Lab Plan - 1

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Web Engineering / Web Systems and Technologies

10/4/22

Learning objectives

In this lab, you will:

- Sign in to GitHub by using Visual Studio Code.
- Use Visual Studio Code to search GitHub for repos.
- Clone a repo from Visual Studio Code.
- Publish a local project to GitHub by using Visual Studio Code.
- View a timeline of activity on a GitHub repo.

CLO: CLO-1

Working with GitHub in VS Code

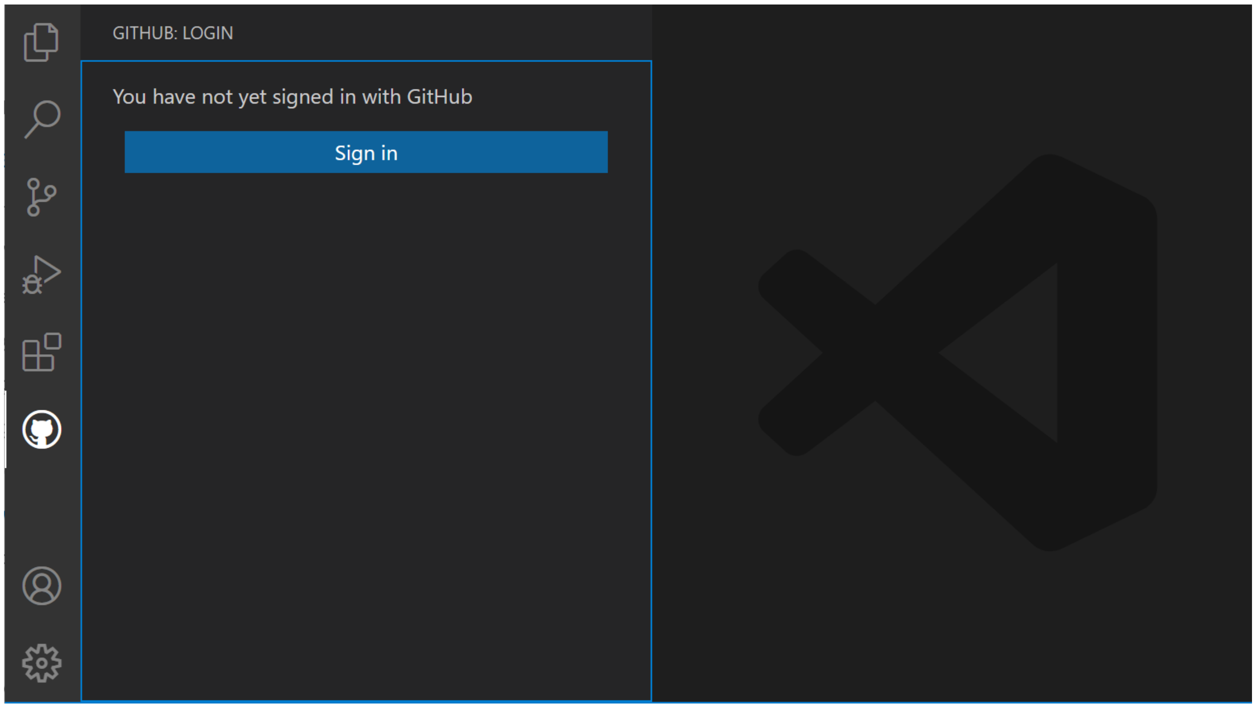
GitHub is a cloud-based service for storing and sharing source code. Using GitHub with Visual Studio Code lets you share your source code and collaborate with others right within your editor. There are many ways to interact with GitHub, for example, via their website at https://github.com or the Git command-line interface (CLI), but in VS Code, the rich GitHub integration is provided by the GitHub Pull Requests and Issues extension.

To get started with the GitHub in VS Code, you'll need to install Git, create a GitHub account and install the GitHub Pull Requests and Issues extension. In this topic, we'll demonstrate how you can use some of your favorite parts of GitHub without leaving VS Code.

If you're new to source control or want to learn more about VS Code's basic Git support, you can start with the Source Control topic.

Getting started with GitHub Pull Requests and Issues#

Once you've installed the GitHub Pull Requests and Issues extension, you'll need to sign in. Follow the prompts to authenticate with GitHub in the browser and return to VS Code.



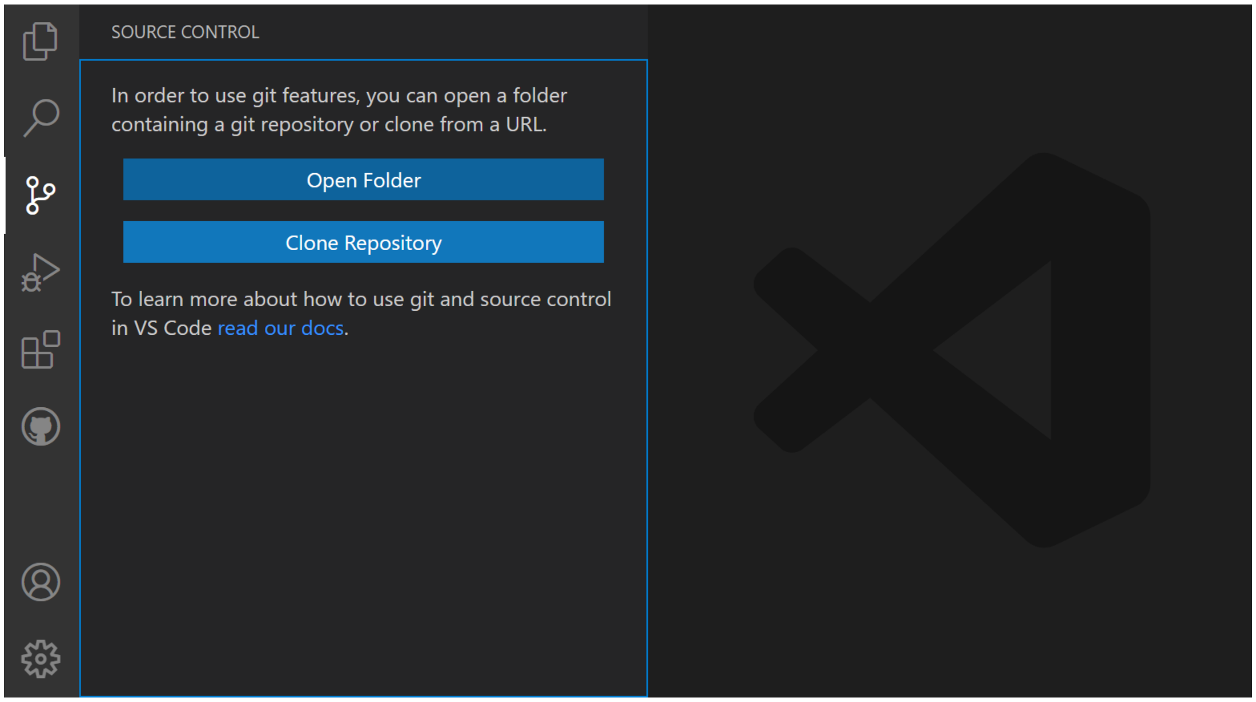
You have not yet signed in with GitHub

If you are not redirected to VS Code, you can add your authorization token manually. In the browser window, you will receive your authorization token. Copy the token, and switch back to VS Code. Select **Signing in to github.com...** in the Status bar, paste the token, and hit `Enter`.

Setting up a repository#

Cloning a repository#

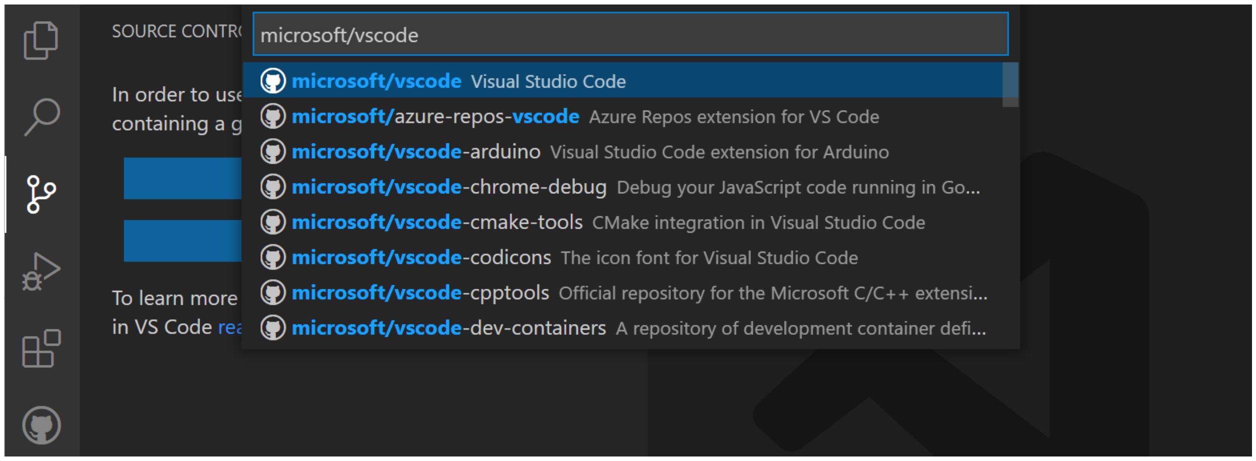
You can search for and clone a repository from GitHub using the **Git: Clone** command in the Command Palette (`Ctrl+Shift+P`) or by using the **Clone Repository** button in the Source Control view (available when you have no folder open).



In order to use git features, you can open a folder containing a git repository or clone from a URL.

To learn more about how to use git and source control in VS Code read our docs.

From the GitHub repository dropdown you can filter and pick the repository you want to clone locally.

