

Navigating code on GitHub

In this article

- About navigating code on GitHub
- Using the symbols pane
- Jumping to the definition of a function or method
- Finding all references of a function or method
- Precise and search-based navigation
- Cross-repository precise code navigation
- Troubleshooting code navigation
- Further reading

You can understand the relationships within and across repositories by navigating code directly in GitHub Enterprise Cloud.

About navigating code on GitHub [↗](#)

Code navigation helps you to read, navigate, and understand code by showing and linking definitions of a named entity corresponding to a reference to that entity, as well as references corresponding to an entity's definition.



Code navigation uses the open source [tree-sitter](#) library. The following languages and navigation strategies are supported.

Language	Search-based code navigation	Precise code navigation
C#	✓	×
CodeQL	✓	×
Elixir	✓	×
Go	✓	×
Java	✓	×
JavaScript	✓	✓

JavaScript	✓	×
PHP	✓	×
Python	✓	✓
Ruby	✓	×
Rust	✓	×
TypeScript	✓	×

You do not need to configure anything in your repository to enable code navigation. We will automatically extract search-based and precise code navigation information for these supported languages in all repositories and you can switch between the two supported code navigation approaches if your programming language is supported by both.

GitHub has developed two code navigation approaches based on the open source [tree-sitter](#) and [stack-graphs](#) library:

- Search-based - searches all definitions and references across a repository to find entities with a given name
- Precise - resolves definitions and references based on the set of classes, functions, and imported definitions at a given point in your code

To learn more about these approaches, see "[Precise and search-based navigation](#)."

Future releases will add *precise code navigation* for more languages, which is a code navigation approach that can give more accurate results.

You can use keyboard shortcuts to navigate within a code file. For more information, see "[Keyboard shortcuts](#)."

Using the symbols pane

You can now quickly view and navigate between symbols such as functions or classes in your code with the symbols pane. You can search for a symbol in a single file, in all files in a repository, or even in all public repositories on GitHub.

Symbol search is a feature of code search. For more information, see "[Understanding GitHub Code Search syntax](#)."

1 Select a repository, then navigate to a file containing symbols.


2 To bring up the symbols pane, above the file content, click .

Alternatively, you can open the symbols pane by clicking an eligible symbol in your file. Clickable symbols are highlighted in yellow when you hover over them.

3 Click the symbol you would like to find from the symbols pane or within the file itself.

- To search for a symbol in the repository as a whole, in the symbols pane, click **Search for this symbol in this repository**. To search for a symbol in all repositories on GitHub, click **all repositories**.

4 To navigate between references to a symbol, click  or .

5 To navigate to a specific reference to a symbol, click a result of the symbol search under  **In this file**.

6 To exit the search for a specific symbol, click ← **All Symbols**.

Jumping to the definition of a function or method [↗](#)

You can jump to a function or method's definition within the same repository by clicking the function or method call in a file.

← All Symbols ×

function didUpdateScrollbarStyles

Search for this symbol in this repository or all repositories.

Definition search-based

▼ In this file

97 `didUpdateScrollbarStyles() {`

3 References search-based ^ ▼

▼ In this file

101 `didUpdateScrollbarStyles();`

> `src/editor/text-editor-component-atom.js` 1

> `src/editor/atom-environment.js` 1

Finding all references of a function or method [↗](#)

You can find all references for a function or method within the same repository by clicking the function or method call in a file.

← All Symbols ×

function didUpdateScrollbarStyles

Search for this symbol in this repository or all repositories.

Definition search-based

▼ In this file

97 `didUpdateScrollbarStyles() {`

3 References search-based ^ ▼

▼ In this file

101 `didUpdateScrollbarStyles();`

> `src/editor/text-editor-component-atom.js` 1

> `src/editor/atom-environment.js` 1

Precise and search-based navigation [↗](#)

Certain languages supported by GitHub have access to *precise code navigation*, which uses an algorithm (based on the open source [stack-graphs](#) library) that resolves

definitions and references based on the set of classes, functions, and imported definitions that are visible at any given point in your code. Other languages use *search-based code navigation*, which searches all definitions and references across a repository to find entities with a given name. Both strategies are effective at finding results and both make sure to avoid inappropriate results such as comments, but precise code navigation can give more accurate results, especially when a repository contains multiple methods or functions with the same name.

If you don't see the results you expect from a precise code navigation query, you can click on the "search-based" link in the displayed popover to perform search-based navigation.

← All Symbols

×

function

didUpdateScrollbarStyles

Search for this symbol in this repository or all repositories.

Definition

search-based

▼ In this file

92 didUpdateScrollbarStyles() {

5 References

search-based

^

▼

▼ In this file

96 didUpdateScrollbarStyles();

If your precise results appear inaccurate, you can file a support request.

Cross-repository precise code navigation [↗](#)

Cross-repo code navigation is available for languages that are supported by precise code navigation and the dependency graph. For more information, see "[About the dependency graph](#)." With cross-repo code navigation, you can jump to the definition of functions or variables defined in dependencies imported by your project if that dependency is a repository hosted by GitHub. Cross-repo code navigation does not support find-all-references requests at this time.

3 import os

4 from s

5 from s

6

7 user_f

8 user_n

9

10

11

12 def ve

13 def si

14

--

DefinitionsReferences

Present in 2 filesprecise

projects/Plagarism_checker/plag.py

3 import os

python/cpython:Lib/os.pyCross-repo result

1

Viewing precise results. Try a search-based lookup. [Learn more.](#)

xt']

ext).toarray()

oc2])

Troubleshooting code navigation

If code navigation is enabled for you but you don't see links to the definitions of functions and methods:

- Code navigation only works for active branches. Push to the branch and try again.
- Code navigation only works for repositories with fewer than 100,000 files.

Further reading

- "[About GitHub Code Search](#)"

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