Source Control with Visual Studio 2022

This document will explain how to utilize the GIT tools within Visual Studio.

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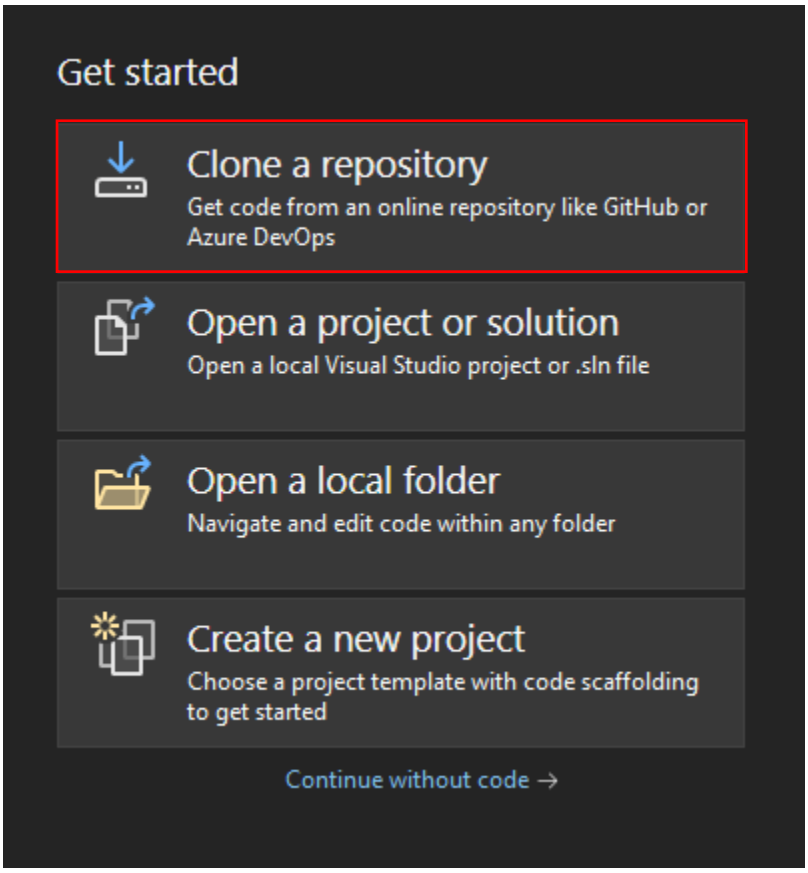
Getting set up

The repository will have three branches: DEV (Development), TST (Testing), and PRD (Production). The DEV branch is where new development will take place, and once acceptance testing begins, it will be renamed to TST. The testing environment will include test data. A new DEV branch will be created from TST, and any bug fixes made in TST will be integrated into the new DEV branch. Once testing is completed, the TST branch will be renamed to PRD. In some cases, a staging branch may be created before moving directly to PRD. Although a testing branch won't be of much use for us since we're not collecting data in production, it's still a great opportunity to practice.