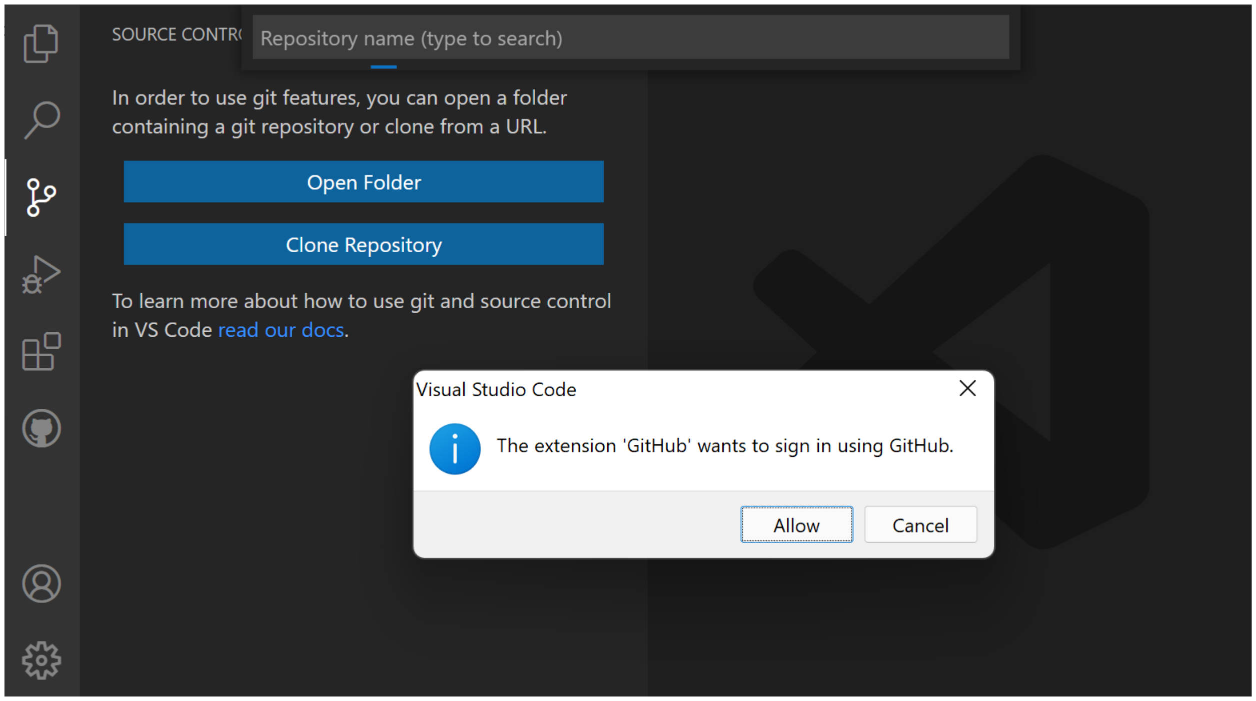


microsoft/vscode Visual Studio Code
microsoft/azure-repos-vscode Azure Repos extension for VS Code
microsoft/vscode-arduino Visual Studio Code extension for Arduino
microsoft/vscode-chrome-debug Debug your JavaScript code running in Go...
microsoft/vscode-cmake-tools CMake integration in Visual Studio Code
microsoft/vscode-codicons The icon font for Visual Studio Code
microsoft/vscode-cpptools Official repository for the Microsoft C/C++ extensi...
microsoft/vscode-dev-containers A repository of development container defi...

Authenticating with an existing repository#

Enabling authentication through GitHub happens when you run any Git action in VS Code that requires GitHub authentication, such as pushing to a repository that you're a member of or cloning a private repository. You don't need to have any special extensions installed for authentication; it is built into VS Code so that you can efficiently manage your repository.

When you do something that requires GitHub authentication, you'll see a prompt to sign in:



In order to use git features, you can open a folder containing a git repository or clone from a URL.

To learn more about how to use git and source control in VS Code read our docs.

The extension 'GitHub' wants to sign in using GitHub.

Follow the steps to sign into GitHub and return to VS Code. If authenticating with an existing repository doesn't work automatically, you may need to manually provide a personal access token. See Personal Access Token authentication for more information.

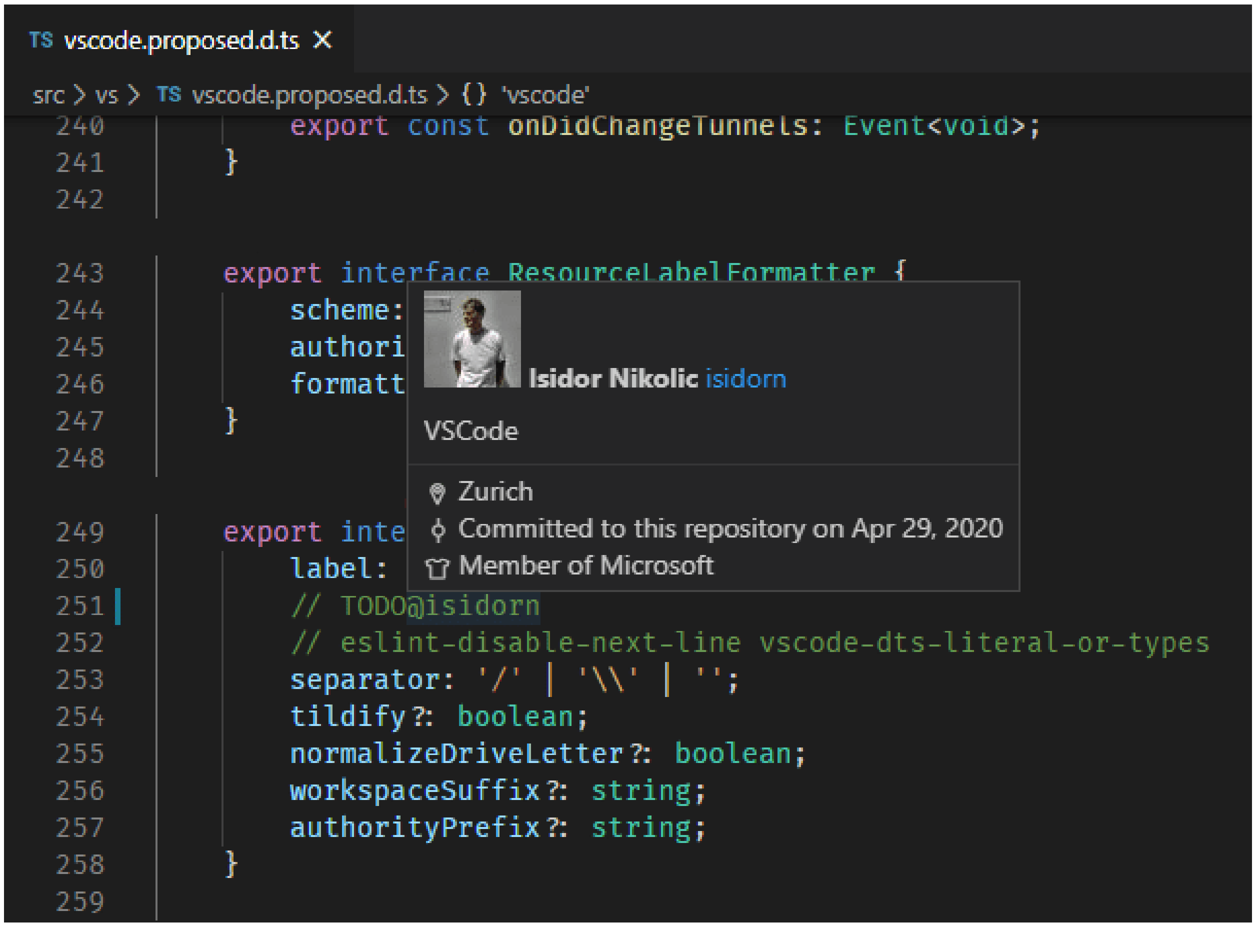
Note that there are several ways to authenticate to GitHub, including using your username and password with two-factor authentication (2FA), a personal access token, or an SSH key. See About authentication to GitHub for more information and details about each option.

Note: If you'd like to work on a repository without cloning the contents to your local machine, you can install the GitHub Repositories extension to browse and edit directly on GitHub. You can learn more below in the GitHub Repositories extension section.

Editor integration#

Hovers#

When you have a repository open and a user is @-mentioned, you can hover over that username and see a GitHub-style hover.



vscode.proposed.d.ts

src > vs > vscode.proposed.d.ts > {} 'vscode'

```
		export const onDidChangeTunnels: Event<void>;
	}

	export interface ResourceLabelFormatter {
		scheme:
		authori
		formatt
	}

	export inte
		label:
		// TODO@isidorn
		// eslint-disable-next-line vscode-dts-literal-or-types
		separator: '/' | '\\' | '';
		tildify?: boolean;
		normalizeDriveLetter?: boolean;
		workspaceSuffix?: string;
		authorityPrefix?: string;
	}
```

