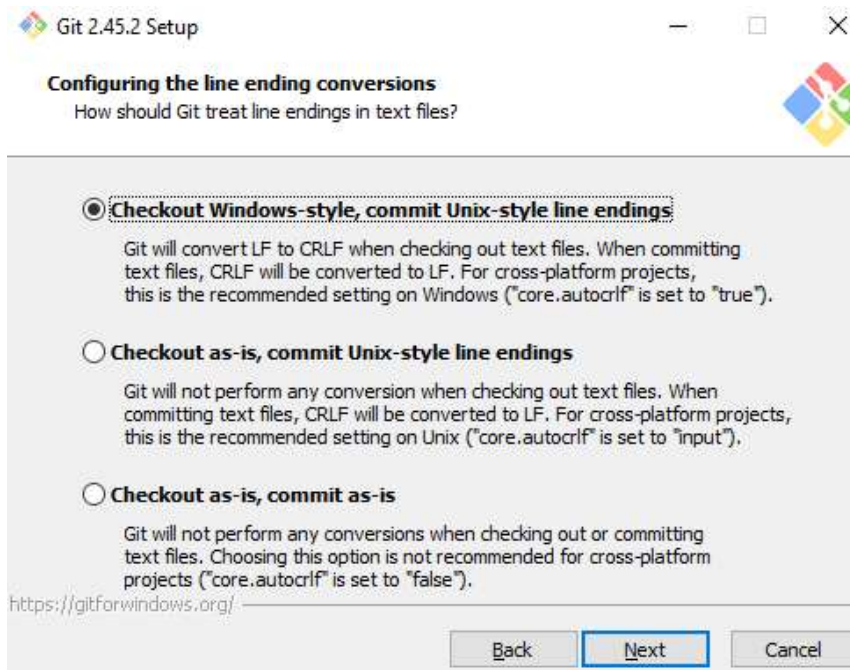


Install Git on your Windows PC

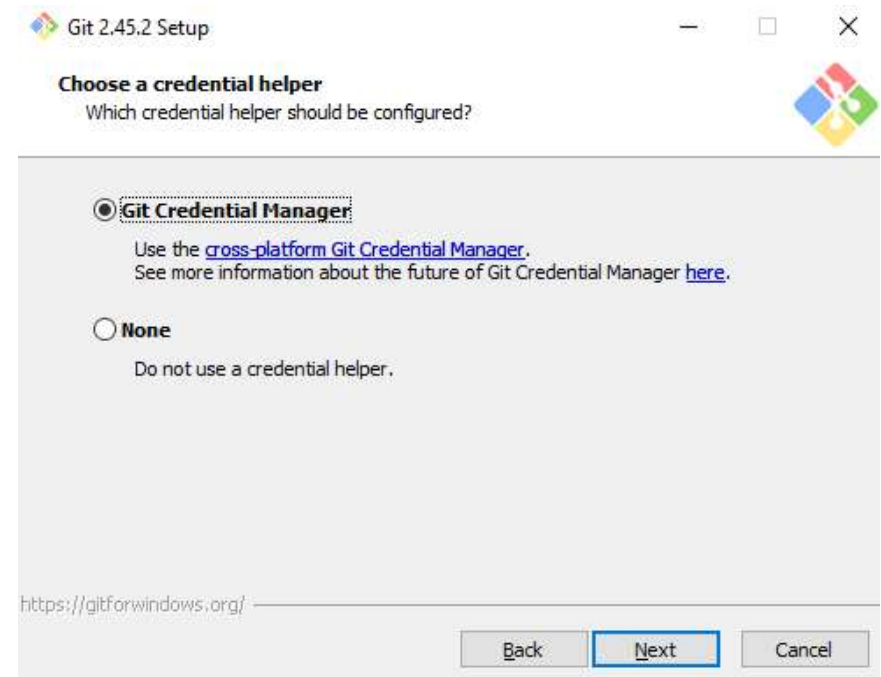
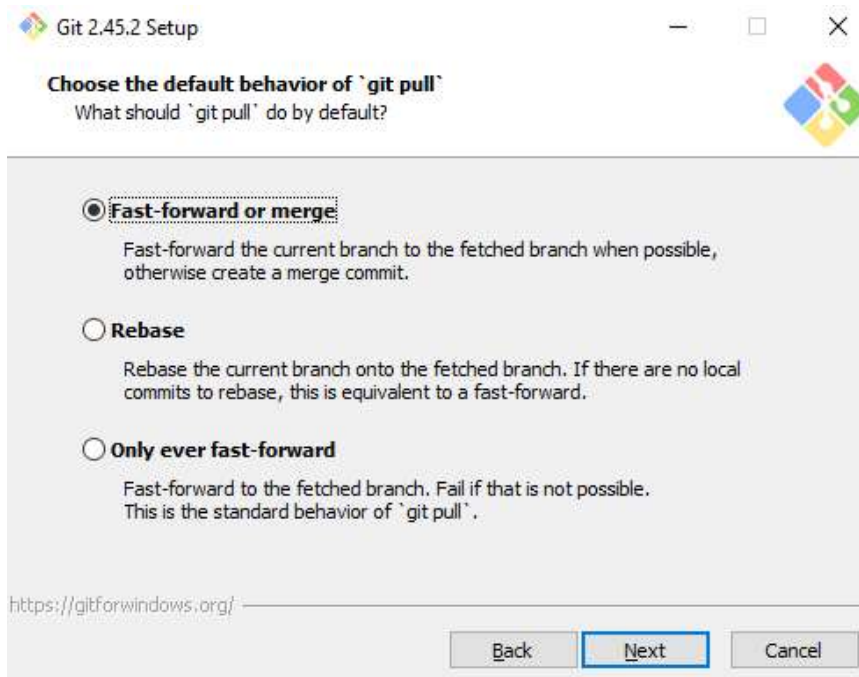




