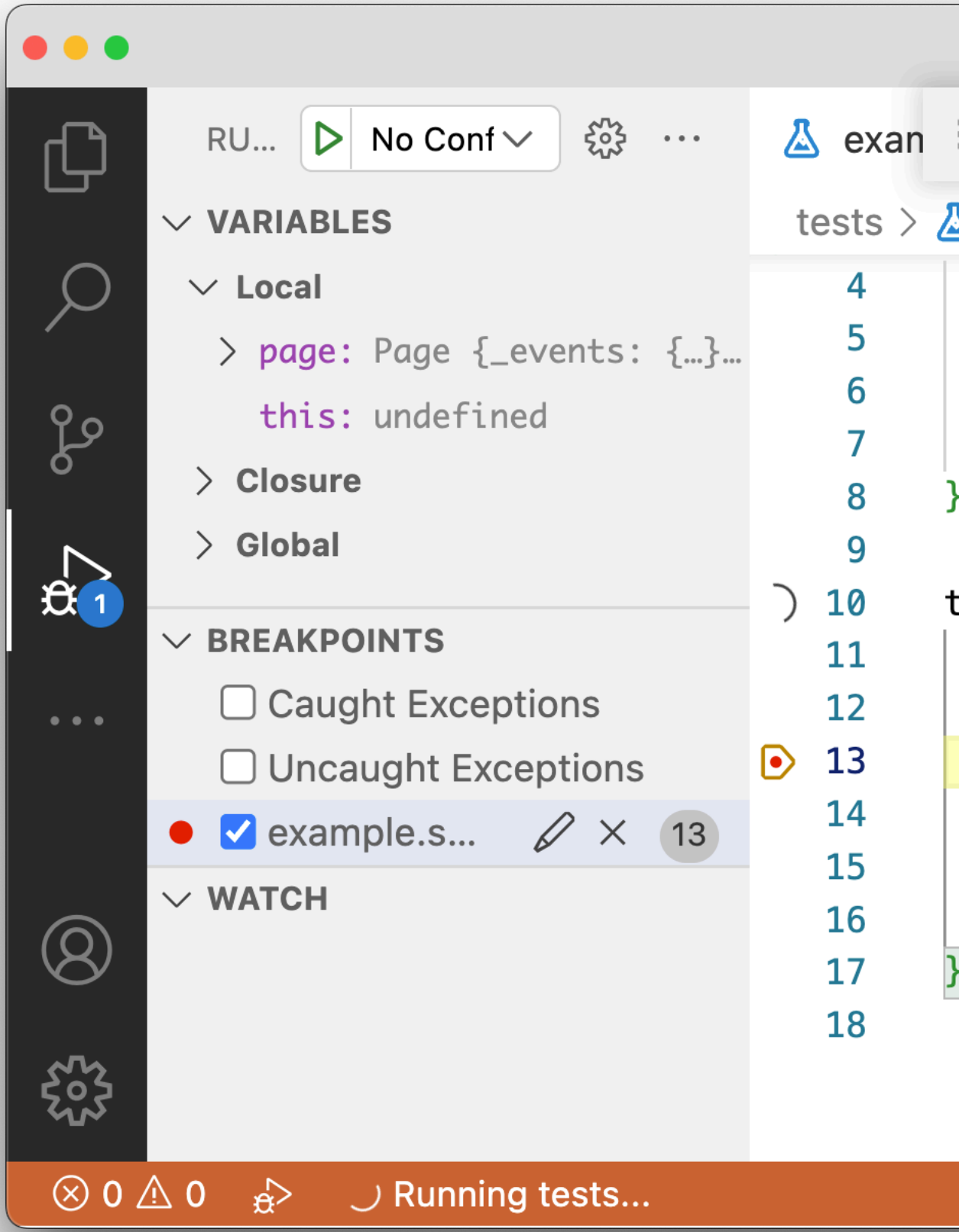
    - Emulation
    - Fixtures
    - Global setup and teardown
    - Parallelism
    - Parameterize tests
    - Projects
    - Reporters
    - Retries
    - Sharding
    - Timeouts
    - TypeScript
    - UI Mode
    - Web server
- Guides
    - Library
    - Accessibility testing
    - Actions
    - Assertions
    - API testing
    - Authentication
    - Auto-waiting
    - Best Practices
    - Browsers
    - Chrome extensions
    - Clock
    - Components (experimental)
    - Debugging Tests
    - Dialogs
    - Downloads
    - Evaluating JavaScript
    - Events
    - Extensibility
    - Frames
    - Handles
    - Isolation
    - Locators
    - Mock APIs
    - Mock browser APIs
    - Navigations
    - Network
    - Other locators
    - Page object models
    - Pages
    - Screenshots
    - Visual comparisons
    - Test generator
    - Trace viewer
    - Videos
    - WebView2
- Migration

Debugging Tests

VS Code debugger

We recommend using the VS Code Extension for debugging for a better developer experience. With the VS Code extension you can debug your tests right in VS Code, see error messages, set breakpoints and step through your tests.


RU...
No Conf
VARIABLES
Local
page: Page {_events: {…}…
this: undefined
Closure
Global
BREAKPOINTS
Caught Exceptions
Uncaught Exceptions
example.s...
13
WATCH
exan
tests
4
5
6
7
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10
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14
15
16
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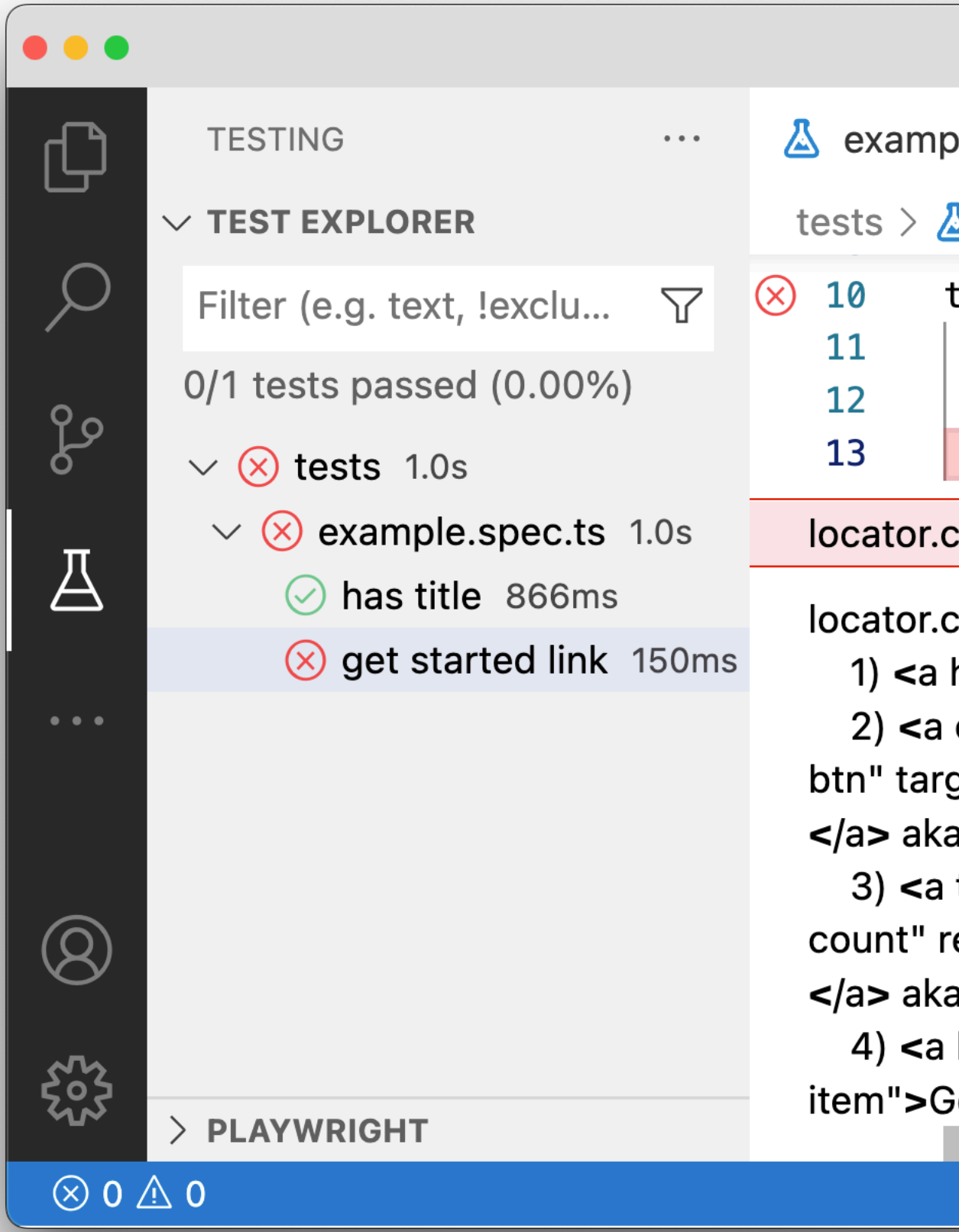
18
0 0
Running tests...

Error Messages

If your test fails VS Code will show you error messages right in the editor showing what was expected, what was received as well as a complete call log.