Isidor Nikolic isidorn

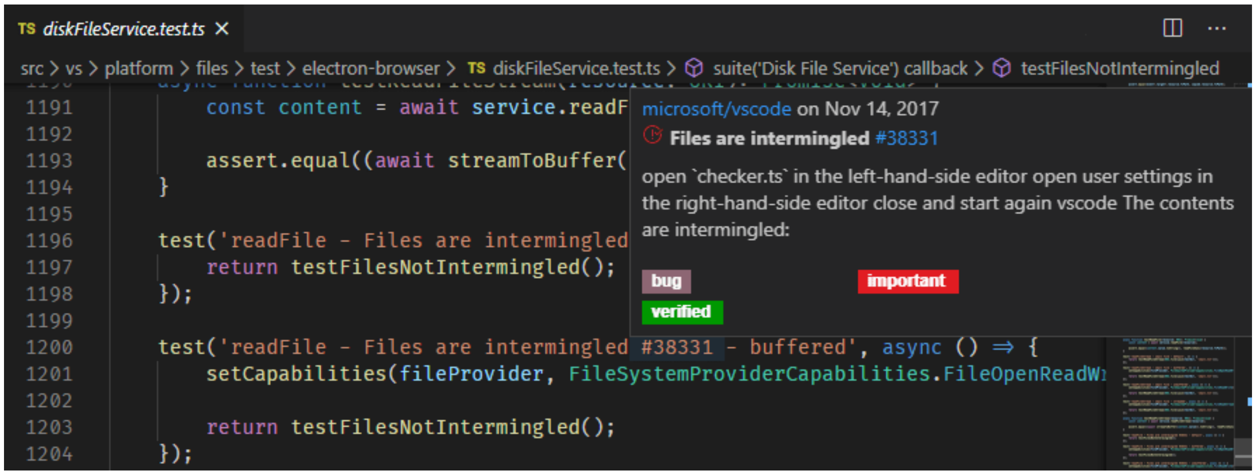
VSCode

Zurich

Committed to this repository on Apr 29, 2020

Member of Microsoft

There is a similar hover for #-mentioned issue numbers, full GitHub issue URLs, and repository specified issues.



diskFileService.test.ts

src > vs > platform > files > test > electron-browser > diskFileService.test.ts > suite('Disk File Service') callback > testFilesNotIntermingled

```
		const content = await service.readF

		assert.equal((await streamToBuffer(
	}

	test('readFile - Files are intermingled
		return testFilesNotIntermingled();
	});

	test('readFile - Files are intermingled #38331 - buffered', async () => {
		setCapabilities(fileProvider, FileSystemProviderCapabilities.FileOpenReadWi

		return testFilesNotIntermingled();
	});
```

microsoft/vscode on Nov 14, 2017

Files are intermingled #38331

open `checker.ts` in the left-hand-side editor open user settings in the right-hand-side editor close and start again vscode The contents are intermingled:

Suggestions#

User suggestions are triggered by the "@" character and issue suggestions are triggered by the "#" character. Suggestions are available in the editor and in the **Source Control** view's input box.

```
// TODO: update the detail
private showDetail(): boolean {
    return this.configurationService.getValue<boolean>(QUICKOPEN_DETAIL_CONFIG
}

private async createTaskQuickPickEntries(tasks: Task[], group: boolean = false,
    let count: { [key: string]: number; } = {};
    if (tasks === undefined || tasks === null || tasks.length === 0) {
        return [];
    }
    const TaskQuickPickEntry = (task: Task): TaskQuickPickEntry => {
        let entryLabel = task._label;
        if (count[task._id]) {
            entryLabel = entryLabel + ' (' + count[task._id].toString() + ')';
            count[task._id]++;
```

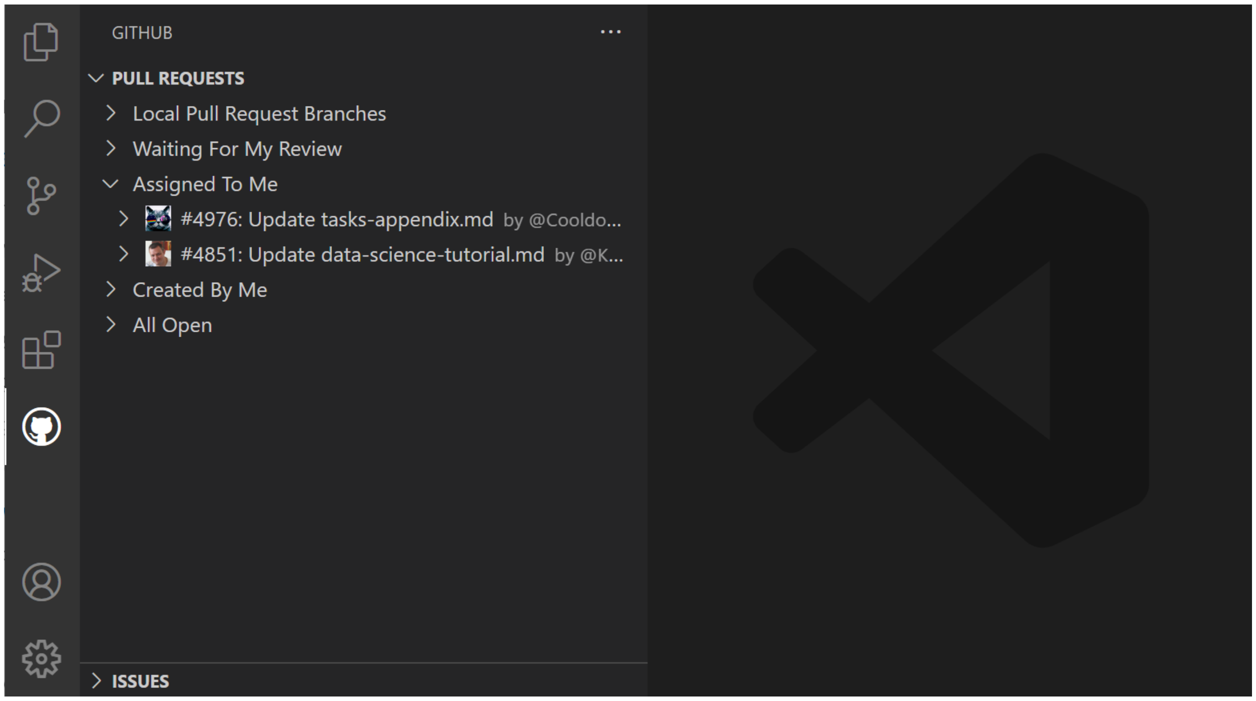
The issues that appear in the suggestion can be configured with the **GitHub Issues: Queries** (`githubIssues.queries`) setting. The queries use the GitHub search syntax.

You can also configure which files show these suggestions using the settings **GitHub Issues: Ignore Completion Trigger** (`githubIssues.ignoreCompletionTrigger`) and **GitHub Issues: Ignore User Completion Trigger** (`githubIssues.ignoreUserCompletionTrigger`). These settings take an array of language identifiers to specify the file types.

```
// Languages that the '#' character should not be used to trigger issue completion su
ggestions.

"githubIssues.ignoreCompletionTrigger": [

  "python"

]
```

Pull requests#

From the **Pull Requests** view you can view, manage, and create pull requests.

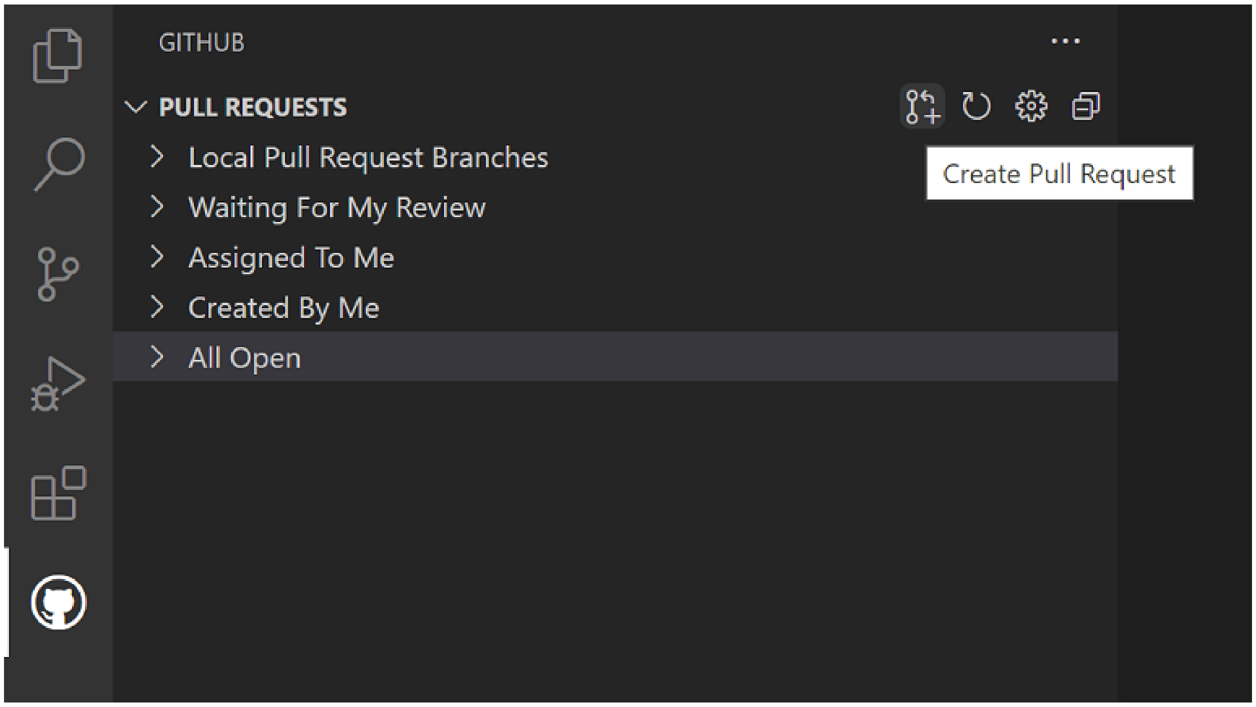

GITHUB
PULL REQUESTS
Local Pull Request Branches
Waiting For My Review
Assigned To Me
#4976: Update tasks-appendix.md by @Cooldo...
#4851: Update data-science-tutorial.md by @K...
Created By Me
All Open
ISSUES

The queries used to display pull requests can be configured with the **GitHub Pull Requests: Queries** (`githubPullRequests.queries`) setting and use the GitHub search syntax.