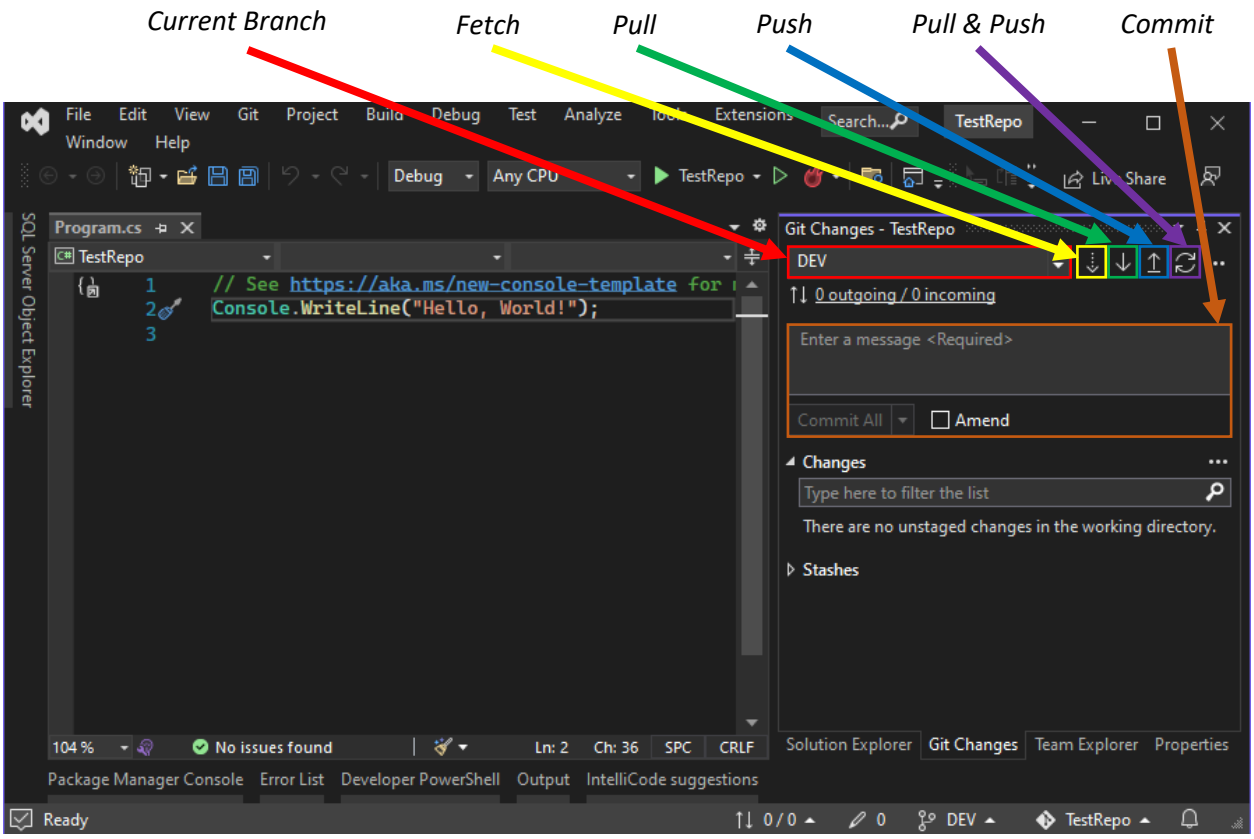
- Since we're all collaborators on the repo, forking isn't necessary. You can simply clone the main repository. However, if you plan on working on multiple computers, forking the DEV branch might be more convenient.



Git Tools

All the GIT tools you need are under the “Git Changes” tab in the bottom right corner of the IDE.

Important things to take note of –

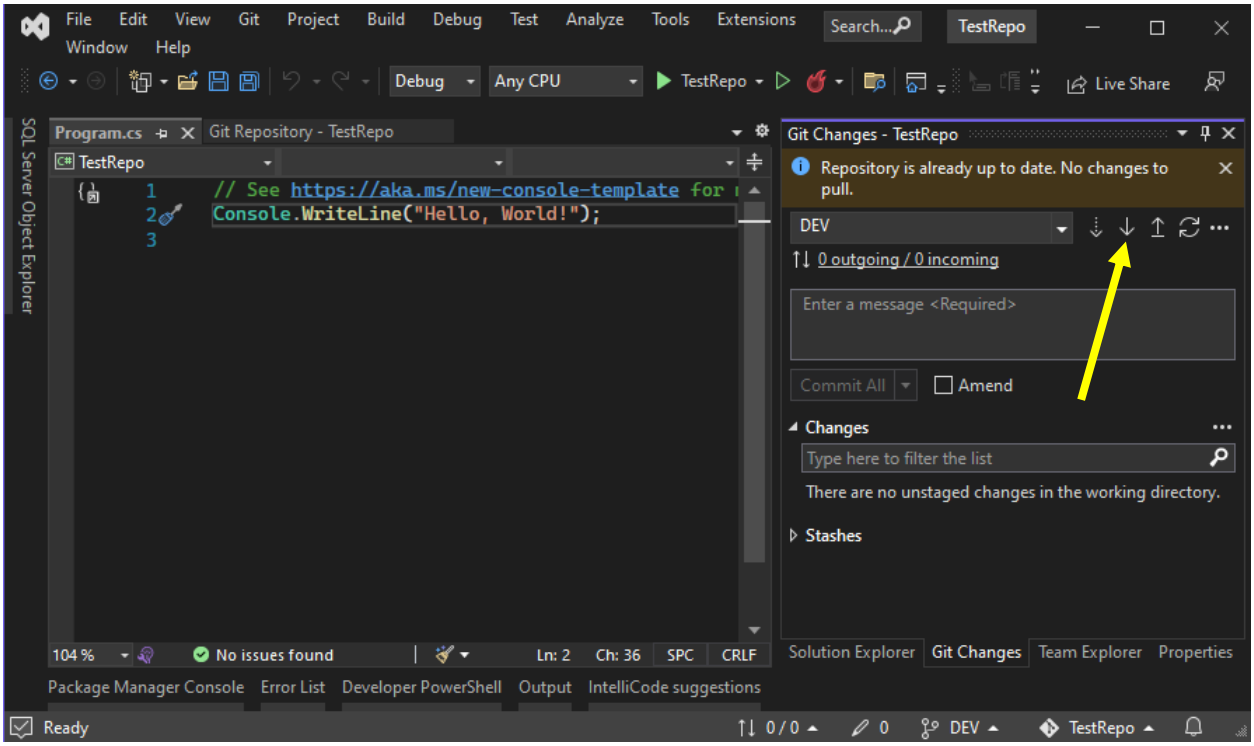


Pulling & Fetching

Fetching pulls in all the commits from the remote but doesn't make changes to your local files