TESTING
TEST EXPLORER
Filter (e.g. text, !exclu...
0/1 tests passed (0.00%)
tests 1.0s
example.spec.ts 1.0s
has title 866ms
get started link 150ms
PLAYWRIGHT
0 0
examp
tests
10
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13
locator.c
locator.c
1) <a h
2) <a
btn" targ
 aka
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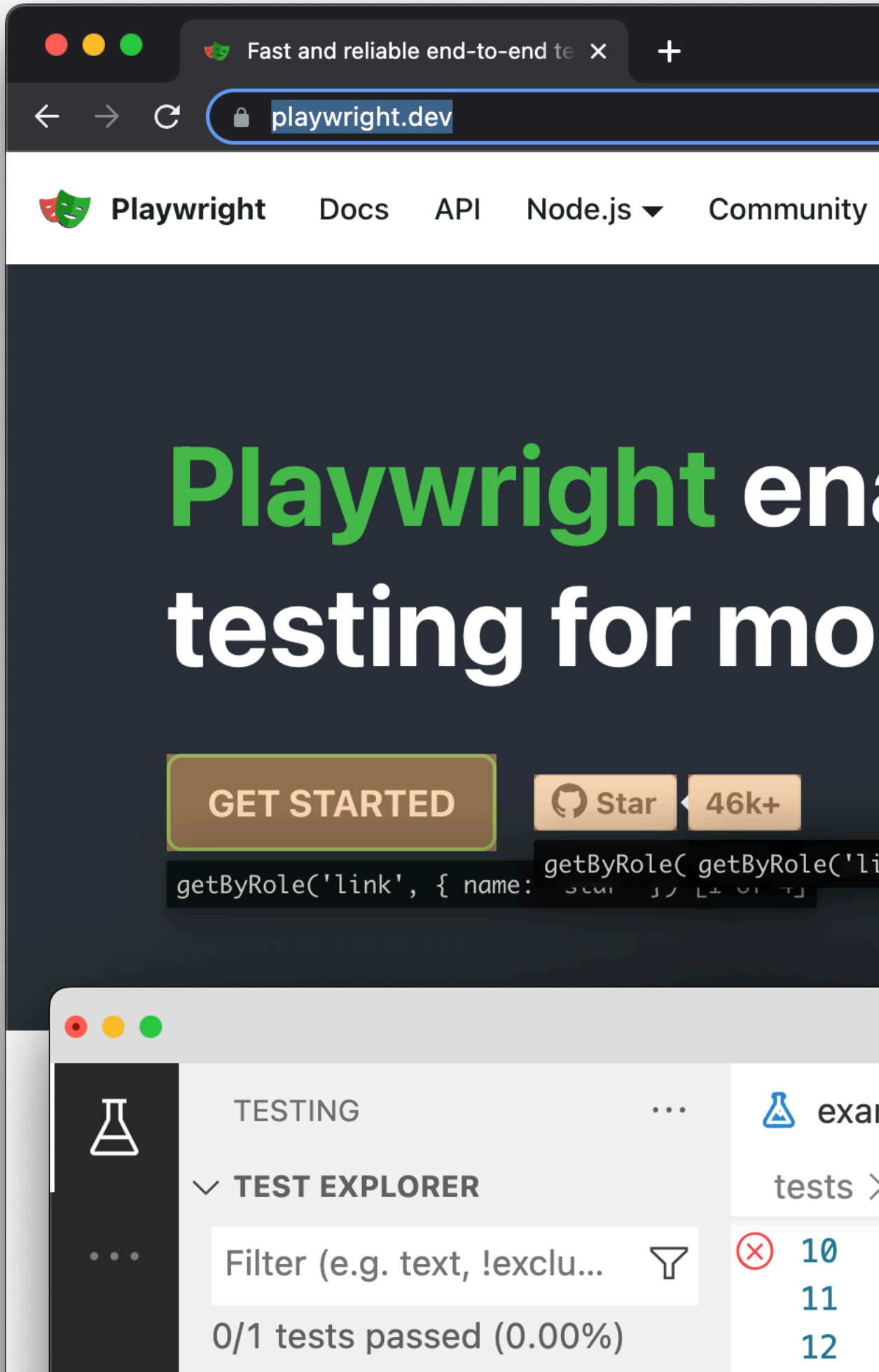
4) <a
item">G

Live Debugging

You can debug your test live in VS Code. After running a test with the `Show Browser` option checked, click on any of the locators in VS Code and it will be highlighted in the Browser window. Playwright will also show you if there are multiple matches.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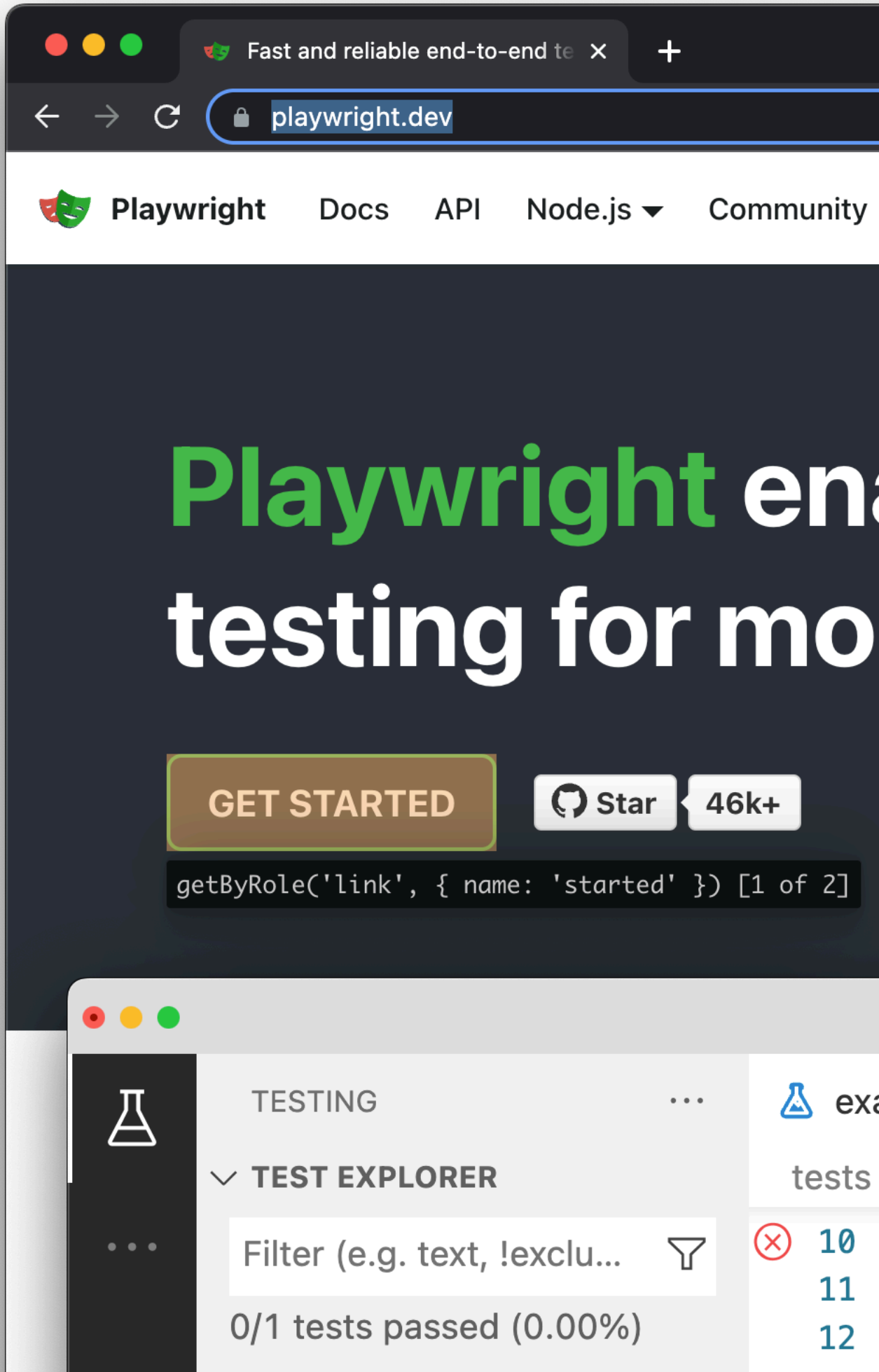
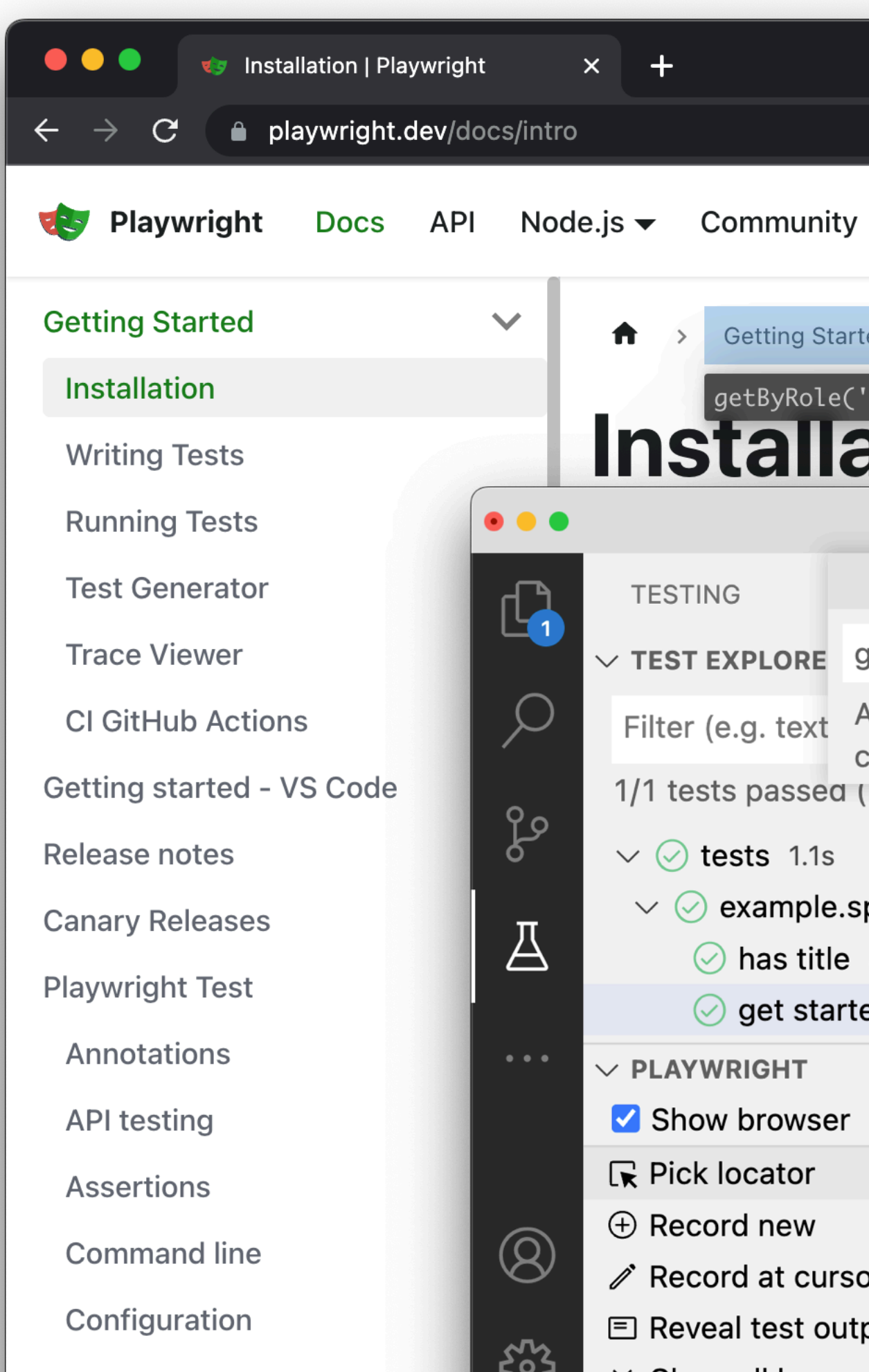
playwright.dev
Playwright
Docs
API
Node.js
Community
Playwright ena
testing for mo
GET STARTED
Star
46k+
getByRole('link', { name:
getByRole(getByRole('li
TESTING
TEST EXPLORER
Filter (e.g. text, !exclu...
0/1 tests passed (0.00%)
exa
tests
10
11
12