Install Git on your Windows PC

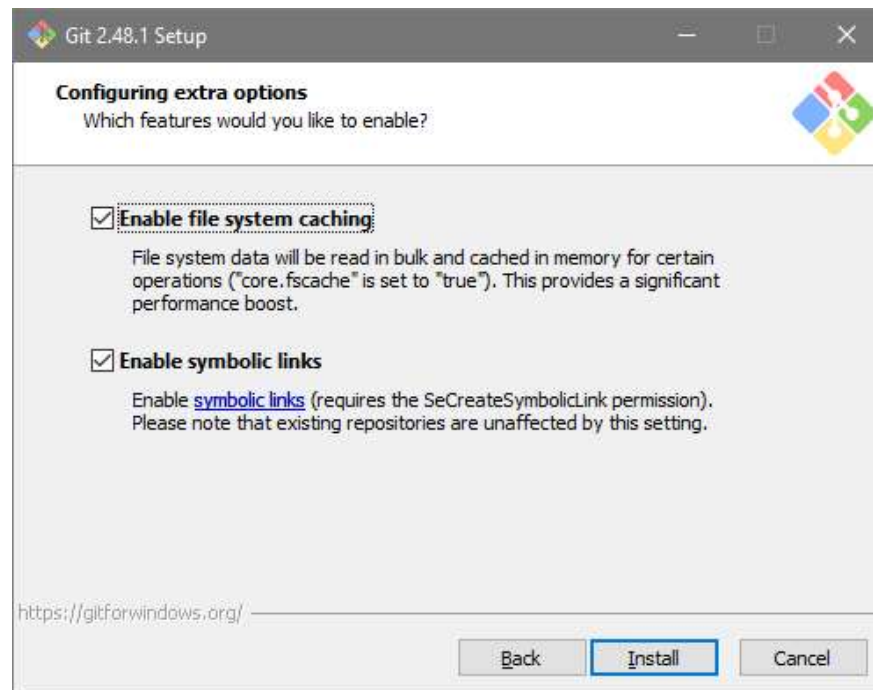


Install Git on your Windows PC

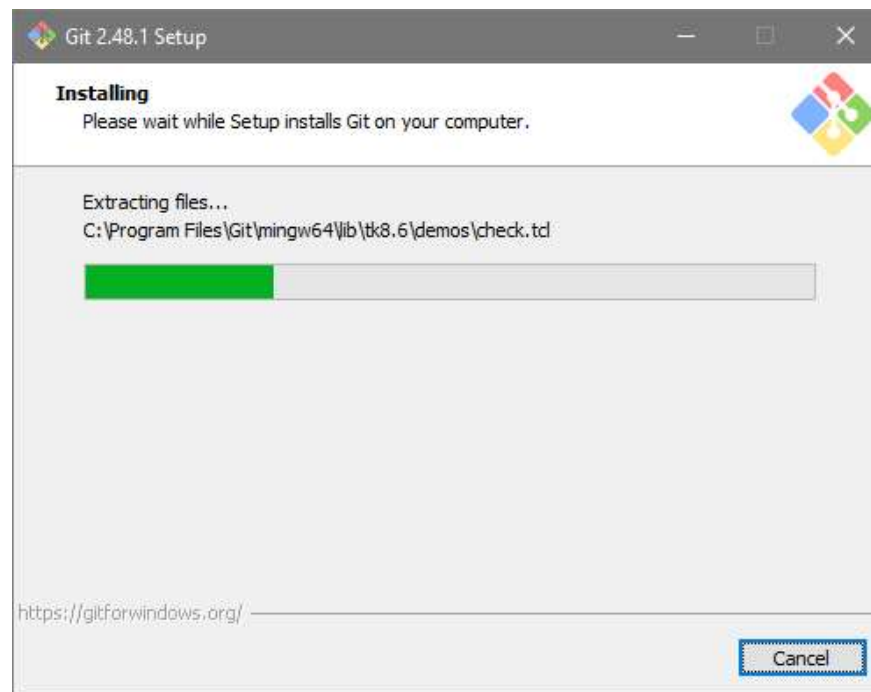




Install Git on your Windows PC



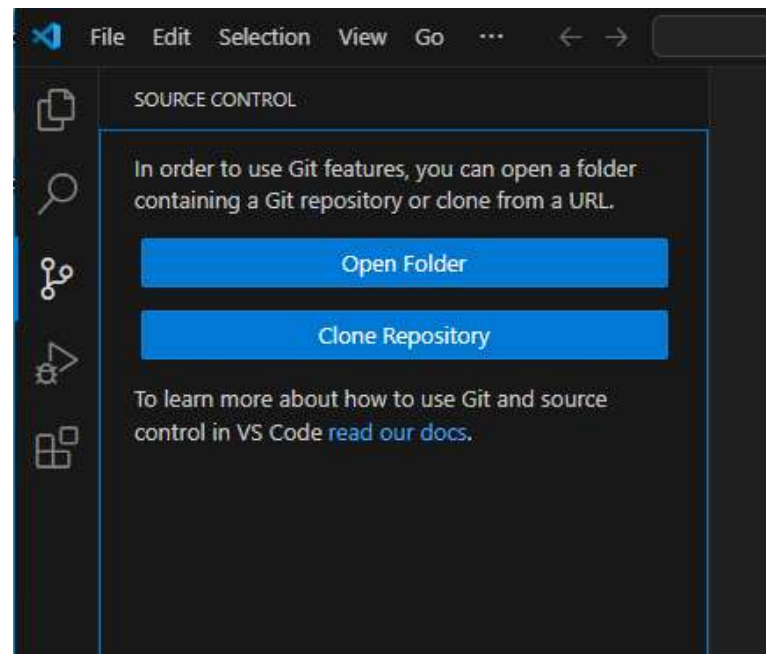