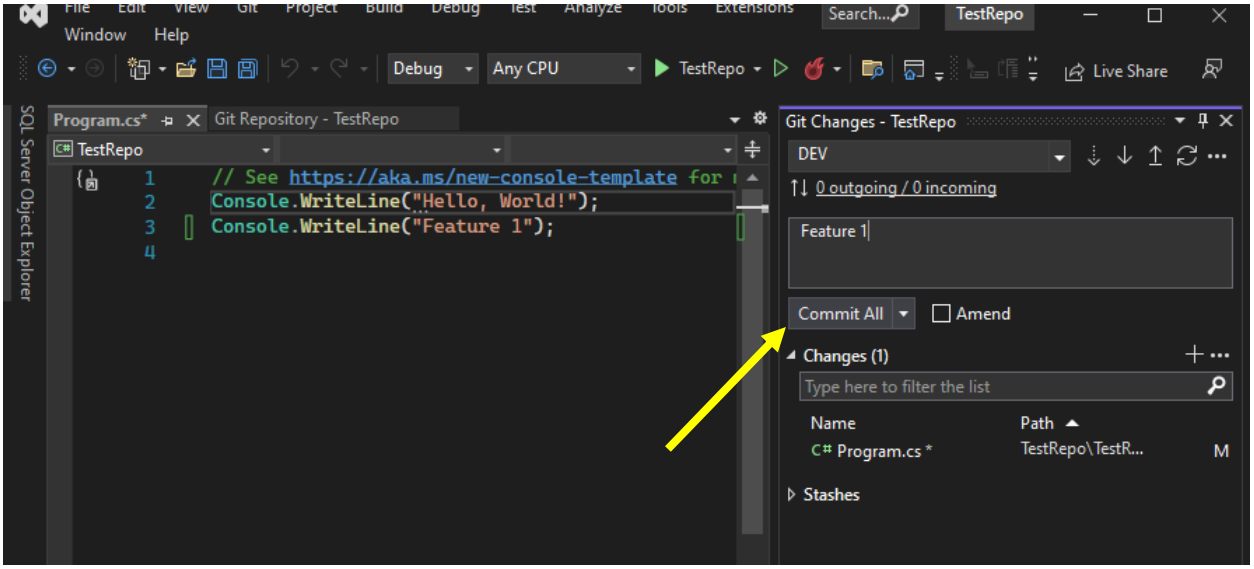
To update your local repository with the current content of the remote repository, click the 'pull' button. If you have any uncommitted changes, you will receive a message telling you to commit your changes first.

This is where you might encounter a merge conflict.