You can also edit the locators in VS Code and Playwright will show you the changes live in the browser window.


Fast and reliable end-to-end te
playwright.dev
Playwright
Docs
API
Node.js
Community
Playwright
testing for mo
GET STARTED
Star
46k+
getByRole('link', { name: 'started' }) [1 of 2]
TESTING
TEST EXPLORER
Filter (e.g. text, !exclu...
0/1 tests passed (0.00%)
tests
10
11
12

Picking a Locator

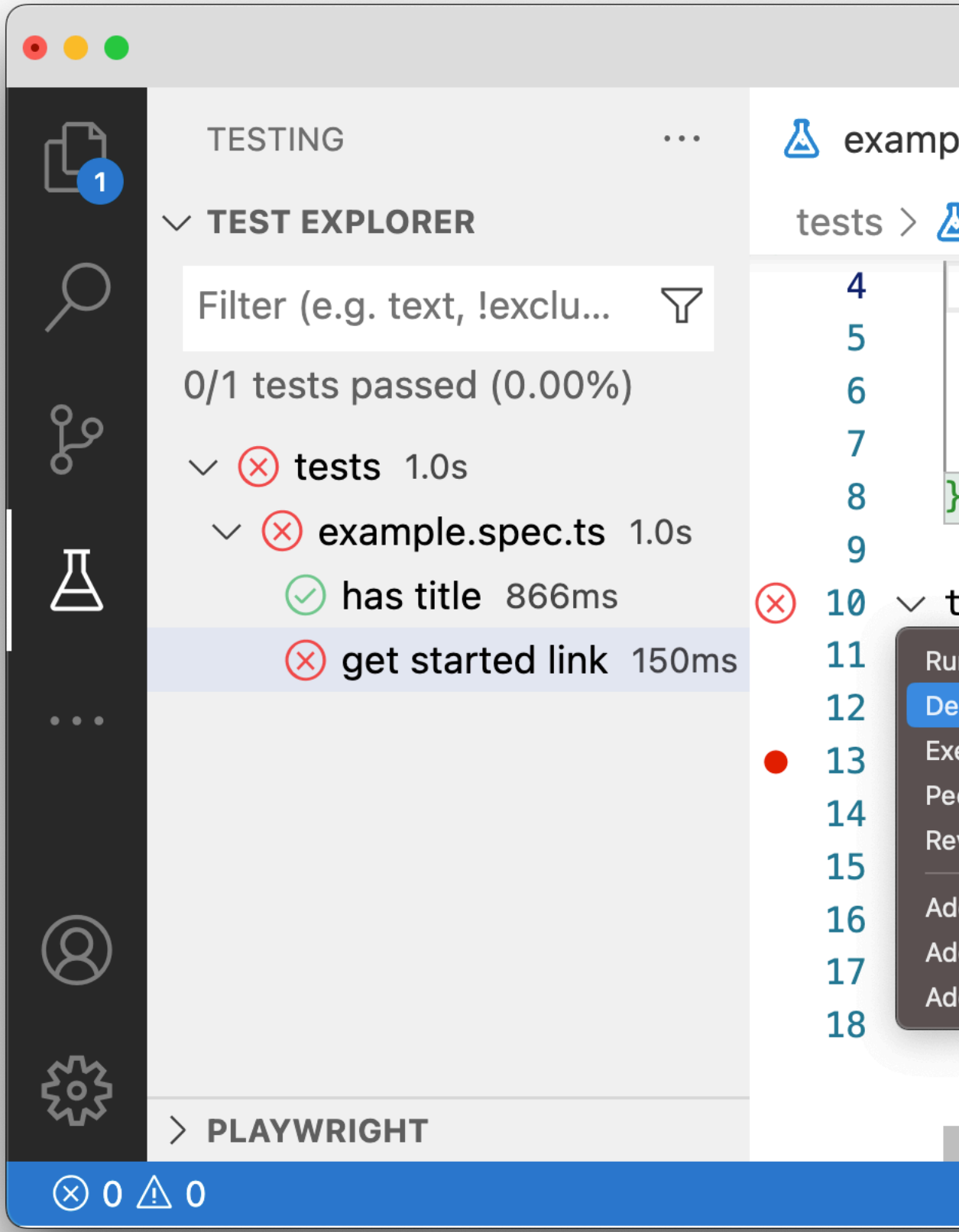
Pick a locator and copy it into your test file by clicking the **Pick locator** button form the testing sidebar. Then in the browser click the element you require and it will now show up in the **Pick locator** box in VS Code. Press 'enter' on your keyboard to copy the locator into the clipboard and then paste anywhere in your code. Or press 'escape' if you want to cancel.


Installation | Playwright
playwright.dev/docs/intro
Playwright
Docs
API
Node.js
Community
Getting Started
Installation
Writing Tests
Running Tests
Test Generator
Trace Viewer
CI GitHub Actions
Getting started - VS Code
Release notes
Canary Releases
Playwright Test
Annotations
API testing
Assertions
Command line
Configuration
TESTING
TEST EXPLORE
Filter (e.g. text
1/1 tests passed
tests 1.1s
has title
PLAYWRIGHT
Show browser
Pick locator
Record new

Playwright will look at your page and figure out the best locator, prioritizing role, text and test id locators. If Playwright finds multiple elements matching the locator, it will improve the locator to make it resilient and uniquely identify the target element, so you don't have to worry about failing tests due to locators.

Run in Debug Mode

To set a breakpoint click next to the line number where you want the breakpoint to be until a red dot appears. Run the tests in debug mode by right clicking on the line next to the test you want to run.