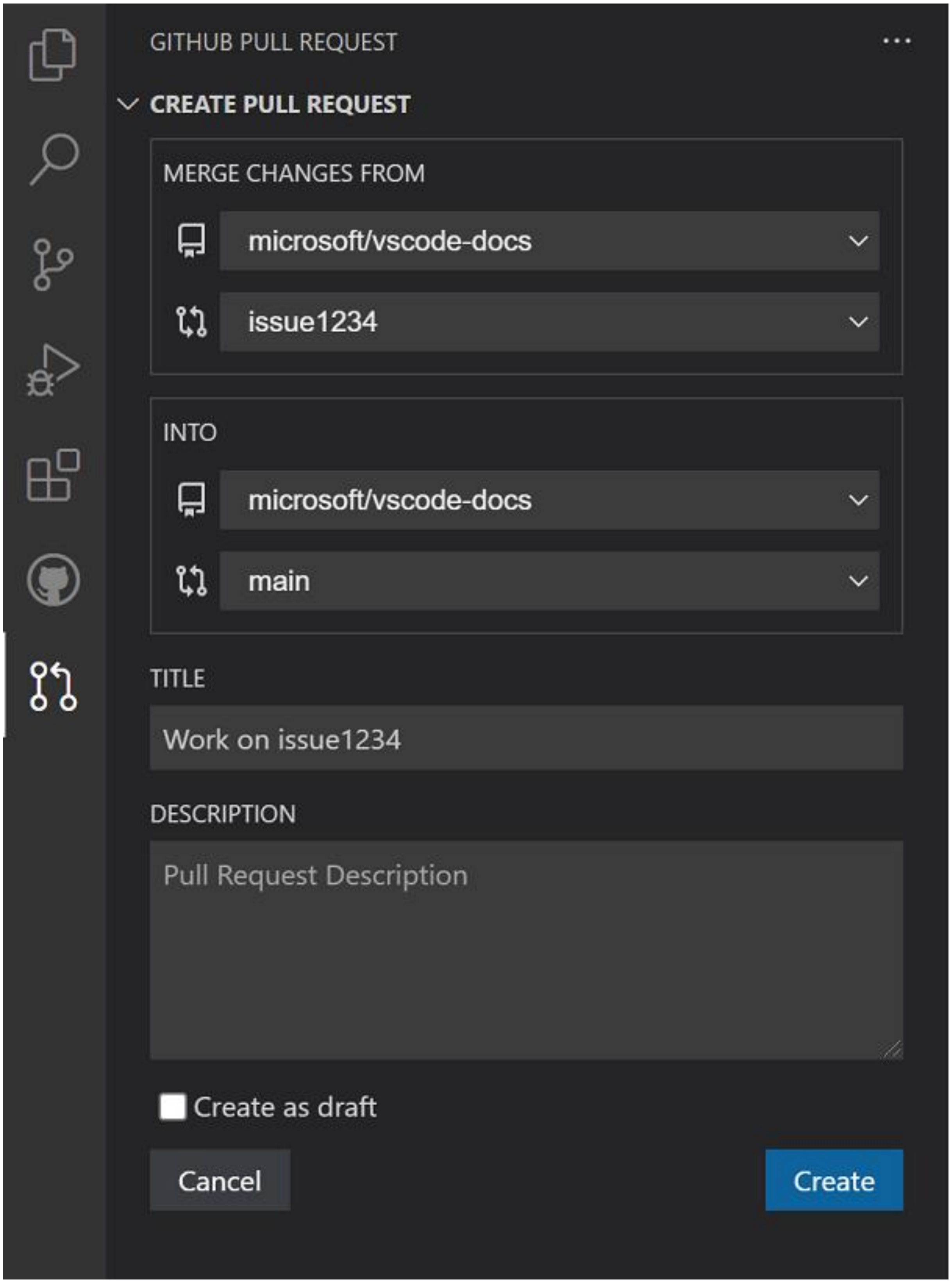
```
"githubPullRequests.queries": [

    {

        "label": "Assigned To Me",

        "query": "is:open assignee:${user}"

    },
```

Creating Pull Requests#

Once you have committed changes to your fork or branch, you can use the **GitHub Pull Requests: Create Pull Request** command or the **Create Pull Request** button in the **Pull Requests** view to create a pull request.



A new **Create Pull Request** view will be displayed where you can select the repository and branch you'd like your pull request to target as well as fill in details such as the title, description, and whether it is a draft PR. If your repository has a pull request template, this will automatically be used for the description.



GITHUB PULL REQUEST

CREATE PULL REQUEST

MERGE CHANGES FROM

microsoft/vscode-docs

issue1234

INTO

microsoft/vscode-docs

main

TITLE

Work on issue1234

DESCRIPTION

Pull Request Description

Create as draft

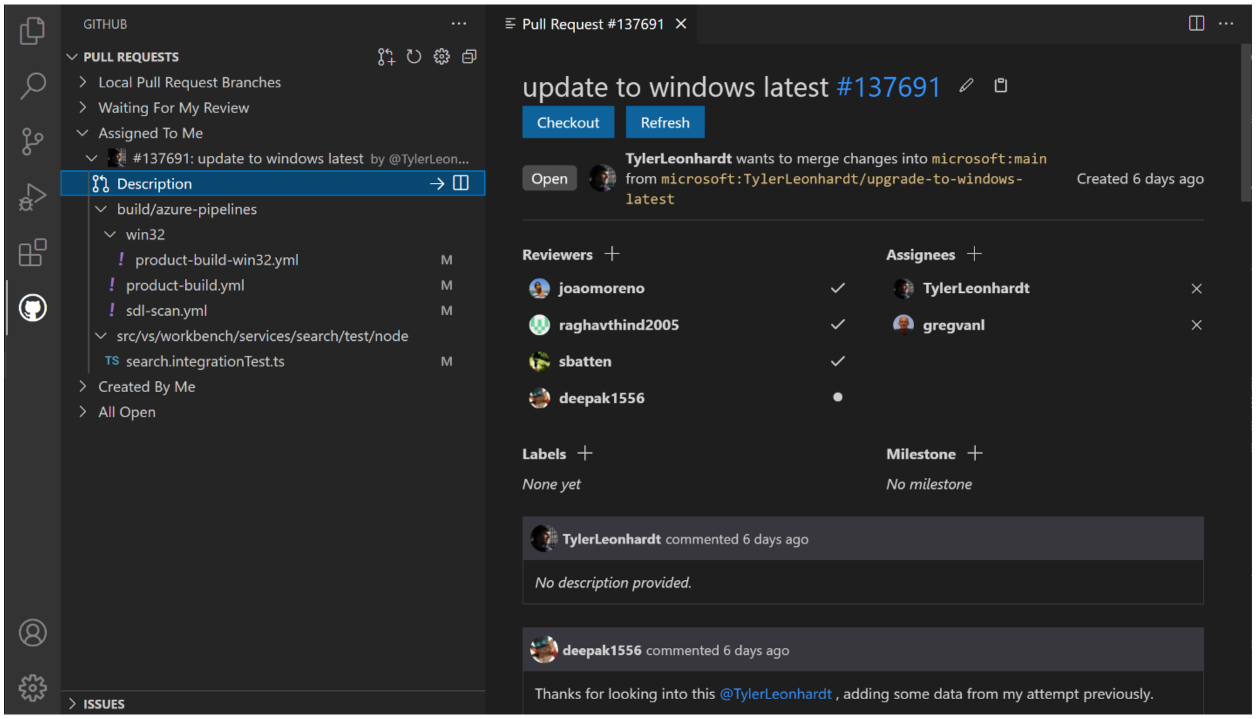
Once you select **Create**, if you have not already pushed your branch to a GitHub remote, the extension will ask if you'd like to publish the branch and provides a dropdown to select the specific remote.

The **Create Pull Request** view now enters **Review Mode**, where you can review the details of the PR, add comments, reviewers, and labels, and merge the PR once it's ready.

After the PR is merged, you'll have the option to delete both the remote and local branch.

Reviewing#

Pull requests can be reviewed from the **Pull Requests** view. You can assign reviewers and labels, add comments, approve, close, and merge all from the pull request **Description**.



GITHUB

PULL REQUESTS

- Local Pull Request Branches
- Waiting For My Review
- Assigned To Me
  - #137691: update to windows latest by @TylerLeon...
    - Description
    - build/azure-pipelines
      - win32
        - product-build-win32.yml M
      - product-build.yml M
      - sdl-scan.yml M
    - src/vs/workbench/services/search/test/node
      - search.integrationTest.ts M
- Created By Me
- All Open

ISSUES

Pull Request #137691

update to windows latest #137691

Checkout Refresh

Open TylerLeonhardt wants to merge changes into `microsoft:main` from `microsoft:TylerLeonhardt/upgrade-to-windows-latest` Created 6 days ago

Reviewers		Assignees
joaomoreno	✓	TylerLeonhardt
raghavthind2005	✓	gregvanl
sbatten	✓	
deepak1556	●	