Install Git on your Windows PC



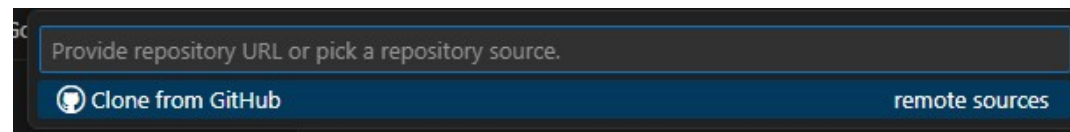


Install Git on your Windows PC

After restarting VS Code:



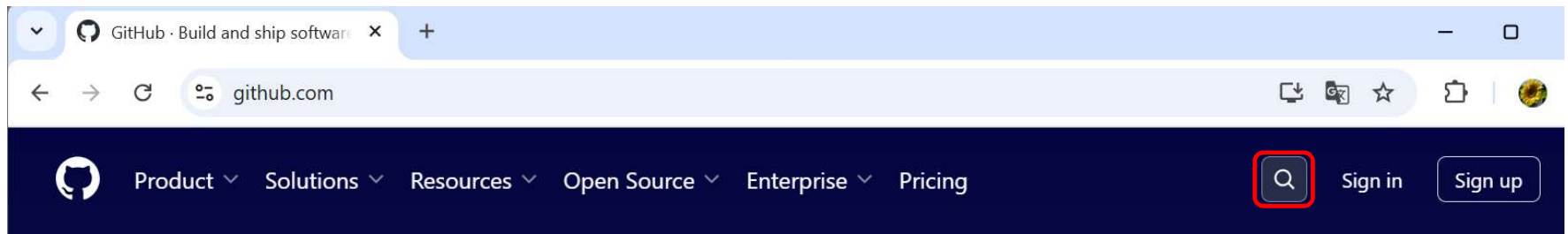
After “Clone Repository”:





Search for repo on GitHub

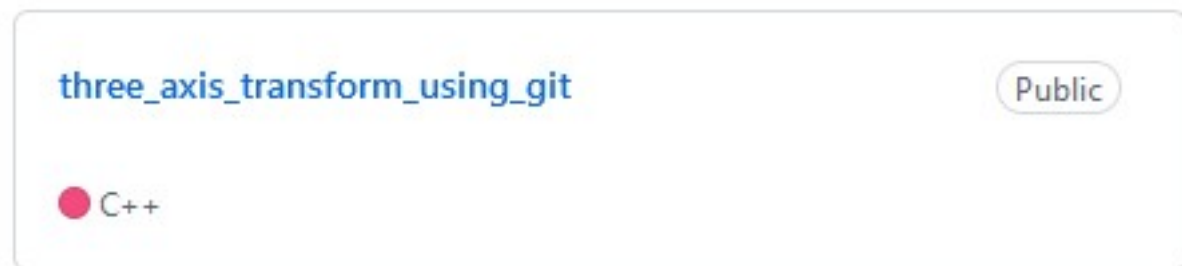
Open GitHub in Browser and press the search icon:



In the search field enter “user:GuentherSchmitt”:



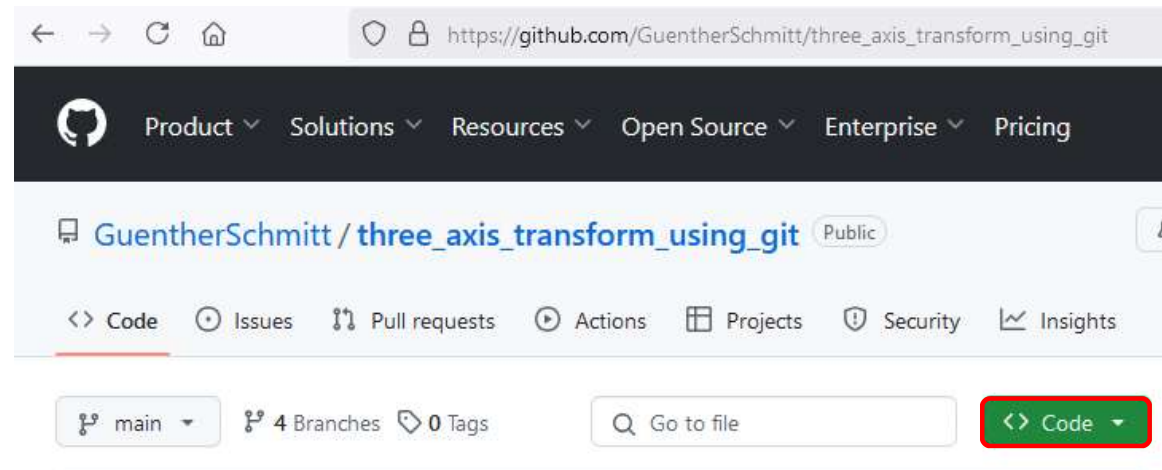
Open the repository



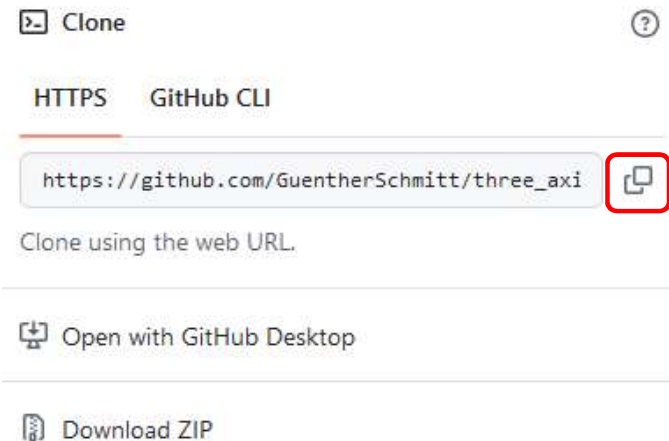


Get the URL of a repository

Press on the green “Code” button:



Then it appears

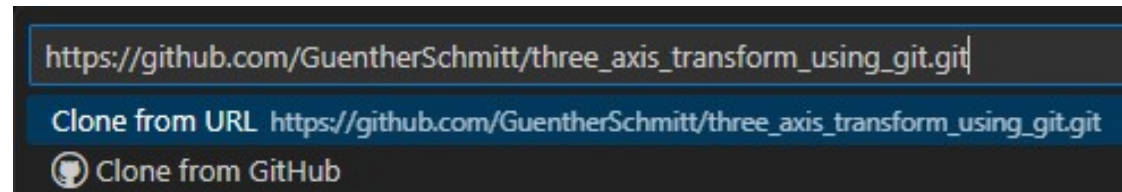


Press here to copy the URL to clipboard

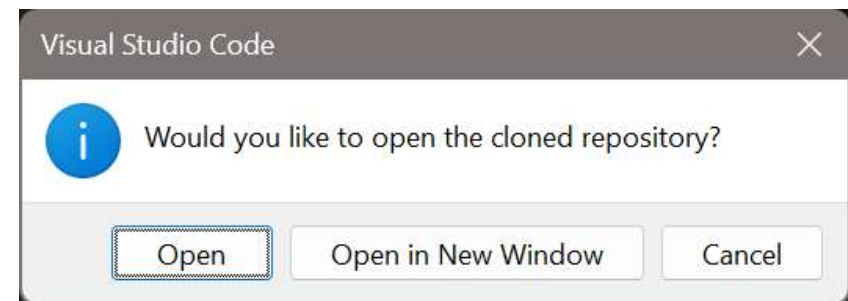
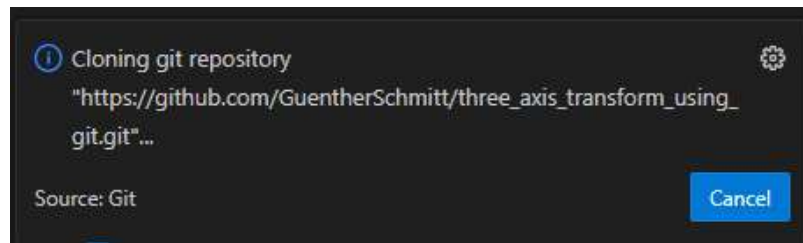
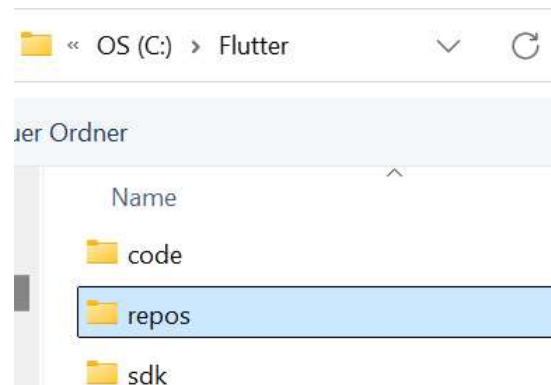


Clone Repo to your PC

Paste copied URL to VS Code:

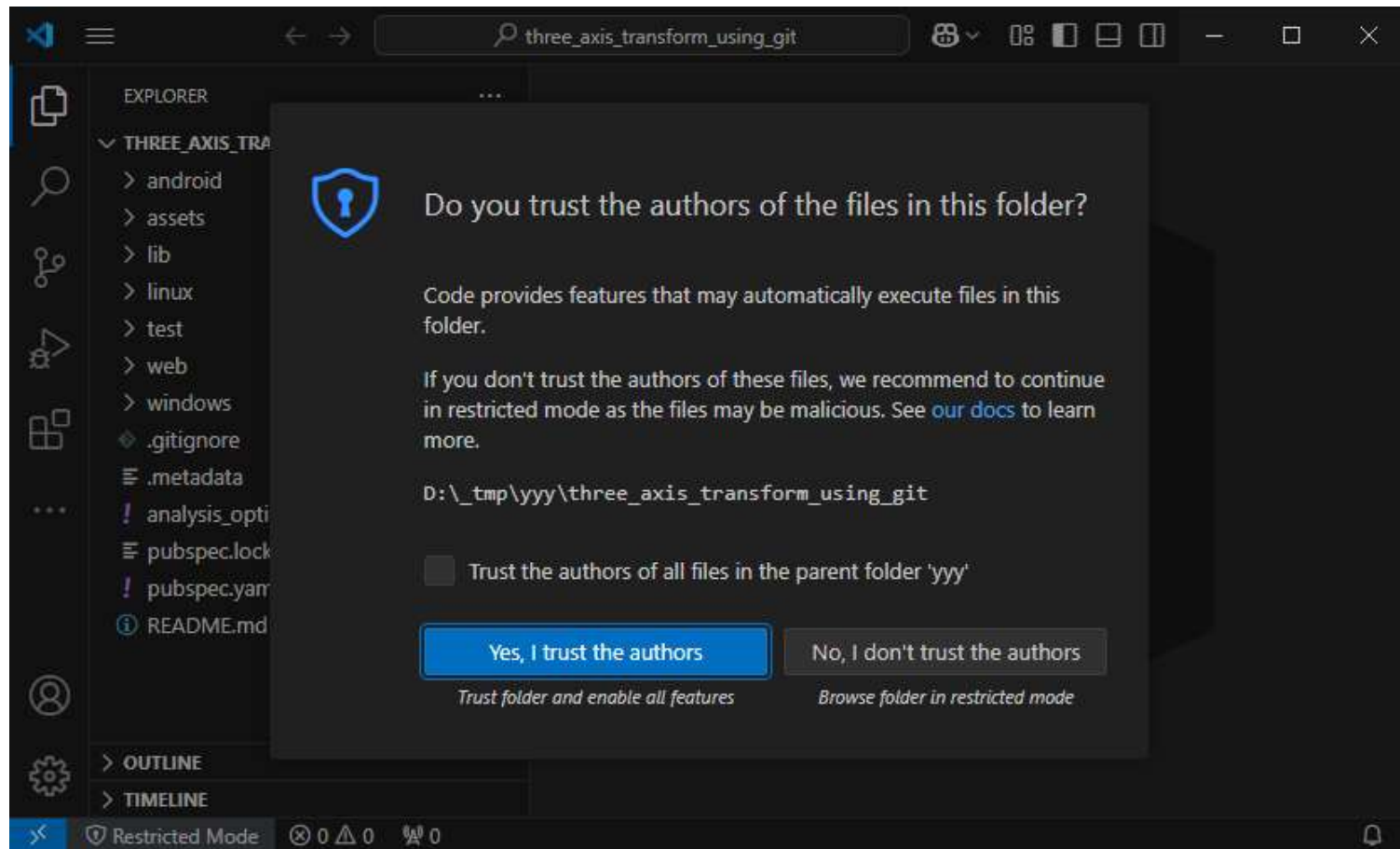


Select directory where to store the clone:





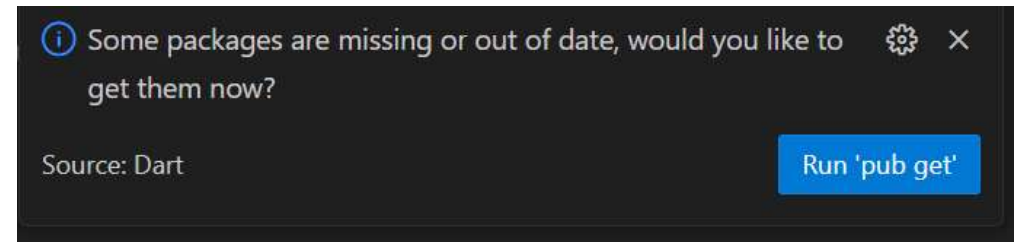
Finally the cloned repo is opened in VS Code





“pub get”

You are asked to update packages:



This can be repeated at any time by entering “**flutter pub get**” in Terminal:

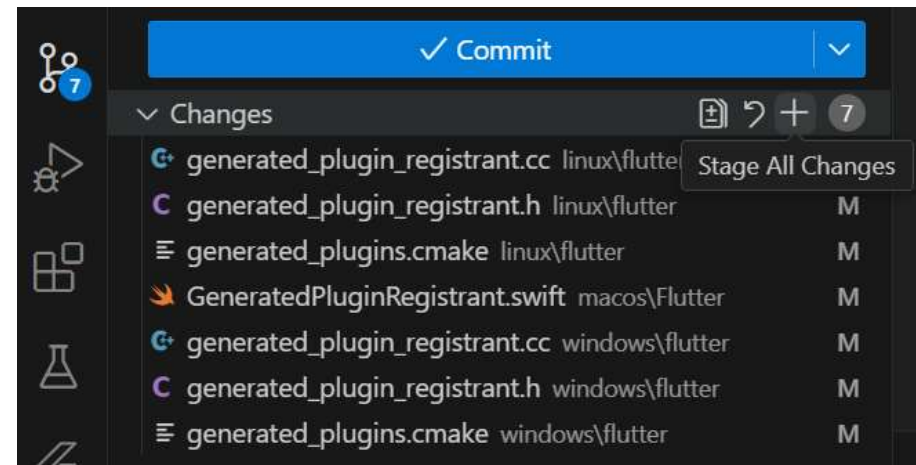
```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS
PS C:\flutter\repos\three_axis_transform_using_git> flutter pub get
Resolving dependencies...
Downloading packages...
  async 2.11.0 (2.12.0 available)
  boolean_selector 2.1.1 (2.1.2 available)
  characters 1.3.0 (1.4.0 available)
  clock 1.1.1 (1.1.2 available)
```

We already mentioned “**flutter pub get**” when we discussed “flutter clean” in “11 three_axis_transform and DRY principle.pptx” and will learn more about it later when we speak about flutter packages.



Strange effect after “pub get” in cloned repo

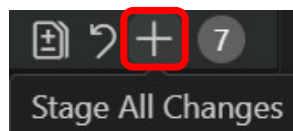
7 files are marked as “changed”:



This is discussed in <https://stackoverflow.com/questions/74858985/flutter-generated-plugins-showed-with-git-changes-when-there-are-no-changes>.

The reason is that during “flutter pub get” these 7 files were written with unix line ending (LF) and not with Windows line ending (CR LF).