TESTING
TEST EXPLORER
Filter (e.g. text, !exclu...
0/1 tests passed (0.00%)
tests 1.0s
example.spec.ts 1.0s
has title 866ms
get started link 150ms
PLAYWRIGHT
0 0
tests
4
5
6
7
8
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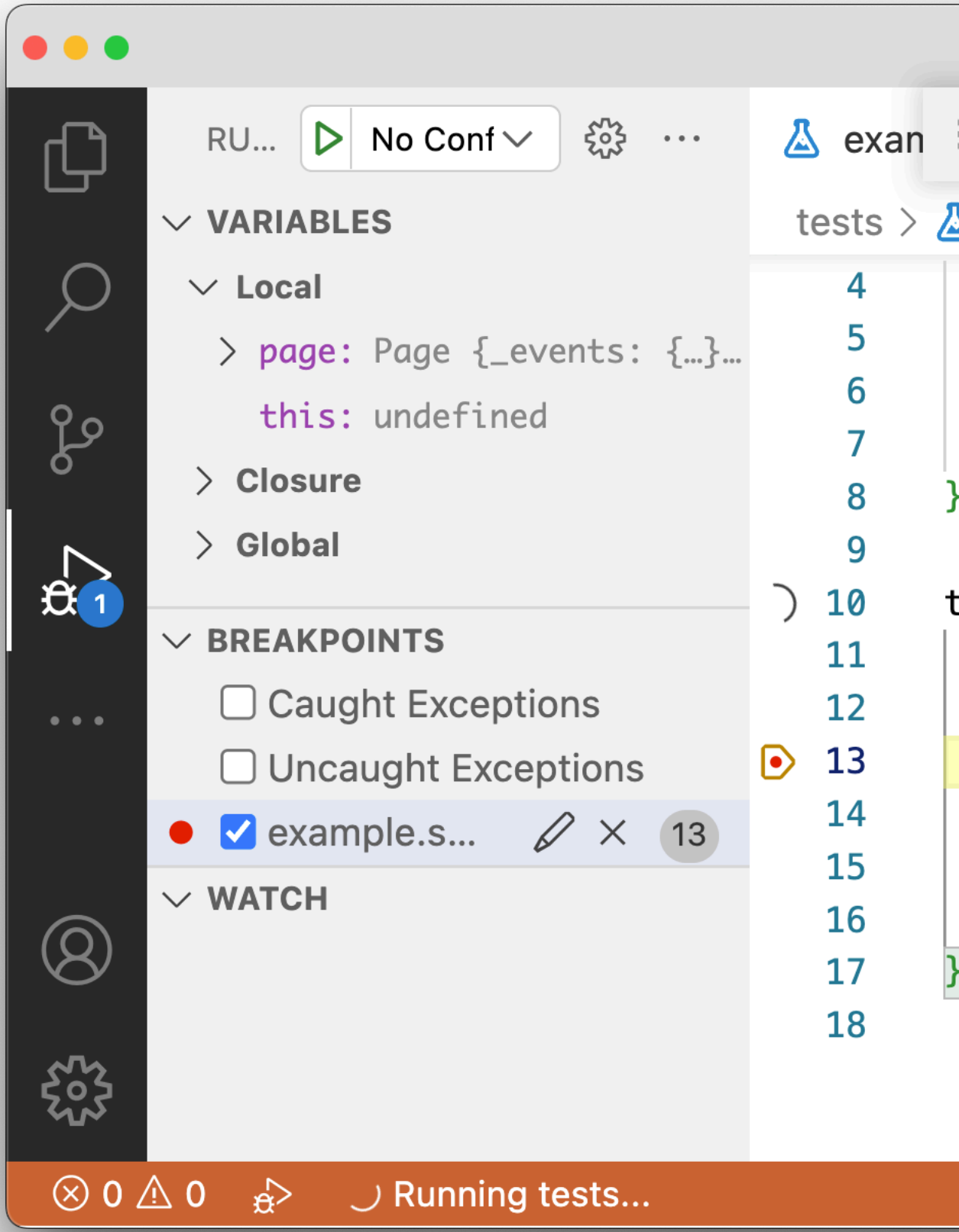
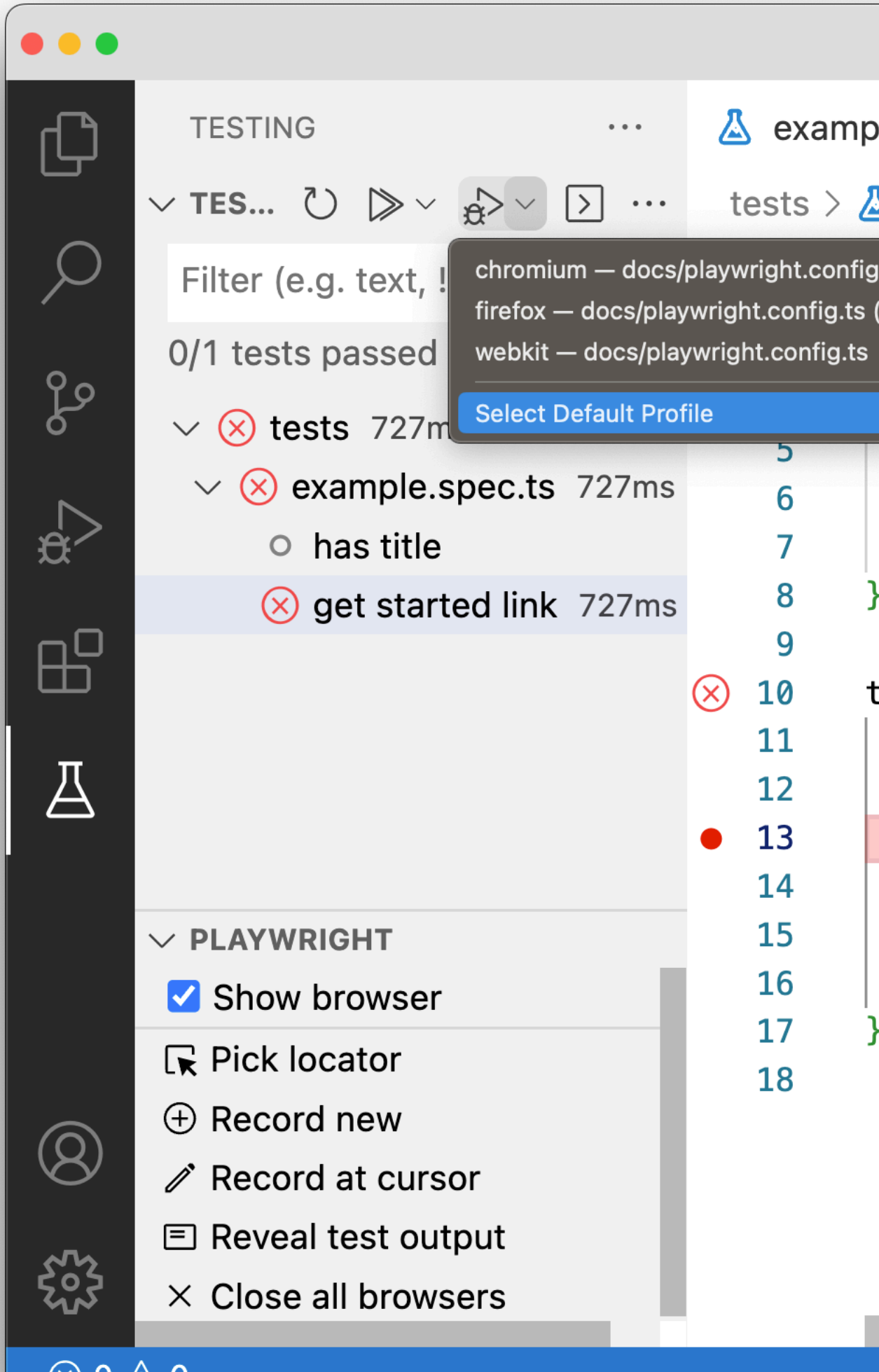
A browser window will open and the test will run and pause at where the breakpoint is set.
You can step through the tests, pause the test and rerun the tests from the menu in VS Code.


RU...
No Conf
VARIABLES
Local
page: Page {_events: {…}…
this: undefined
Closure
Global
BREAKPOINTS
Caught Exceptions
Uncaught Exceptions
example.s...
13
WATCH
exan
tests
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
0 0
Running tests...

Debug in different Browsers

By default, debugging is done using the Chromium profile. You can debug your tests on different browsers by right clicking on the debug icon in the testing sidebar and clicking on the 'Select Default Profile' option from the dropdown.