Labels: None yet

Milestone: No milestone

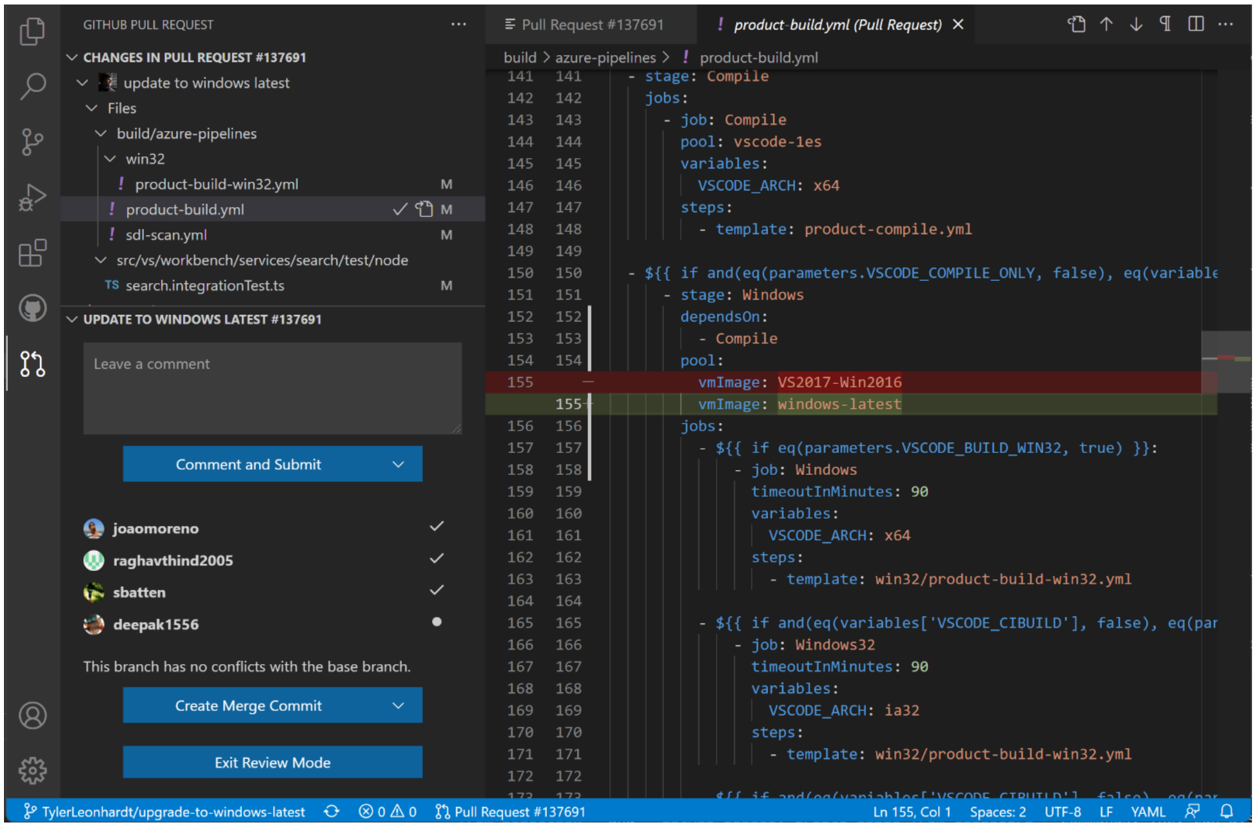
TylerLeonhardt commented 6 days ago

No description provided.

deepak1556 commented 6 days ago

Thanks for looking into this @TylerLeonhardt , adding some data from my attempt previously.

From the **Description** page, you can also easily checkout the pull request locally using the **Checkout** button. This will switch VS Code to open the fork and branch of the pull request (visible in the Status bar) in **Review Mode** and add a new **Changes in Pull Request** view from which you can view diffs of the current changes as well as all commits and the changes within these commits. Files that have been commented on are decorated with a diamond icon. To view the file on disk, you can use the **Open File** inline action.


GITHUB PULL REQUEST
CHANGES IN PULL REQUEST #137691
update to windows latest
Files
build/azure-pipelines
win32
product-build-win32.yml M
product-build.yml M
sdl-scan.yml M
src/vs/workbench/services/search/test/node
search.integrationTest.ts M
UPDATE TO WINDOWS LATEST #137691
Leave a comment
Comment and Submit
joaomoreno
raghavthind2005
sbatten
deepak1556
This branch has no conflicts with the base branch.
Create Merge Commit
Exit Review Mode
Pull Request #137691
product-build.yml (Pull Request)
build > azure-pipelines > product-build.yml
TylerLeonhardt/upgrade-to-windows-latest
Pull Request #137691
Ln 155, Col 1 Spaces: 2 UTF-8 LF YAML

```yaml
  - stage: Compile
    jobs:
      - job: Compile
        pool: vscode-1es
        variables:
          VSCODE_ARCH: x64
        steps:
          - template: product-compile.yml

  - ${{ if and(eq(parameters.VSCODE_COMPILE_ONLY, false), eq(variable
      - stage: Windows
        dependsOn:
          - Compile
        pool:
          vmImage: VS2017-Win2016
          vmImage: windows-latest
        jobs:
          - ${{ if eq(parameters.VSCODE_BUILD_WIN32, true) }}:
              - job: Windows
                timeoutInMinutes: 90
                variables:
                  VSCODE_ARCH: x64
                steps:
                  - template: win32/product-build-win32.yml

          - ${{ if and(eq(variables['VSCODE_CIBUILD'], false), eq(par
              - job: Windows32
                timeoutInMinutes: 90
                variables:
                  VSCODE_ARCH: ia32
                steps:
                  - template: win32/product-build-win32.yml
```

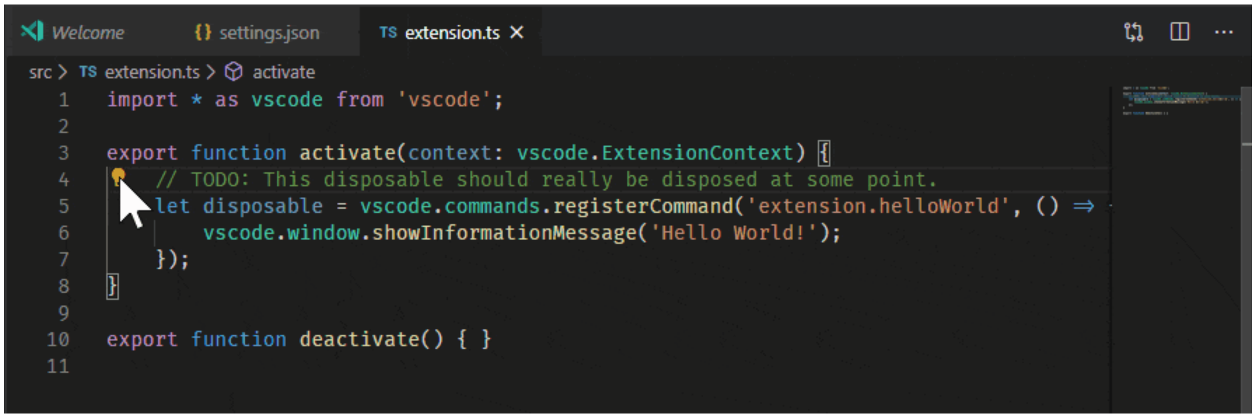
The diff editors from this view use the local file, so file navigation, IntelliSense, and editing work as normal. You can add comments within the editor on these diffs. Both adding single comments and creating a whole review is supported.

When you are done reviewing the pull request changes you can merge the PR or select **Exit Review Mode** to go back to the previous branch you were working on.

Issues#

Creating issues#

Issues can be created from the **+** button in the **Issues** view and by using the **GitHub Issues: Create Issue from Selection** and **GitHub Issues: Create Issue from Clipboard** commands. They can also be created using a Code Action for "TODO" comments. When creating issues, you can take the default description or select the **Edit Description** pencil icon in the upper right to bring up an editor for the issue body.



```
import * as vscode from 'vscode';

export function activate(context: vscode.ExtensionContext) {
    // TODO: This disposable should really be disposed at some point.
    let disposable = vscode.commands.registerCommand('extension.helloWorld', () =>
        vscode.window.showInformationMessage('Hello World!');
    });
}

export function deactivate() { }
```

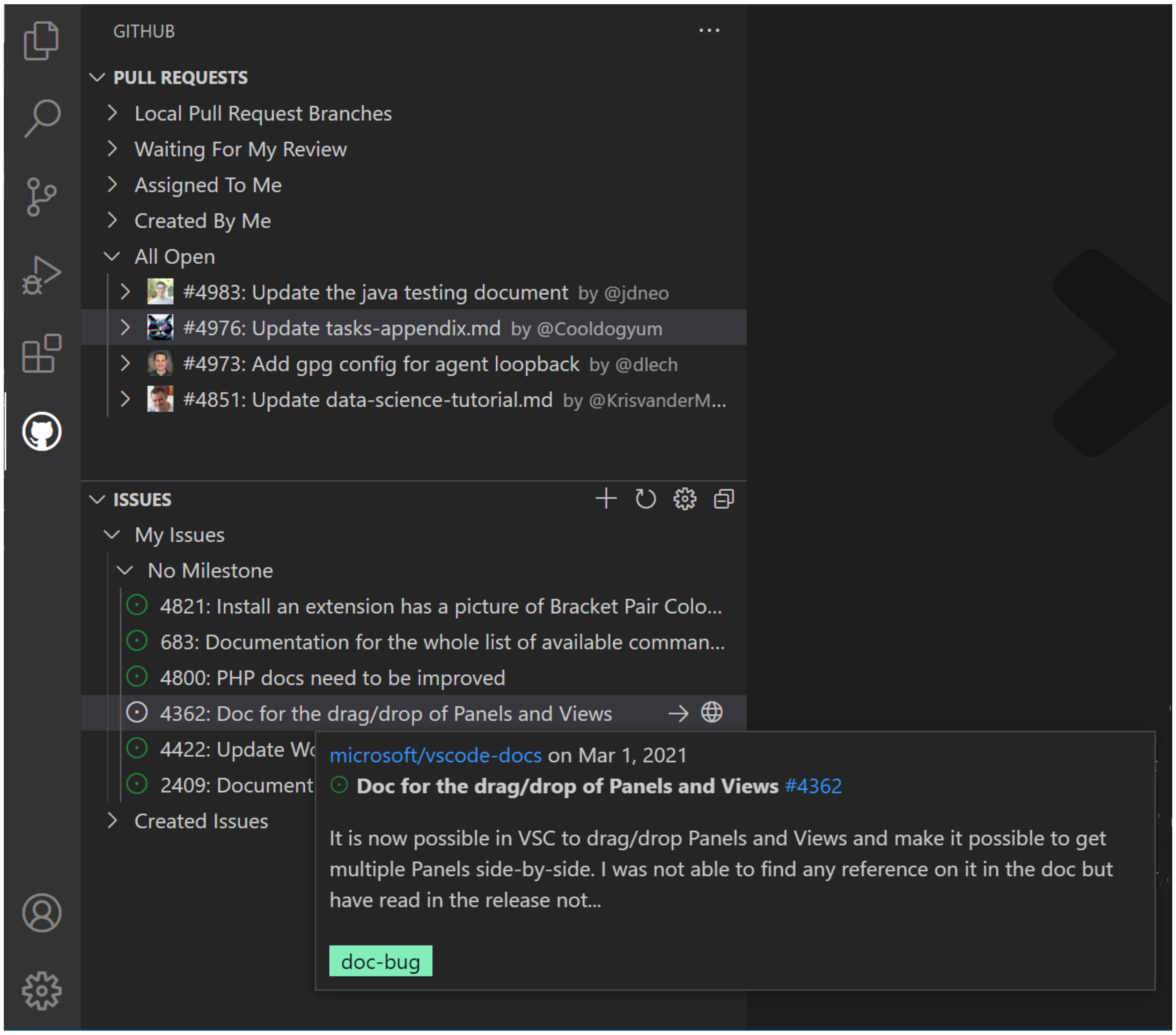
You can configure the trigger for the Code Action using the **GitHub Issues: Create Issue Triggers** (`githubIssues.createIssueTriggers`) setting.