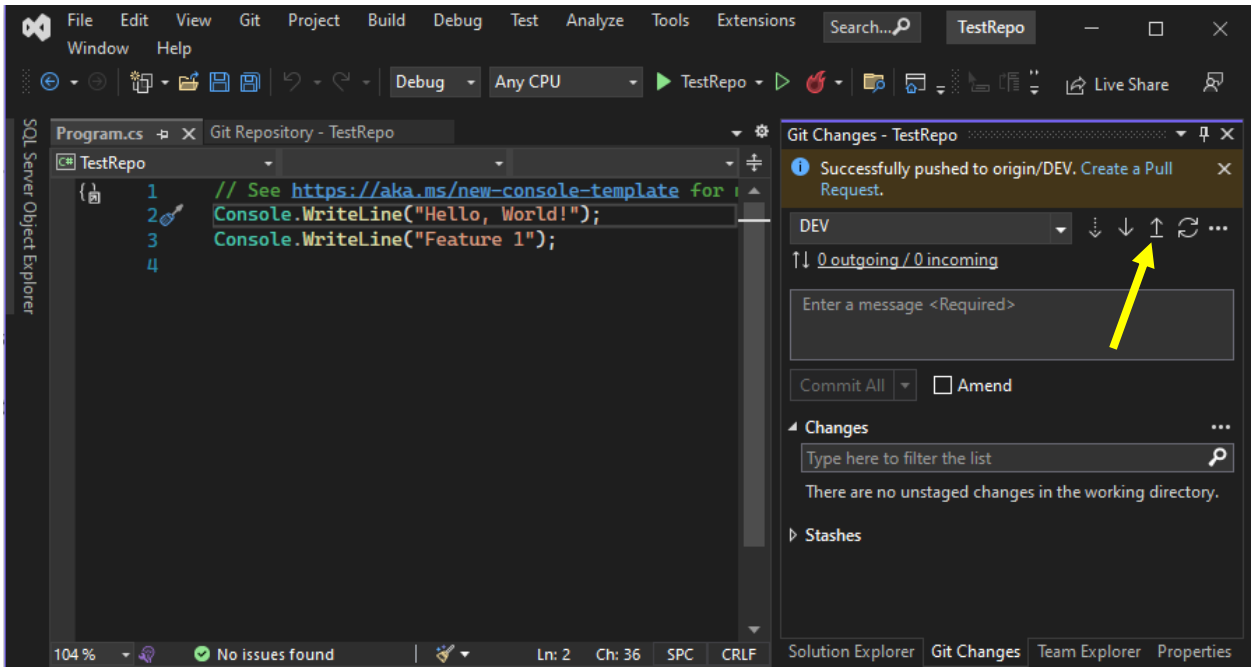


Commits & Pushing

After you finish a task and are ready to merge it to the DEV branch, commit your changes. Enter a short description and click 'Commit All'. This creates a snapshot of your project and saves it to your local repository. This is what will be pushed to the remote repository during a push.

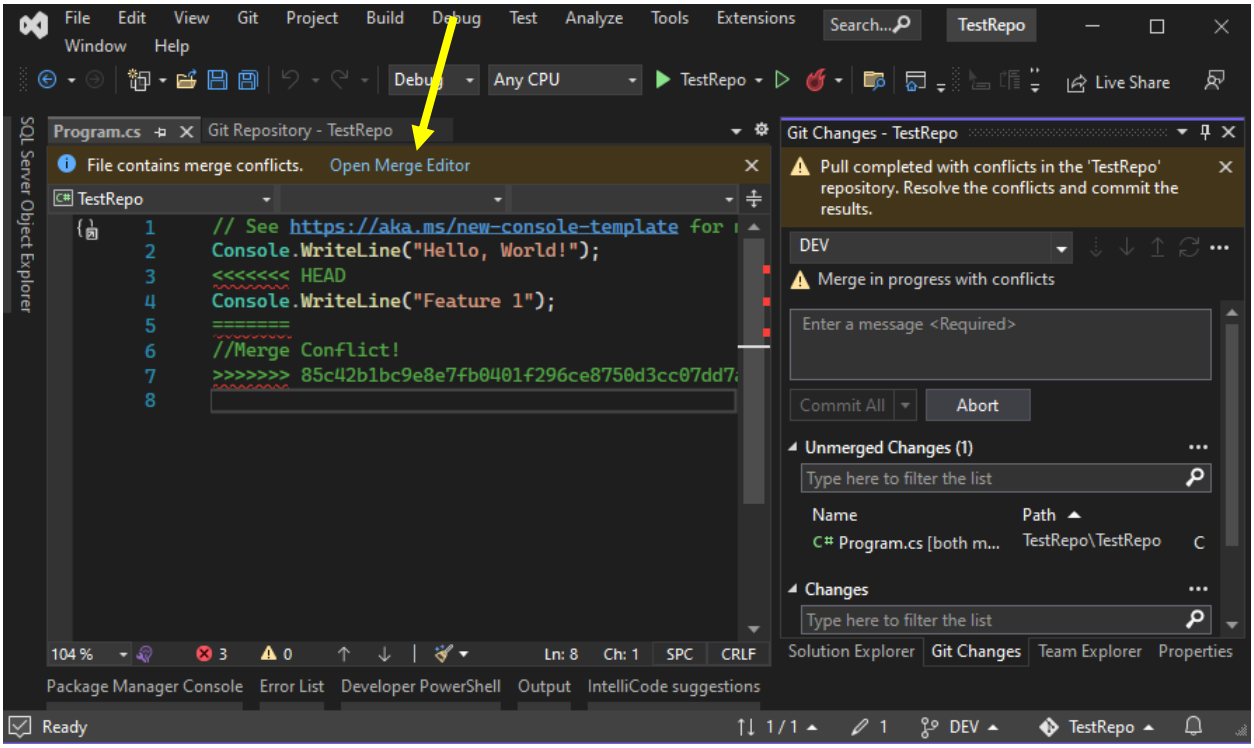


To initiate the merge to the remote repository, click the 'push' button. Your local project must be up to date with the remote repository to do this. If it is not, you will be prompted to pull down the changes before pushing.



Resolving Merge Conflicts

A merge conflict occurs when two developers edit the same content. To resolve the conflict, open the merge editor in Visual Studio.



The left side shows the remote repository, the right side shows the local repository, and the bottom shows the resulting merge. Use the checkboxes on the remote and local sides to fix the issue until the result appears correct. Click the 'accept merge' button and commit the changes.