TESTING
TES...
Filter (e.g. text, !
0/1 tests passed
tests 727m
example.spec.ts 727ms
has title
get started link 727ms
chromium — docs/playwright.config
firefox — docs/playwright.config.ts
webkit — docs/playwright.config.ts
Select Default Profile
PLAYWRIGHT
Show browser
Pick locator
Record new
Record at cursor
Reveal test output
Close all browsers
tests
5
6
7
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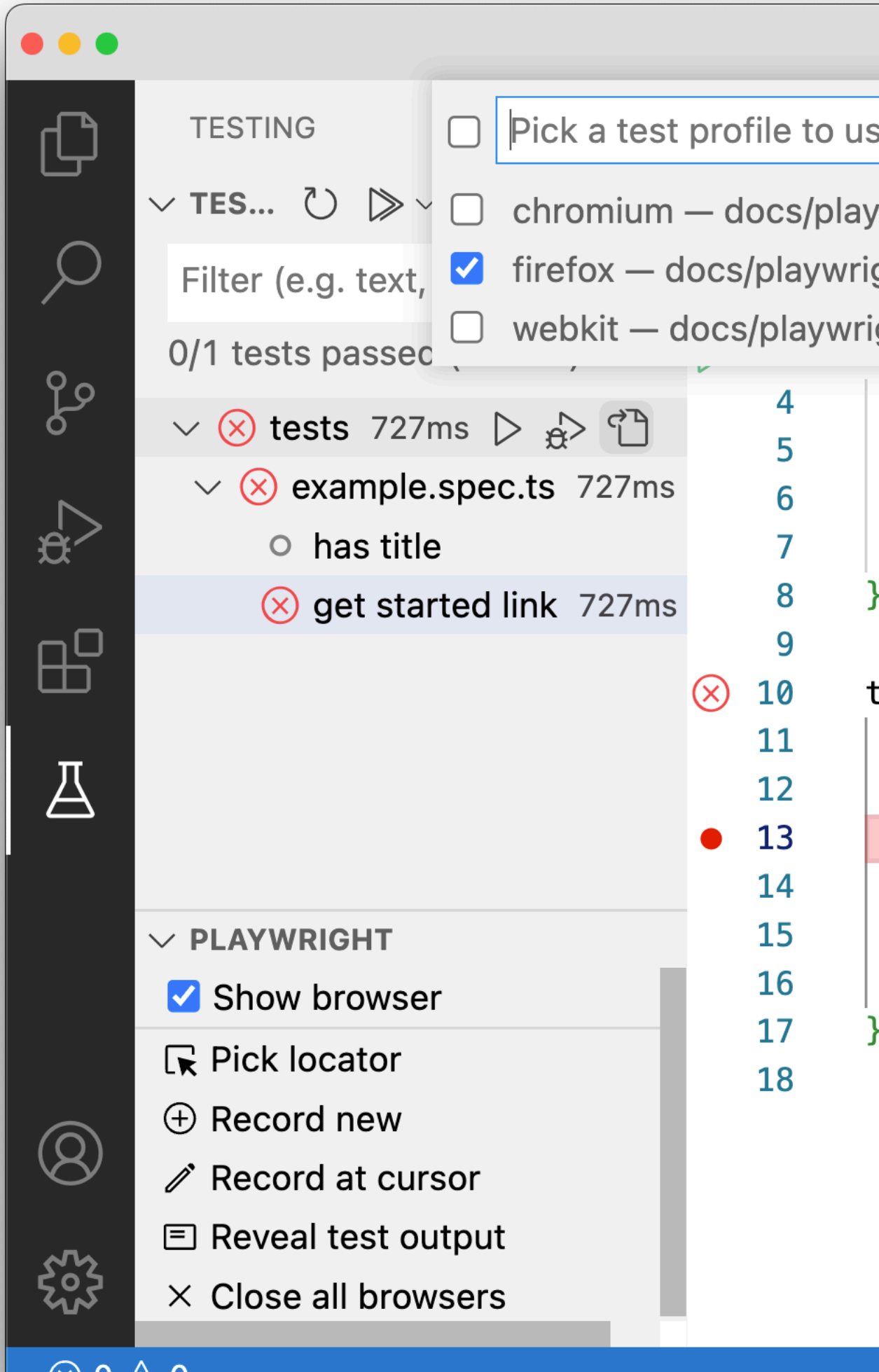
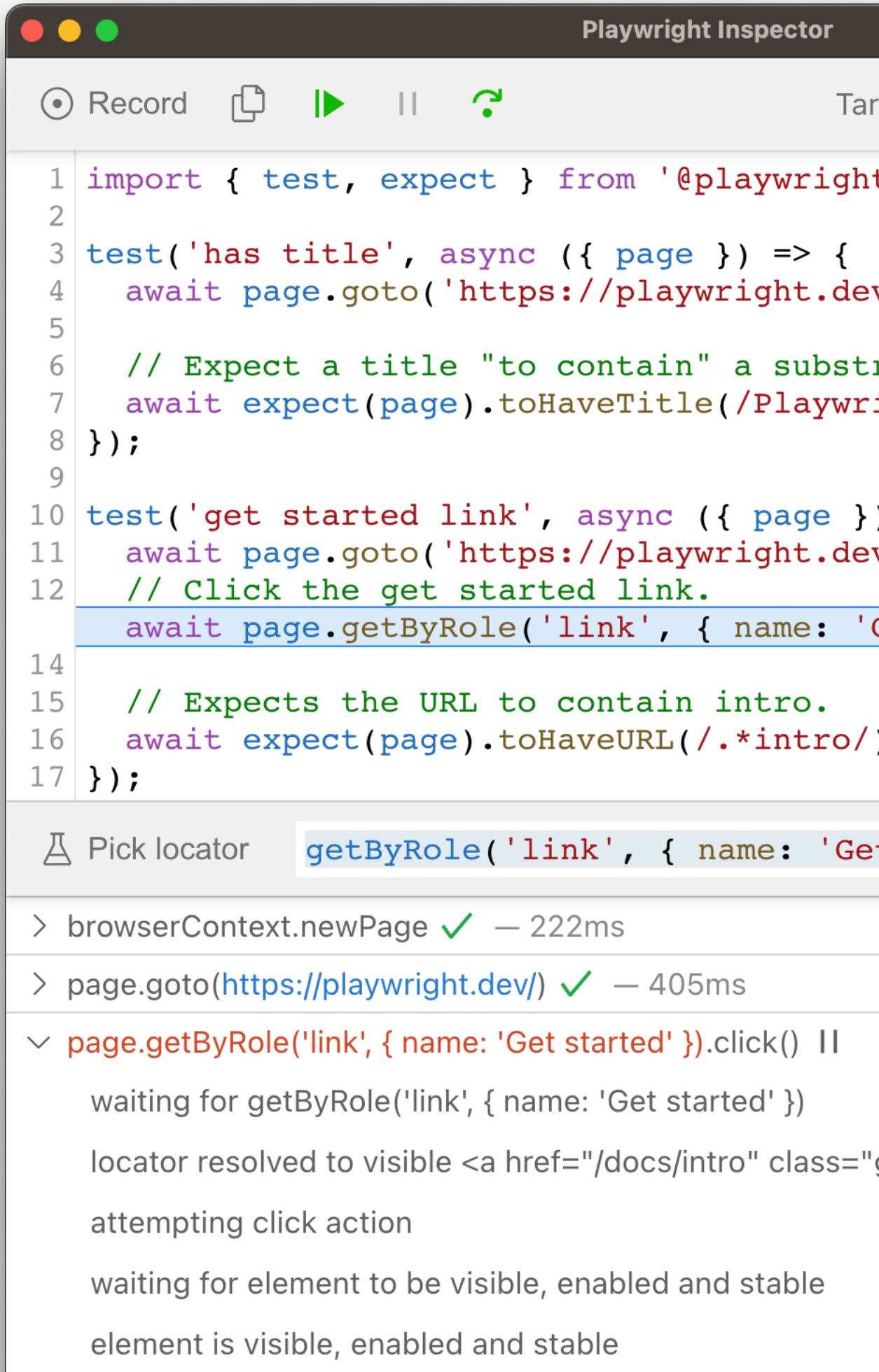
Then choose the test profile you would like to use for debugging your tests. Each time you run your test in debug mode it will use the profile you selected. You can run tests in debug mode by right clicking the line number where your test is and selecting 'Debug Test' from the menu.


TESTING
Pick a test profile to us
chromium — docs/play
firefox — docs/playwrig
webkit — docs/playwrig
TES...
Filter (e.g. text,
0/1 tests passed
tests 727ms
example.spec.ts 727ms
has title
get started link 727ms
PLAYWRIGHT
Show browser
Pick locator
Record new
Record at cursor
Reveal test output
Close all browsers

To learn more about debugging, see Debugging in Visual Studio Code.

Playwright Inspector

The Playwright Inspector is a GUI tool to help you debug your Playwright tests. It allows you to step through your tests, live edit locators, pick locators and see actionability logs.


Playwright Inspector
Record
Tar
1 import { test, expect } from '@playwright
2
3 test('has title', async ({ page }) => {
4 await page.goto('https://playwright.dev
5
6 // Expect a title "to contain" a substr
7 await expect(page).toHaveTitle(/Playwri
8 });
9
10 test('get started link', async ({ page }
11 await page.goto('https://playwright.dev
12 // Click the get started link.
await page.getByRole('link', { name: 'G
14
15 // Expects the URL to contain intro.
16 await expect(page).toHaveURL(/.*intro/
17 });
Pick locator
getByRole('link', { name: 'Ge
browserContext.newPage — 222ms
page.goto(https://playwright.dev/) — 405ms
page.getByRole('link', { name: 'Get started' }).click()
waiting for getByRole('link', { name: 'Get started' })
locator resolved to visible <a href="/docs/intro" class="
attempting click action
waiting for element to be visible, enabled and stable
element is visible, enabled and stable

Run in debug mode

Run your tests with the `--debug` flag to open the inspector. This configures Playwright for debugging and opens the inspector. Additional useful defaults are configured when `--debug` is used:

- Browsers launch in headed mode
- Default timeout is set to 0 (= no timeout)

Debug all tests on all browsers

To debug all tests run the test command with the `--debug` flag. This will run tests one by one, and open the inspector and a browser window for each test.

```
npx playwright test --debug
```

Debug one test on all browsers

To debug one test on a specific line, run the test command followed by the name of the test file and the line number of the test you want to debug, followed by the `--debug` flag. This will run a single test in each browser configured in your `playwright.config` and open the inspector.

```
npx playwright test example.spec.ts:10 --debug
```

Debug on a specific browser

In Playwright you can configure projects in your `playwright.config`. Once configured you can then debug your tests on a specific browser or mobile viewport using the `--project` flag followed by the name of the project configured in your `playwright.config`.

```
npx playwright test --project=chromium --debug
npx playwright test --project="Mobile Safari" --debug
npx playwright test --project="Microsoft Edge" --debug
```