The default issue triggers are:

```
"githubIssues.createIssueTriggers": [
  "TODO",
  "todo",
  "BUG",
  "FIXME",
  "ISSUE",
  "HACK"
]
```

Working on issues#

From the **Issues** view, you can see your issues and work on them.



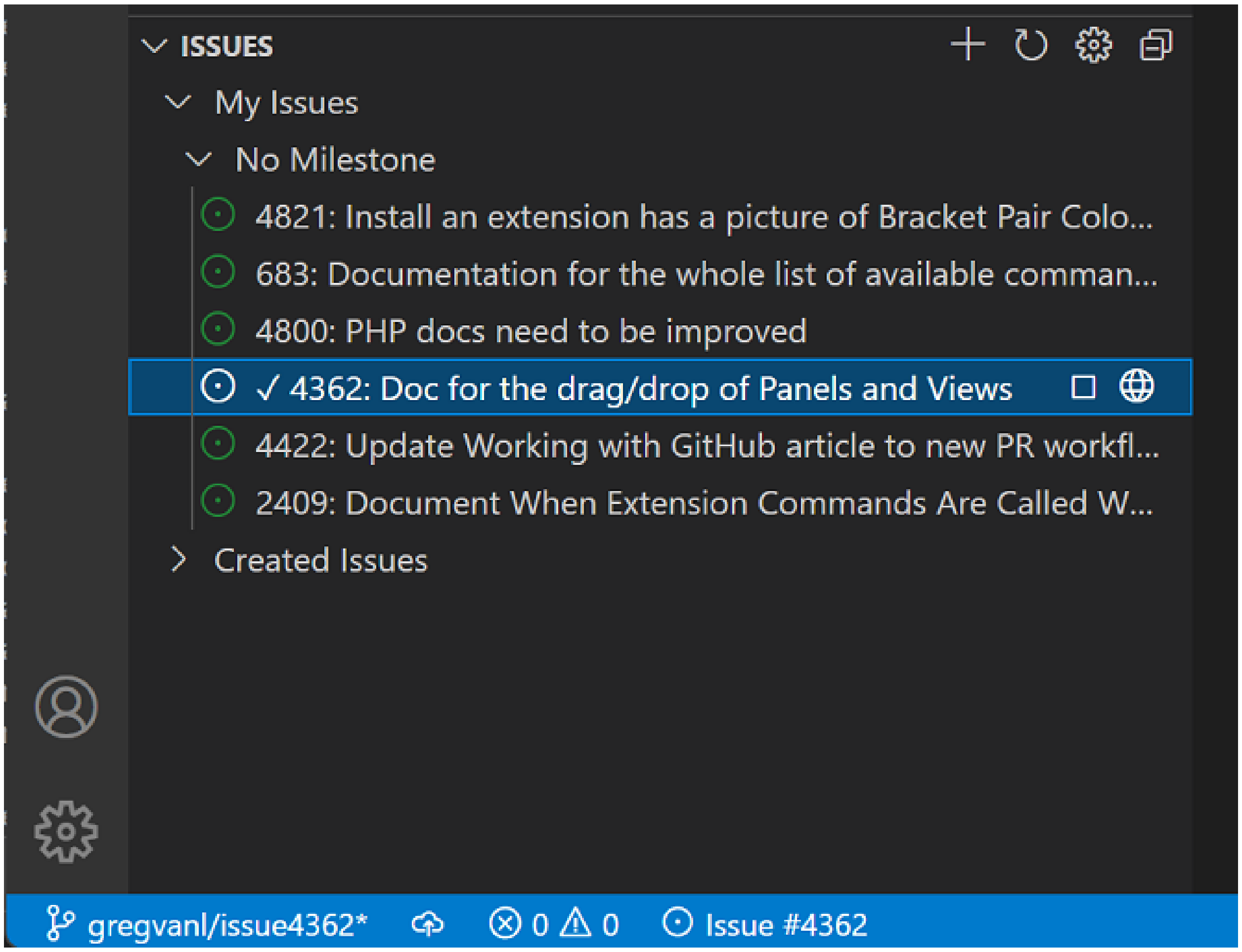
#4983: Update the java testing document by @jdneo
#4976: Update tasks-appendix.md by @Cooldogyum
#4973: Add gpg config for agent loopback by @dlech
#4851: Update data-science-tutorial.md by @KrisvanderM...

4821: Install an extension has a picture of Bracket Pair Colo...
683: Documentation for the whole list of available comman...
4800: PHP docs need to be improved
4362: Doc for the drag/drop of Panels and Views
4422: Update Wo
2409: Document

microsoft/vscode-docs on Mar 1, 2021
Doc for the drag/drop of Panels and Views #4362

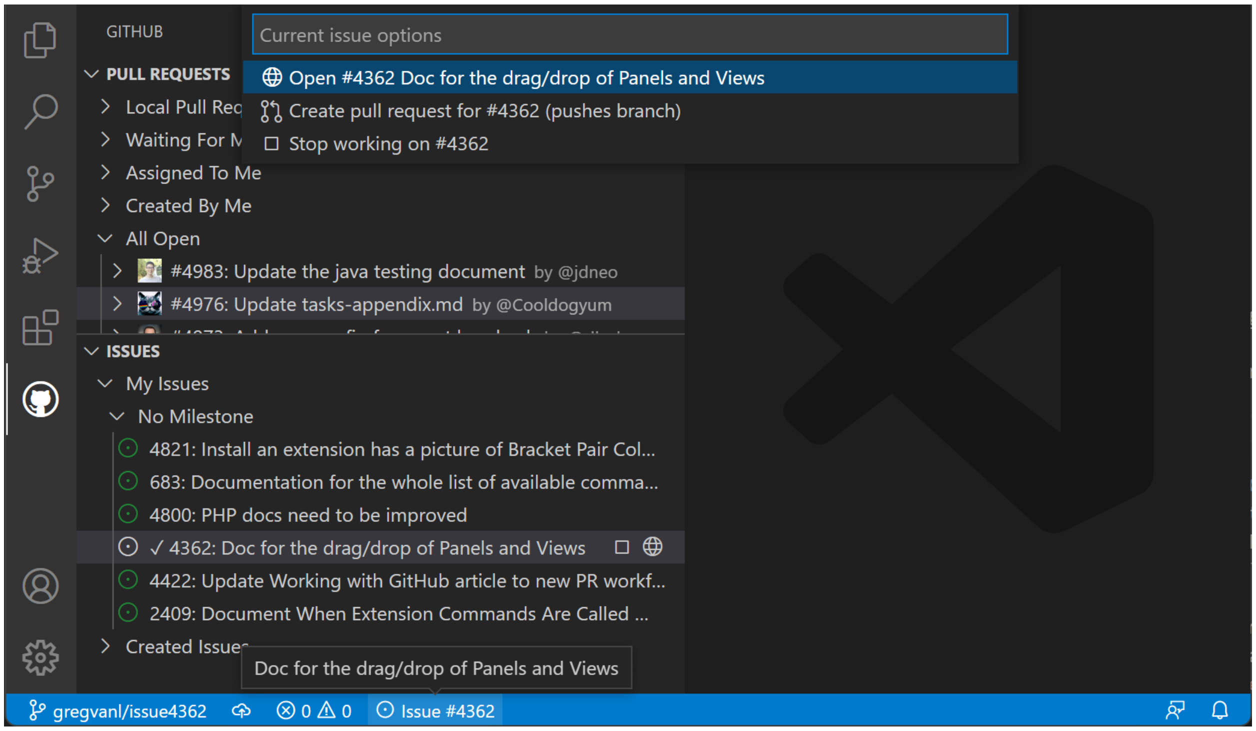
It is now possible in VSC to drag/drop Panels and Views and make it possible to get multiple Panels side-by-side. I was not able to find any reference on it in the doc but have read in the release not...

By default, when you start working on an issue (**Start Working on Issue** context menu item), a branch will be created for you, as shown in the Status bar in the image below.



ISSUES
My Issues
No Milestone
4821: Install an extension has a picture of Bracket Pair Colo...
683: Documentation for the whole list of available comman...
4800: PHP docs need to be improved
✓ 4362: Doc for the drag/drop of Panels and Views
4422: Update Working with GitHub article to new PR workfl...
2409: Document When Extension Commands Are Called W...
Created Issues
gregvanl/issue4362* ⊗ 0 ⚠ 0 Issue #4362

The Status bar also shows the active issue and if you select that item, a list of issue actions are available such as opening the issue on the GitHub website or creating a pull request.