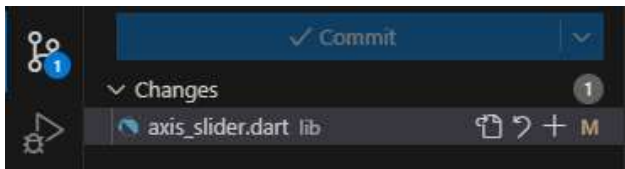
Just press on



then these files will no longer be reported as changed.



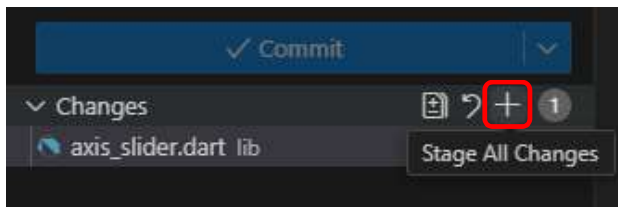
Staging changed files



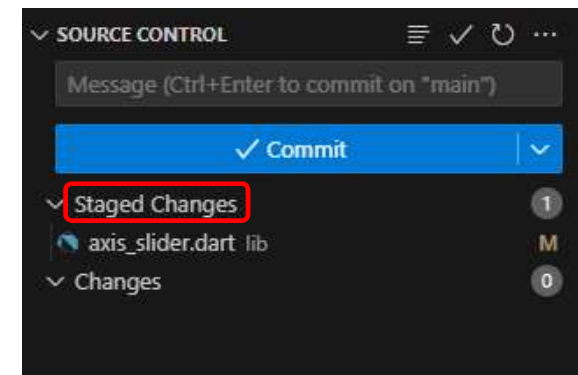
Git makes a difference between “**changed**” and “**staged**” files.

“**Changed**” are those files in the project folder, that are different to the repository.

“**Staged**” are those files that you have marked to be included in your next commit.
After staging the files by pressing on

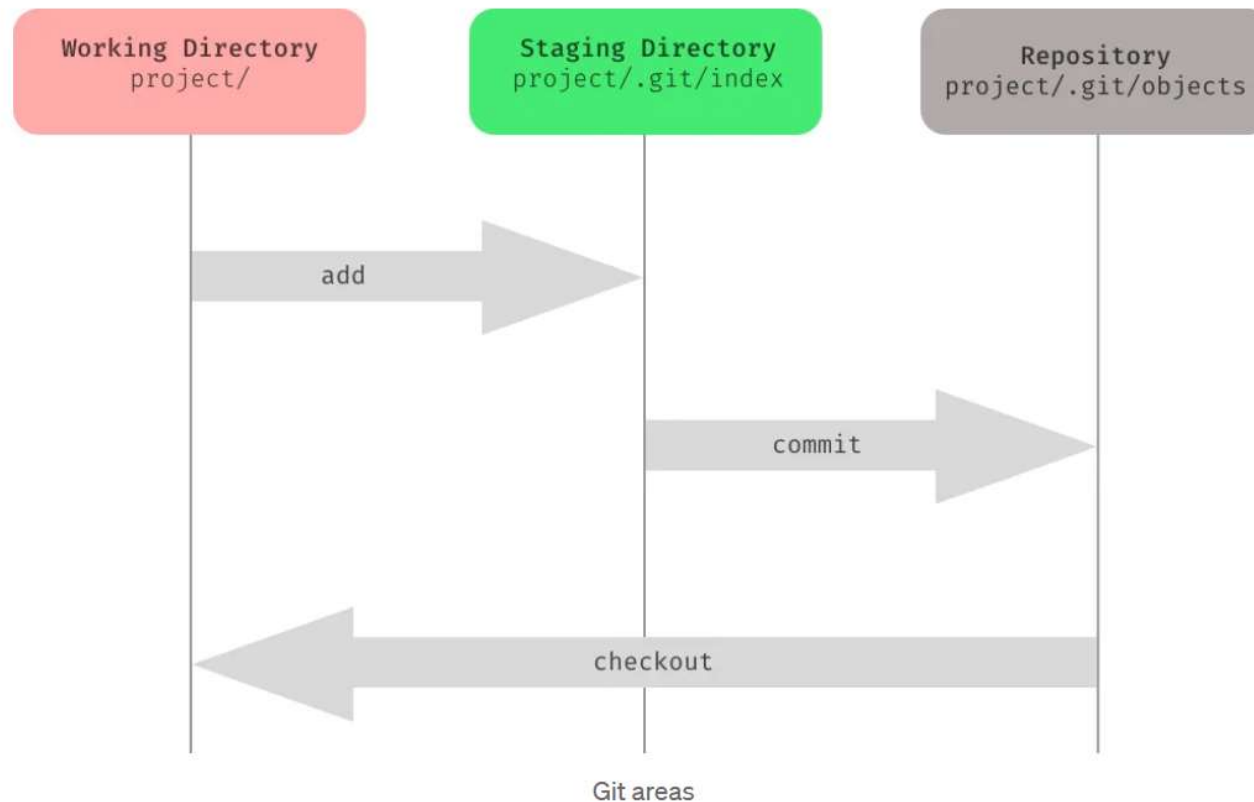


You will see:





3 areas in Git



repos > three_axis_transform_using_git > .git

Name

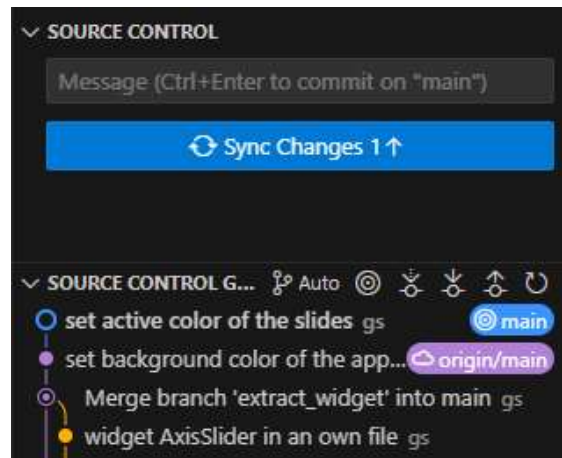
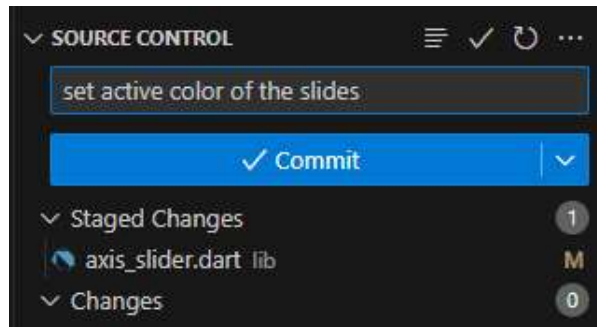
- hooks
- info
- logs
- objects
- refs
- config
- description
- HEAD
- index
- packed-refs



Committing files

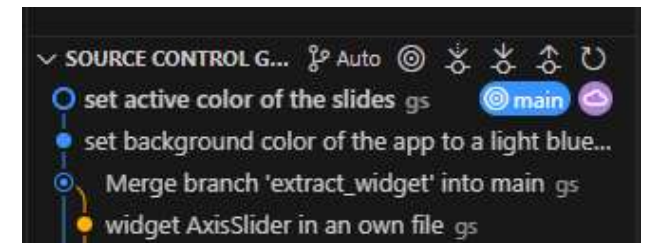
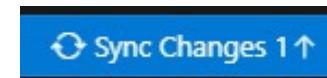
When you commit your staged files, they are taken into the repository.

For every commit you must provide a descriptive message:



Local repository is ahead
of GitHub repository

After pressing on

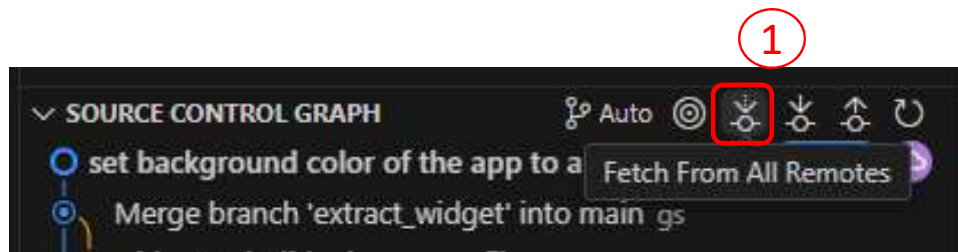


Local and GitHub
repository are in sync

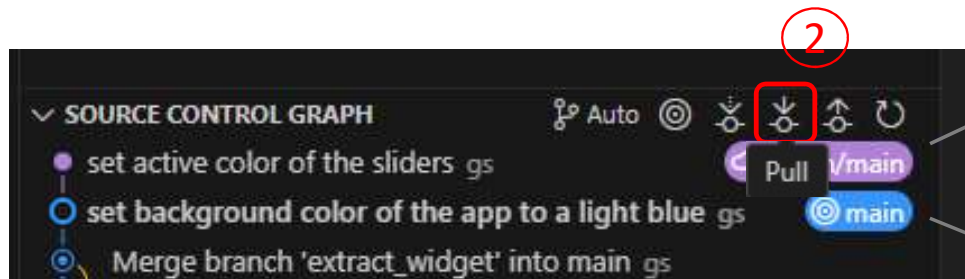


Check for new commits on GitHub

Fetch



Pull



The repository on GitHub is one commit ahead

here we are in our local repository

In sync