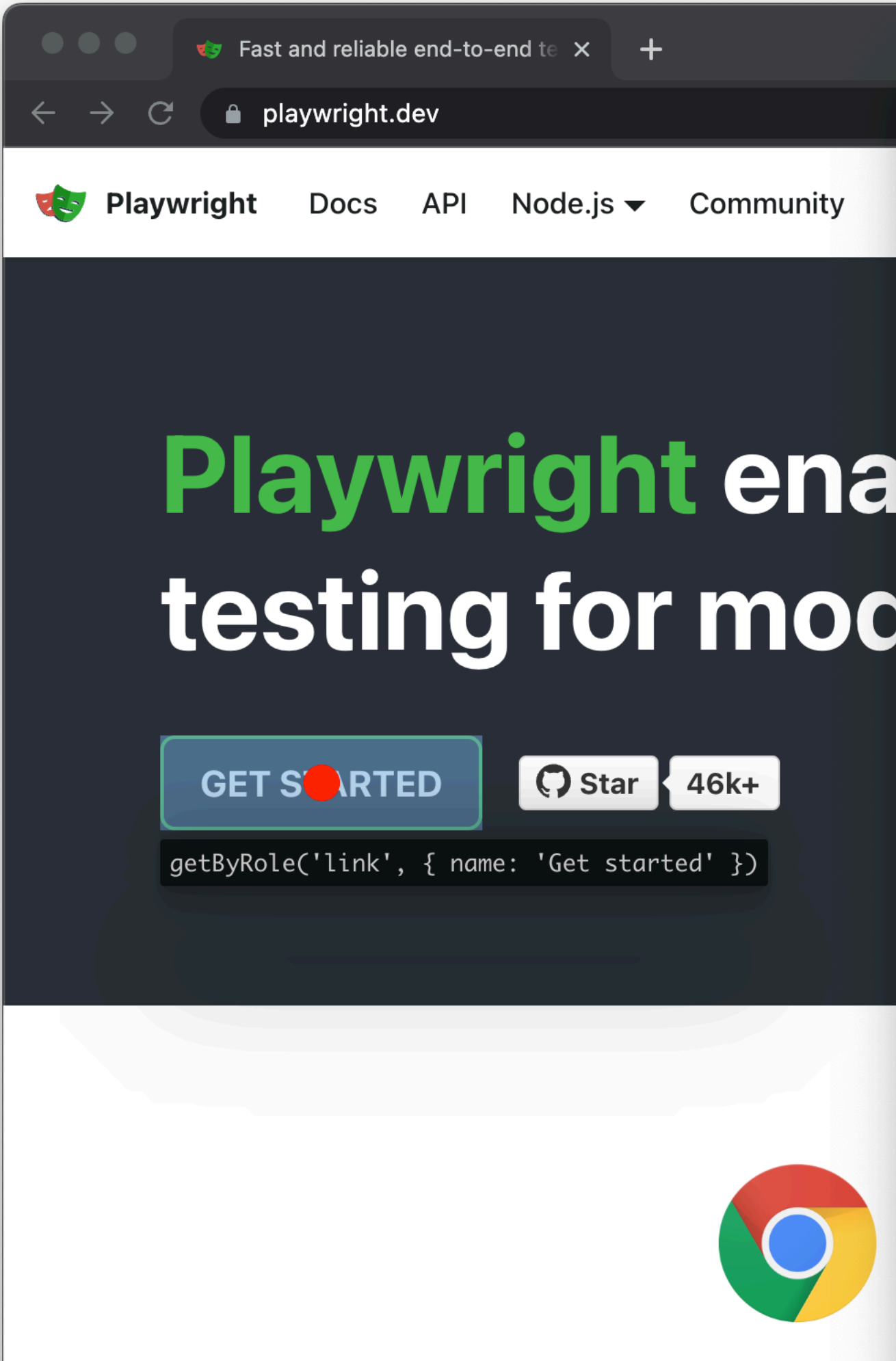
Debug one test on a specific browser

To run one test on a specific browser add the name of the test file and the line number of the test you want to debug as well as the `--project` flag followed by the name of the project.

```
npx playwright test example.spec.ts:10 --project=webkit --debug
```

Stepping through your tests

You can play, pause or step through each action of your test using the toolbar at the top of the Inspector. You can see the current action highlighted in the test code, and matching elements highlighted in the browser window.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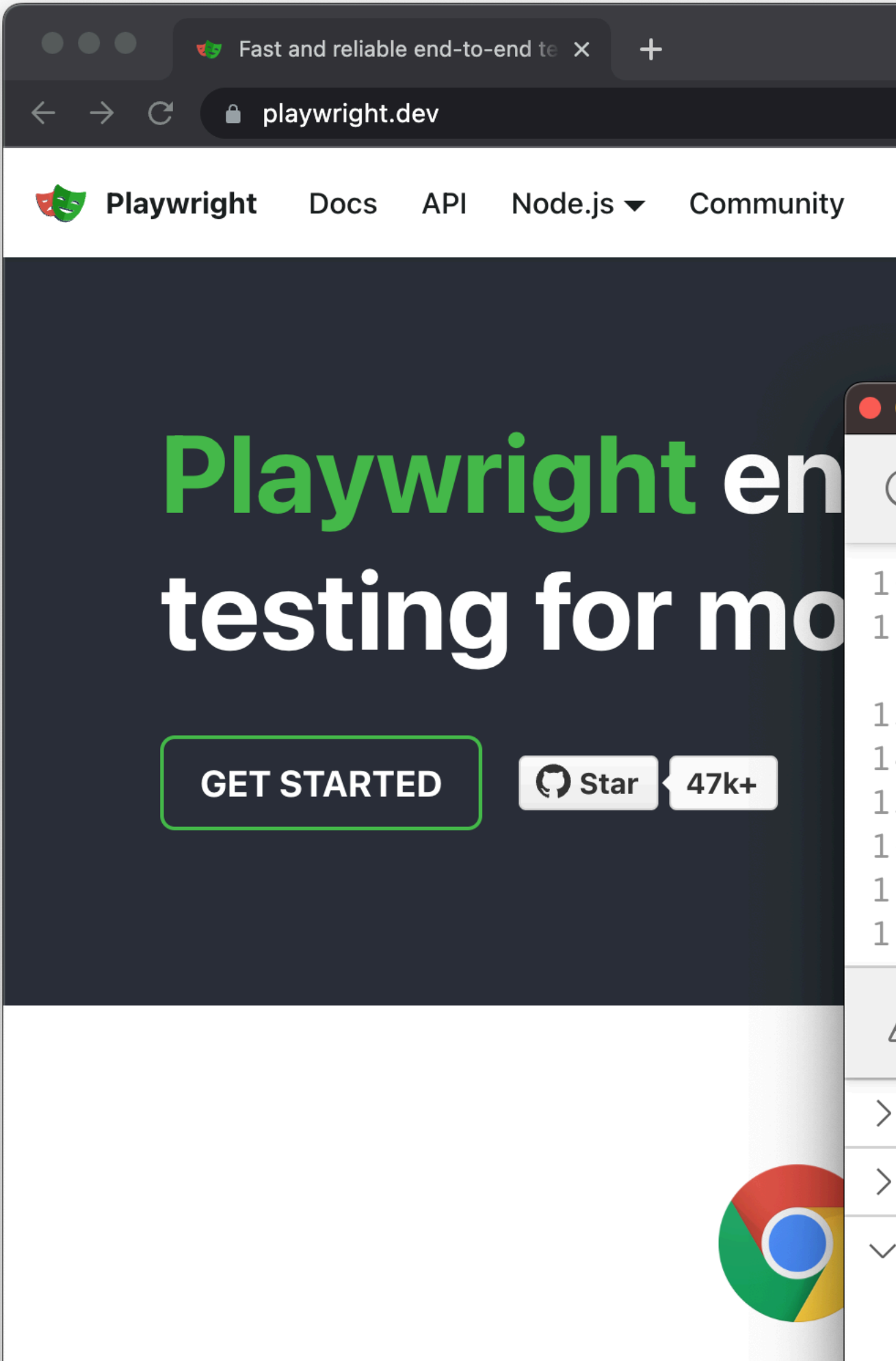
46k+
getByRole('link', { name: 'Get started' })

Run a test from a specific breakpoint

To speed up the debugging process you can add a page.pause() method to your test. This way you won't have to step through each action of your test to get to the point where you want to debug.

```
await page.pause();
```

Once you add a `page.pause()` call, run your tests in debug mode. Clicking the "Resume" button in the Inspector will run the test and only stop on the `page.pause()`.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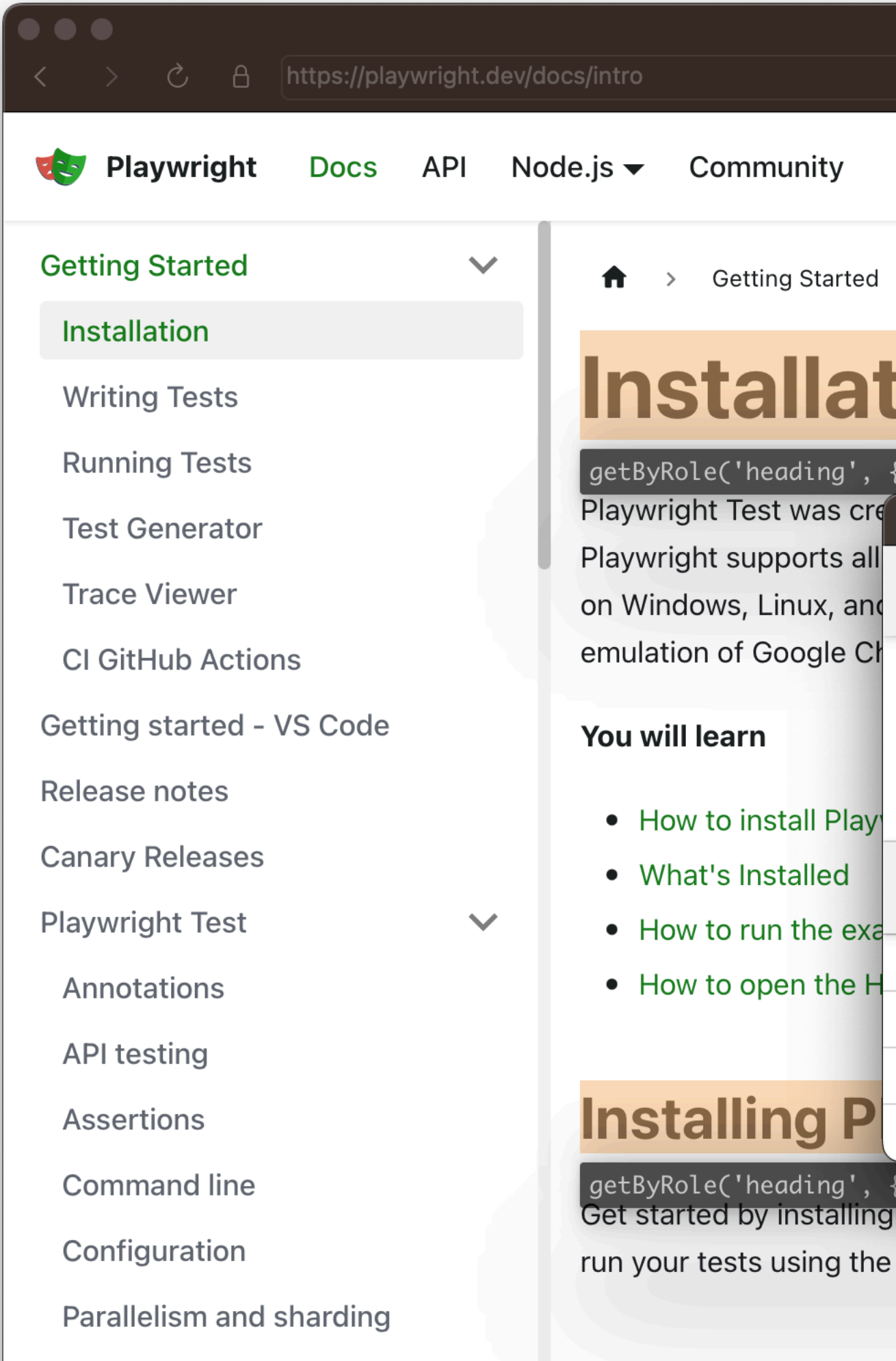
Live editing locators