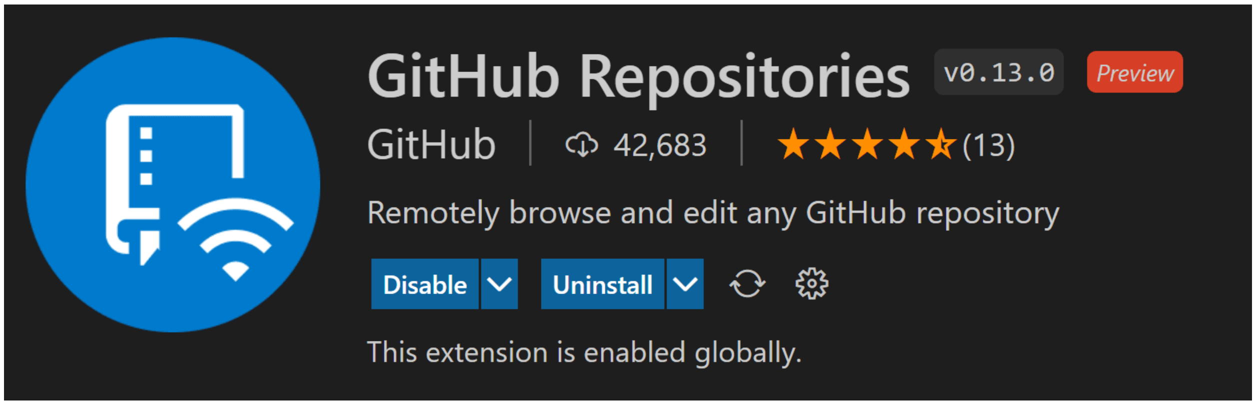

GITHUB
Current issue options
Open #4362 Doc for the drag/drop of Panels and Views
Create pull request for #4362 (pushes branch)
Stop working on #4362
PULL REQUESTS
Local Pull Req
Waiting For M
Assigned To Me
Created By Me
All Open
#4983: Update the java testing document by @jdneo
#4976: Update tasks-appendix.md by @Cooldogyum
ISSUES
My Issues
No Milestone
4821: Install an extension has a picture of Bracket Pair Col...
683: Documentation for the whole list of available comma...
4800: PHP docs need to be improved
✓ 4362: Doc for the drag/drop of Panels and Views
4422: Update Working with GitHub article to new PR workf...
2409: Document When Extension Commands Are Called ...
Created Issues
Doc for the drag/drop of Panels and Views
gregvanl/issue4362
0 0
Issue #4362

You can configure the name of the branch using the **GitHub Issues: Issue Branch Title** (`githubIssues.issueBranchTitle`) setting. If your workflow doesn't involve creating a branch, or if you want to be prompted to enter a branch name every time, you can skip that step by turning off the **GitHub Issues: Use Branch For Issues** (`githubIssues.useBranchForIssues`) setting.

Once you are done working on the issue and want to commit a change, the commit message input box in the **Source Control** view will be populated with a message, which can be configured with **GitHub Issues: Working Issue Format SCM** (`githubIssues.workingIssueFormatScm`).

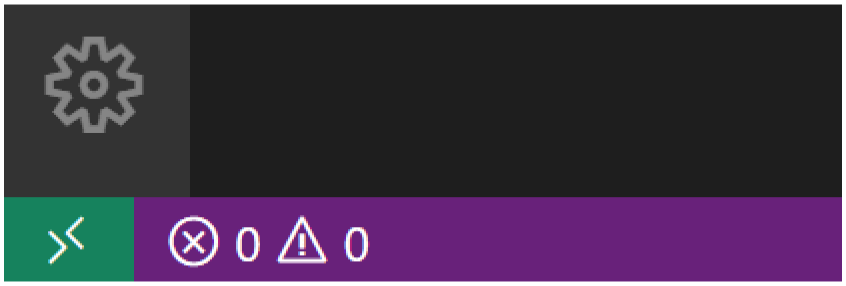
GitHub Repositories extension#

The GitHub Repositories extension lets you quickly browse, search, edit, and commit to any remote GitHub repository directly from within Visual Studio Code, without needing to clone the repository locally. This can be fast and convenient for many scenarios, where you just need to review source code or make a small change to a file or asset.


GitHub Repositories v0.13.0 Preview
GitHub 42,683 ★★★★☆ (13)
Remotely browse and edit any GitHub repository
Disable
Uninstall
This extension is enabled globally.

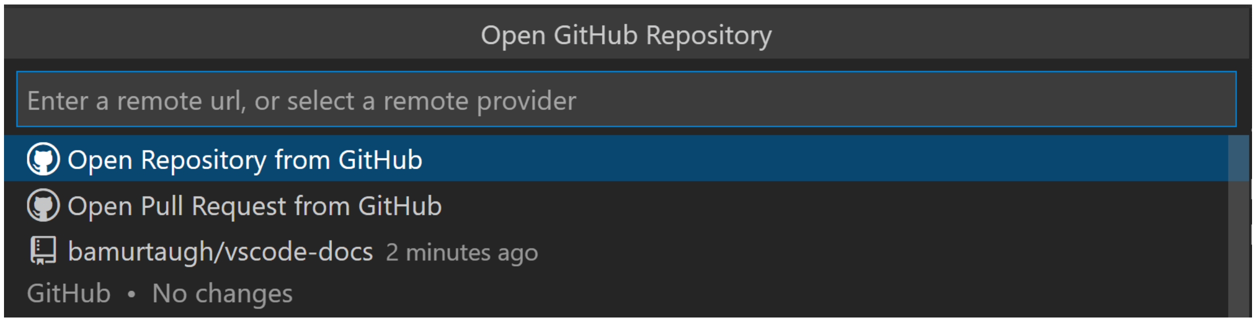
Opening a repository#

Once you have installed the GitHub Repositories extension, you can open a repository with the **GitHub Repositories: Open Repository...** command from the Command Palette (`Ctrl+Shift+P`) or by clicking the Remote indicator in the lower left of the Status bar.



When you run the **Open Repository** command, you then choose whether to open a repository from GitHub, open a Pull Request from GitHub, or reopen a repository that you had previously connected to.

If you haven't logged into GitHub from VS Code before, you'll be prompted to authenticate with your GitHub account.


Open GitHub Repository
Enter a remote url, or select a remote provider
Open Repository from GitHub
Open Pull Request from GitHub
bamurtaugh/vscode-docs 2 minutes ago
GitHub • No changes

You can provide the repository URL directly or search GitHub for the repository you want by typing in the text box.

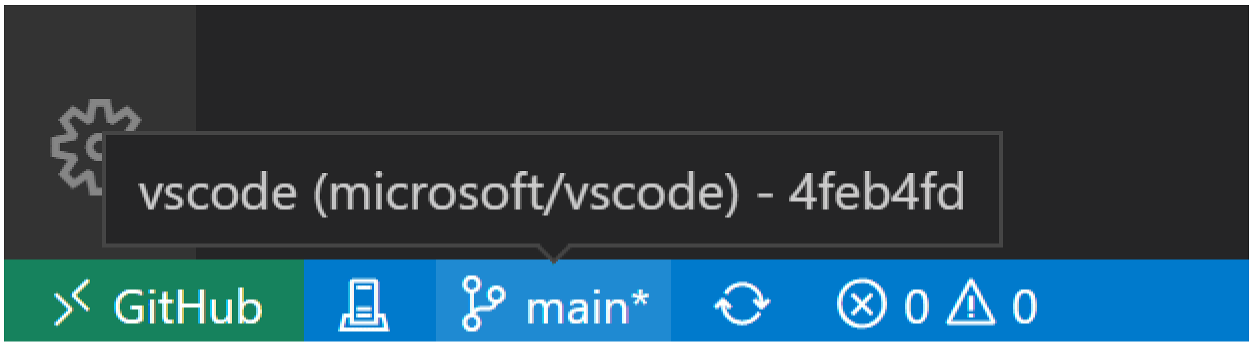
Once you have selected a repository or Pull Request, the VS Code window will reload and you will see the repository contents in the File Explorer. You can then open files (with full syntax highlighting and bracket matching), make edits, and commit changes, just like you would working on a local clone of a repository.

One difference from working with a local repository is that when you commit a change with the GitHub Repository extension, the changes are pushed directly to the remote repository, similar to if you were working in the GitHub web interface.

Another feature of the GitHub Repositories extension is that every time you open a repository or branch, you get the up-to-date sources available from GitHub. You don't need to remember to pull to refresh as you would with a local repository.