While running in debug mode you can live edit the locators. Next to the 'Pick Locator' button there is a field showing the locator that the test is paused on. You can edit this locator directly in the **Pick Locator** field, and matching elements will be highlighted in the browser window.


https://playwright.dev/docs/intro
Playwright
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API
Node.js
Community
Getting Started
Installation
Writing Tests
Running Tests
Test Generator
Trace Viewer
CI GitHub Actions
Getting started - VS Code
Release notes
Canary Releases
Playwright Test
Annotations
API testing
Assertions
Command line
Configuration
Parallelism and sharding
Getting Started
Installat
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Playwright supports all
on Windows, Linux, and
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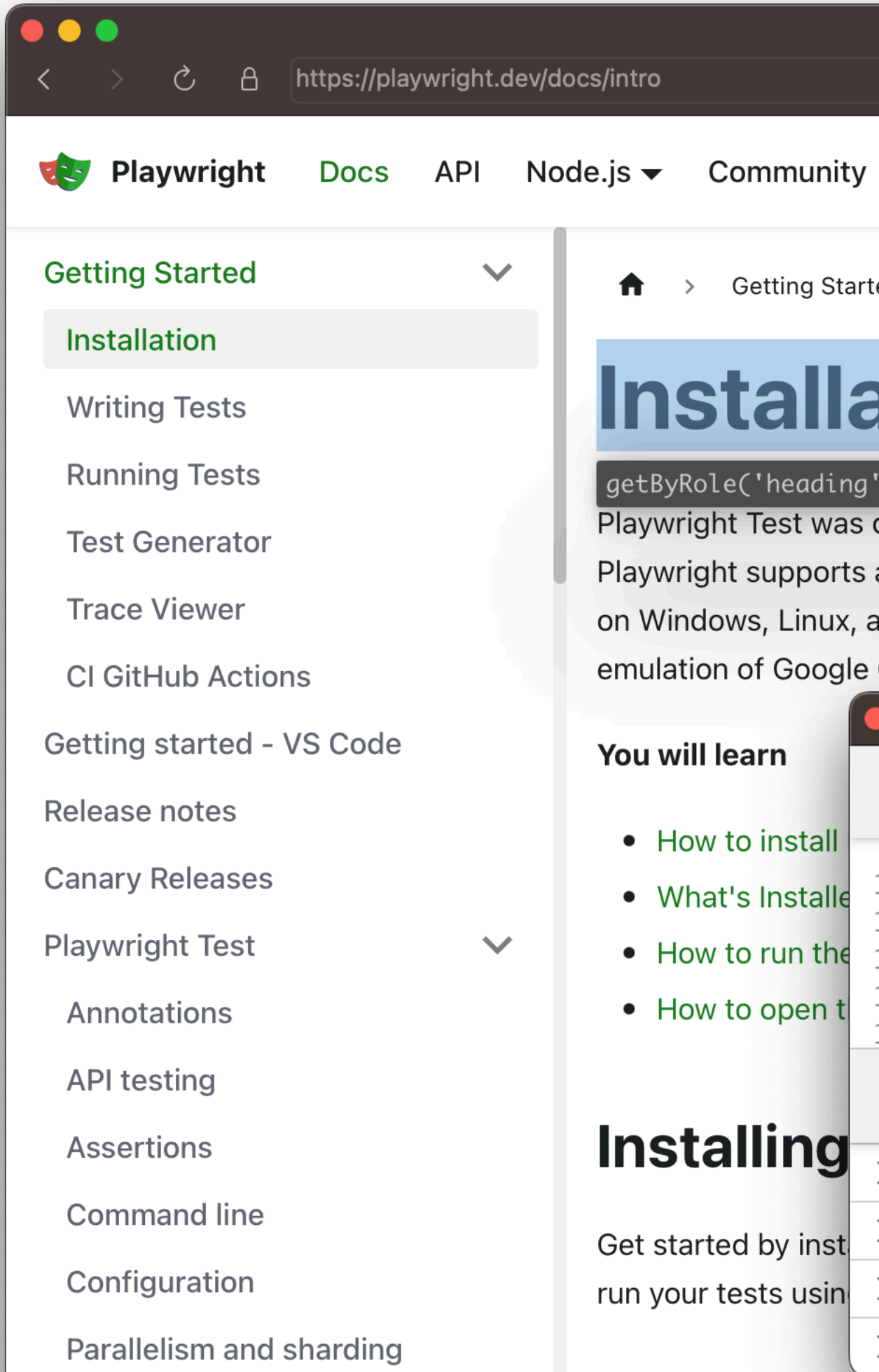
You will learn
How to install Play
What's Installed
How to run the exa
How to open the H
Installing P
getByRole('heading',
Get started by installing
run your tests using the

Picking locators

While debugging, you might need to choose a more resilient locator. You can do this by clicking on the **Pick Locator** button and hovering over any element in the browser window. While hovering over an element you will see the code needed to locate this element highlighted below. Clicking an element in the browser will add the locator into the field where you can then either tweak it or copy it into your code.


https://playwright.dev/docs/intro
Playwright
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Writing Tests
Running Tests
Test Generator
Trace Viewer
CI GitHub Actions
Getting started - VS Code
Release notes
Canary Releases
Playwright Test
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Command line
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Parallelism and sharding
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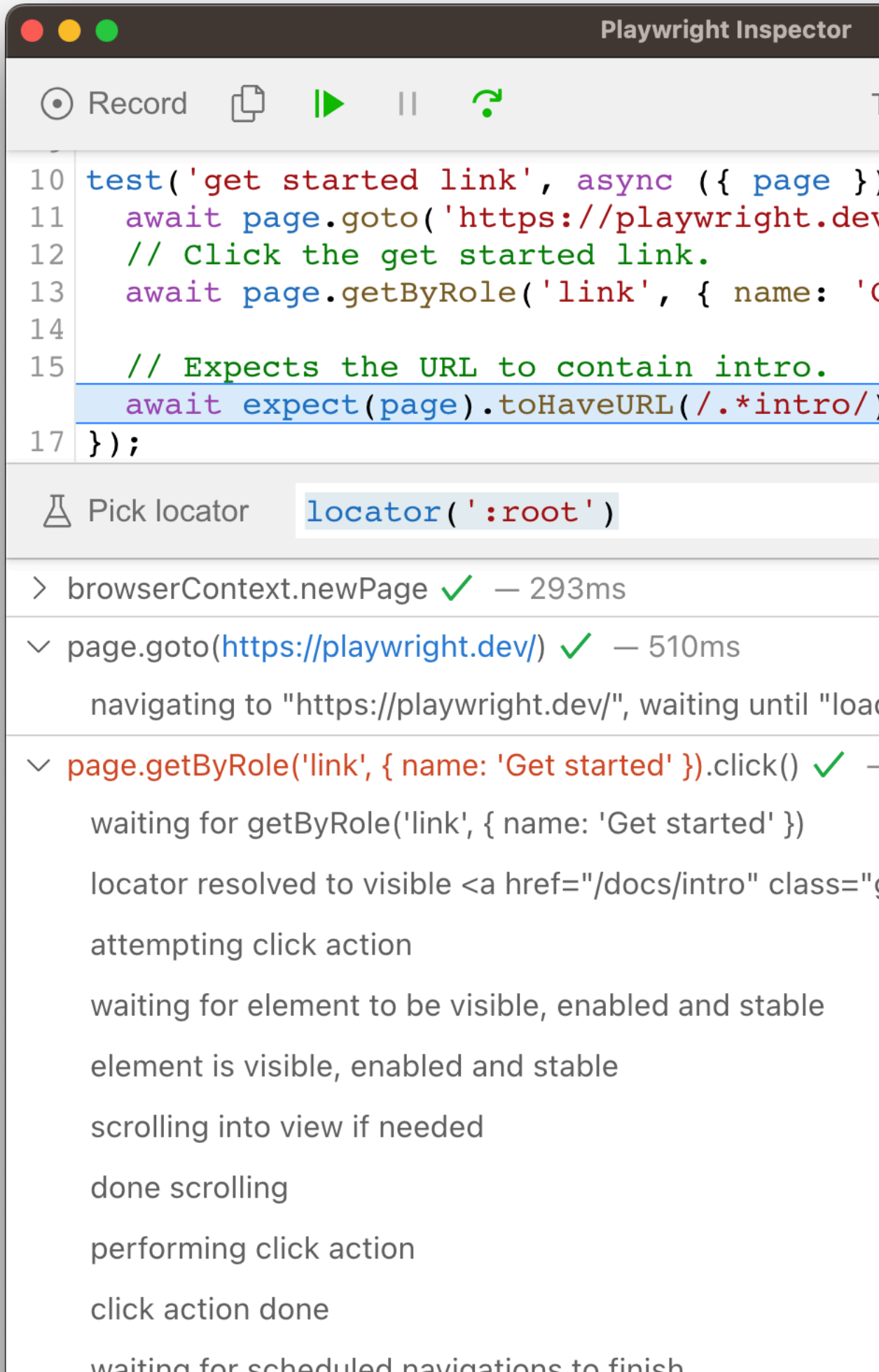
Playwright supports
on Windows, Linux, a
emulation of Google
You will learn
How to install
What's Installe
How to run the
How to open t
Installing
Get started by inst
run your tests usin

Playwright will look at your page and figure out the best locator, prioritizing role, text and test id locators. If Playwright finds multiple elements matching the locator, it will improve the locator to make it resilient and uniquely identify the target element, so you don't have to worry about failing tests due to locators.