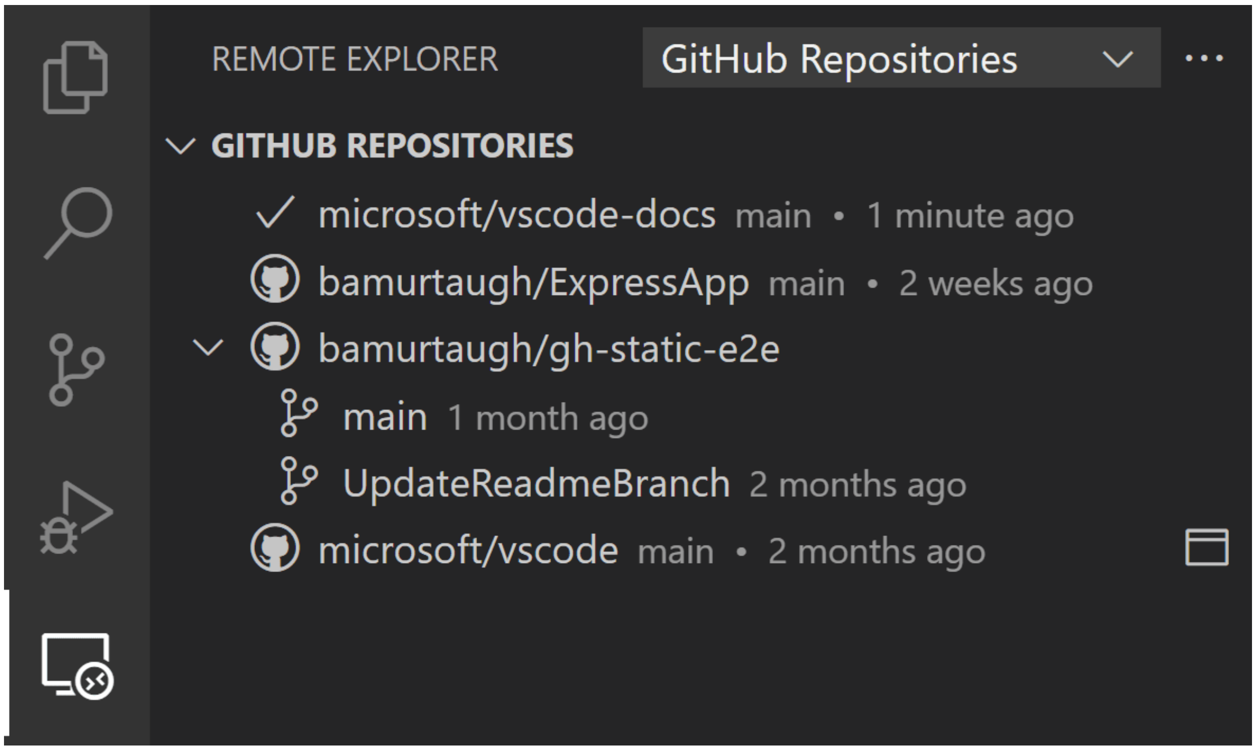
Switching branches#

You can easily switch between branches by clicking on the branch indicator in the Status bar. One great feature of the GitHub Repositories extension is that you can switch branches without needing to stash uncommitted changes. The extension remembers your changes and reapplies them when you switch branches.



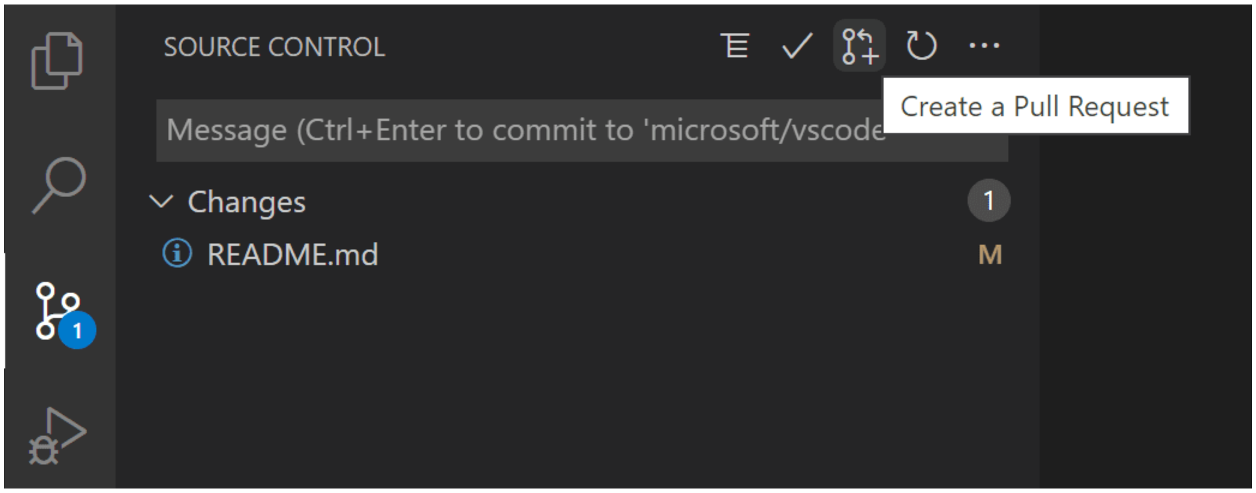
Remote Explorer#

You can quickly reopen remote repositories with the Remote Explorer available on the Activity bar. This view shows you the previously opened repositories and branches.


REMOTE EXPLORER
GitHub Repositories
GITHUB REPOSITORIES
microsoft/vscode-docs main • 1 minute ago
bamurtaugh/ExpressApp main • 2 weeks ago
bamurtaugh/gh-static-e2e
main 1 month ago
UpdateReadmeBranch 2 months ago
microsoft/vscode main • 2 months ago

Create Pull Requests#

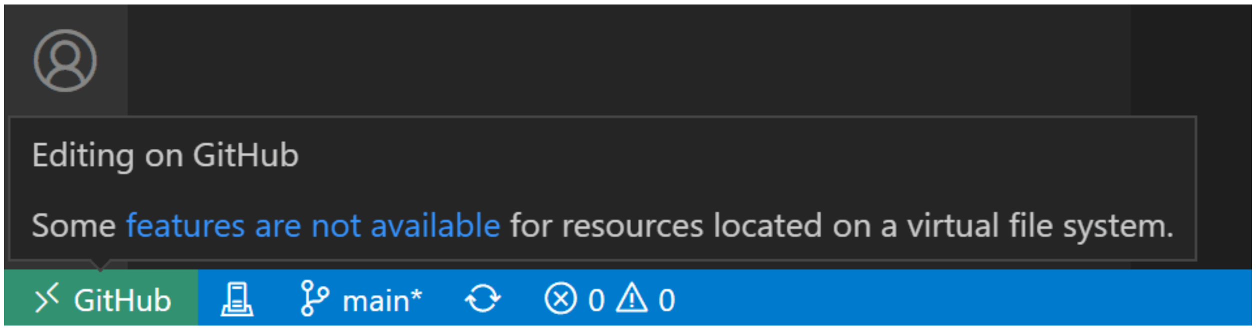
If your workflow uses Pull Requests, rather than direct commits to a repository, you can create a new PR from the Source Control view. You'll be prompted to provide a title and create a new branch.



Once you have created a Pull Request, you can use the GitHub Pull Request and Issues extension to review, edit, and merge your PR as described earlier in this topic.

Virtual file system#

Without a repository's files on your local machine, the GitHub Repositories extension creates a virtual file system in memory so you can view file contents and make edits. Using a virtual file system means that some operations and extensions which assume local files are not enabled or have limited functionality. Features such as tasks, debugging, and integrated terminals are not enabled and you can learn about the level of support for the virtual file system via the **features are not available** link in the Remote indicator hover.

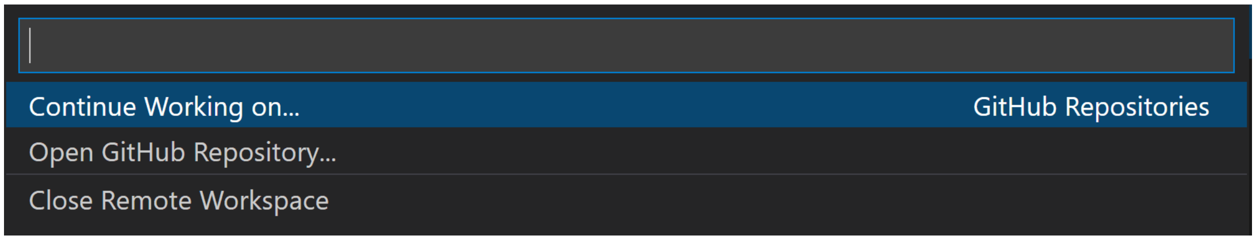

Editing on GitHub

Some features are not available for resources located on a virtual file system.

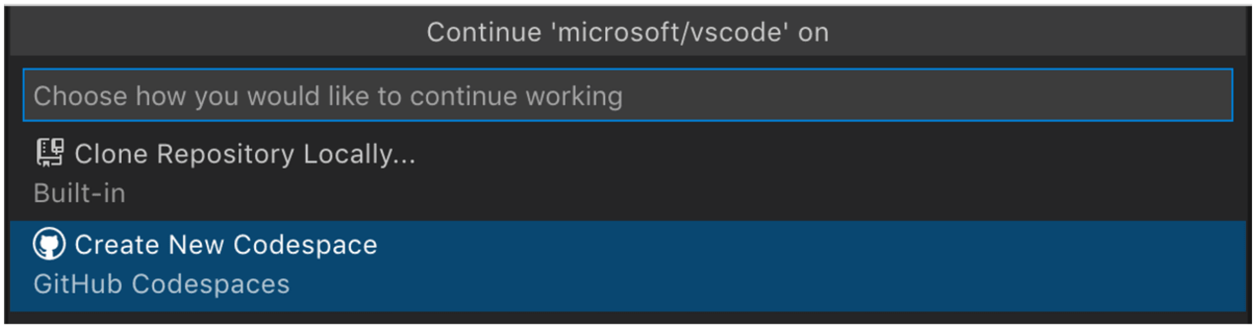
Extension authors can learn more about running in a virtual file system and workspace in the Virtual Workspaces extension author's guide.

Continue Working on...#

Sometimes you'll want to switch to working on a repository in a development environment with support for a local file system and full language and development tooling. The GitHub Repositories extension makes it easy for you to clone the repository locally or into a Docker container (if you have Docker and the Microsoft Docker extension installed) with the **GitHub Repositories: Continue Working on...** command available from the Command Palette (`Ctrl+Shift+P`) or by clicking on the Remote indicator in the Status bar.



If you are using the browser-based editor, the **"Continue Working On..."** command has the options to open the repository locally or within a cloud-hosted environment in GitHub Codespaces.



Continue 'microsoft/vscode' on

Choose how you would like to continue working

Clone Repository Locally...
Built-in

Create New Codespace
GitHub Codespaces

More sources to learn

- Introduction to GitHub in Visual Studio Code - Training | Microsoft Learn

Lab Tasks

1. Create a GitHub repository with your registration number.
2. Create a web project with your registration number
3. Add some HTML files to your project
4. Add different commit commands to show the version control in your project
5. Push your code to the created GitHub repository.

References/Credits

All the text to form this lab plan is taken from Collaborate on GitHub (visualstudio.com)