Actionability logs

By the time Playwright has paused on a click action, it has already performed actionability checks that can be found in the log. This can help you understand what happened during your test and what Playwright did or tried to do. The log tells you if the element was visible, enabled and stable, if the locator resolved to an element, scrolled into view, and so much more. If actionability can't be reached, it will show the action as pending.


Playwright Inspector
Record
10 test('get started link', async ({ page }
11 await page.goto('https://playwright.dev
12 // Click the get started link.
13 await page.getByRole('link', { name: 'G
14
15 // Expects the URL to contain intro.
await expect(page).toHaveURL(/.*intro/
17 });
Pick locator
locator(':root')
browserContext.newPage — 293ms
page.goto(https://playwright.dev/) — 510ms
navigating to "https://playwright.dev/", waiting until "load
page.getByRole('link', { name: 'Get started' }).click()
waiting for getByRole('link', { name: 'Get started' })
locator resolved to visible <a href="/docs/intro" class="
attempting click action
waiting for element to be visible, enabled and stable
element is visible, enabled and stable
scrolling into view if needed
done scrolling
performing click action
click action done
waiting for scheduled navigations to finish

Trace Viewer

Playwright Trace Viewer is a GUI tool that lets you explore recorded Playwright traces of your tests. You can go back and forward through each action on the left side, and visually see what was happening during the action. In the middle of the screen, you can see a DOM snapshot for the action. On the right side you can see action details, such as time, parameters, return value and log. You can also explore console messages, network requests and the source code.

Your browser does not support the video tag.

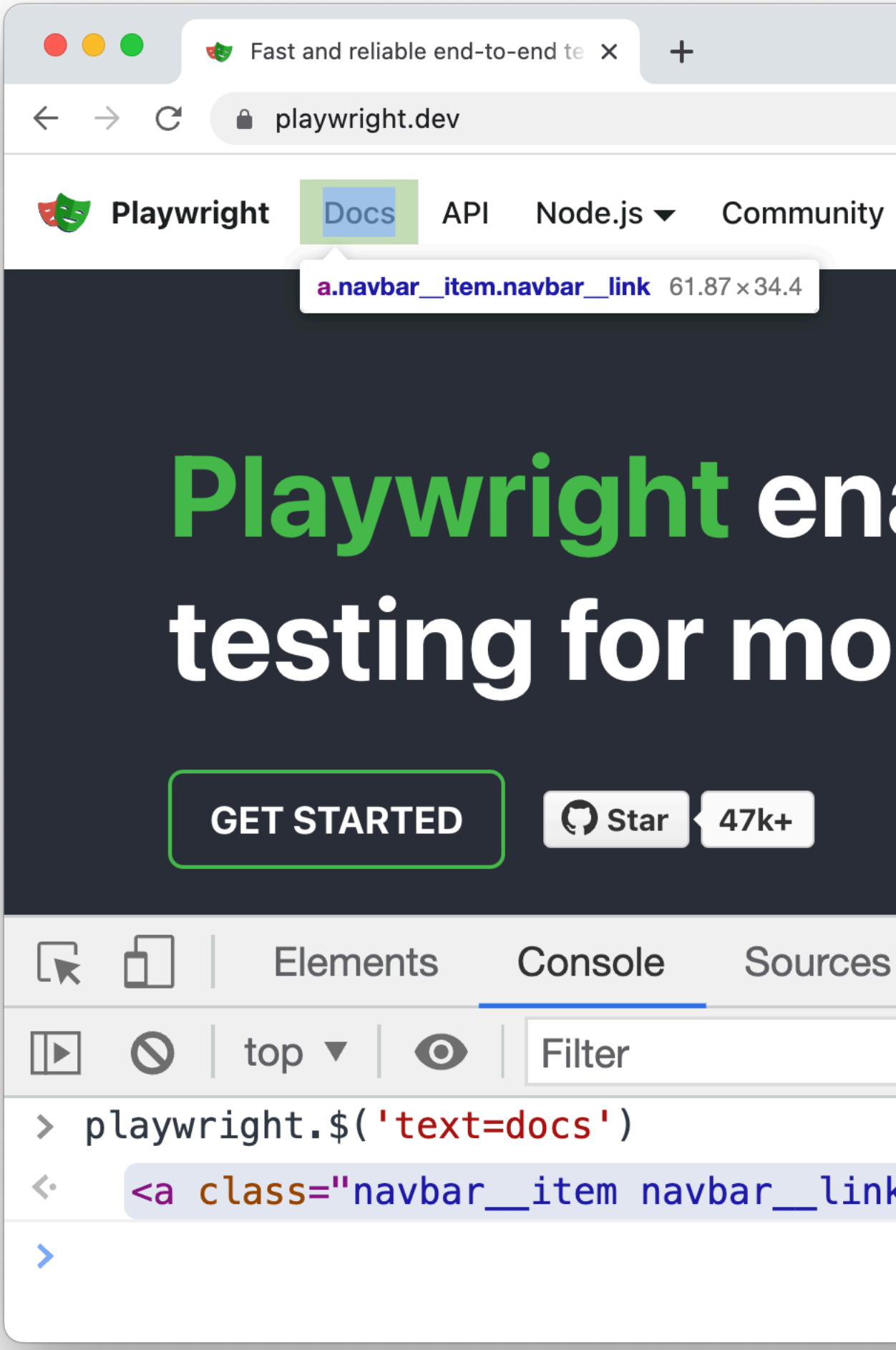
To learn more about how to record traces and use the Trace Viewer, check out the Trace Viewer guide.

Browser Developer Tools

When running in Debug Mode with `PWDEBUG=console`, a `playwright` object is available in the Developer tools console. Developer tools can help you to:

- Inspect the DOM tree and **find element selectors**
- **See console logs** during execution (or learn how to read logs via API)
- Check **network activity** and other developer tools features

This will also set the default timeouts of Playwright to 0 (= no timeout).


Fast and reliable end-to-end te
playwright.dev
Playwright
Docs
API
Node.js
Community
a.navbar__item.navbar__link 61.87 × 34.4
Playwright ena
testing for mo
GET STARTED
Star
47k+
Elements
Console
Sources
top
Filter
playwright.$('text=docs')
<a class="navbar__item navbar__link

To debug your tests using the browser developer tools, start by setting a breakpoint in your test to pause the execution using the page.pause() method.

```
await page.pause();
```

Once you have set a breakpoint in your test, you can then run your test with `PWDEBUG=console`.

- Bash
- PowerShell
- Batch

```
PWDEBUG=console npx playwright test
$env:PWDEBUG="console"
npx playwright test
set PWDEBUG=console
npx playwright test
```

Once Playwright launches the browser window, you can open the developer tools. The `playwright` object will be available in the console panel.

playwright.$(selector)

Query the Playwright selector, using the actual Playwright query engine, for example:

```
playwright.$('.auth-form >> text=Log in');

<button>Log in</button>
```

playwright.$$(selector)

Same as `playwright.$`, but returns all matching elements.

```
playwright.$$('li >> text=John')

[<li>, <li>, <li>, <li>]
```

playwright.inspect(selector)

Reveal element in the Elements panel.

```
playwright.inspect('text=Log in')
```

playwright.locator(selector)

Create a locator and query matching elements, for example:

```
playwright.locator('.auth-form', { hasText: 'Log in' });

Locator ()
  - element: button
  - elements: [button]
```

playwright.selector(element)

Generates selector for the given element. For example, select an element in the Elements panel and pass `$0`:

```
playwright.selector($0)

"div[id="glow-ingress-block"] >> text=/.*Hello.*/"
```

Verbose API logs

Playwright supports verbose logging with the `DEBUG` environment variable.

- Bash
- PowerShell
- Batch

```
DEBUG=pw:api npx playwright test
$env:DEBUG="pw:api"
npx playwright test
set DEBUG=pw:api
npx playwright test
```

NOTE

For WebKit: launching WebKit Inspector during the execution will prevent the Playwright script from executing any further and will reset pre-configured user agent and device emulation.

Headed mode

Playwright runs browsers in headless mode by default. To change this behavior, use `headless: false` as a launch option.

You can also use the `slowMo` option to slow down execution (by N milliseconds per operation) and follow along while debugging.

```
// Chromium, Firefox, or WebKit
await chromium.launch({ headless: false, slowMo: 100 });
```

Previous
Components (experimental)

Next
Dialogs

- VS Code debugger
  - Error Messages
  - Live Debugging
  - Picking a Locator

    - Run in Debug Mode
    - Debug in different Browsers
- Playwright Inspector
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    - Stepping through your tests
    - Run a test from a specific breakpoint
    - Live editing locators
    - Picking locators
    - Actionability logs
- Trace Viewer
- Browser Developer Tools
- Verbose API logs
- Headed mode

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