PLAY RIGHT WITH PLAYWRIGHT

EASY UI TESTING

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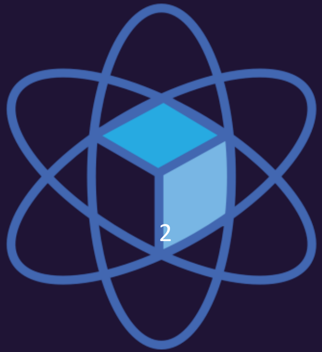
CERN IT LIGHTNING TALKS #24

ONCE UPON A TIME…

- We did time consuming manual testing of user flows
- Prone to errors

BUT THEN…

- We decided to automate
- Selected Playwright



ADVANTAGES OF PLAYWRIGHT

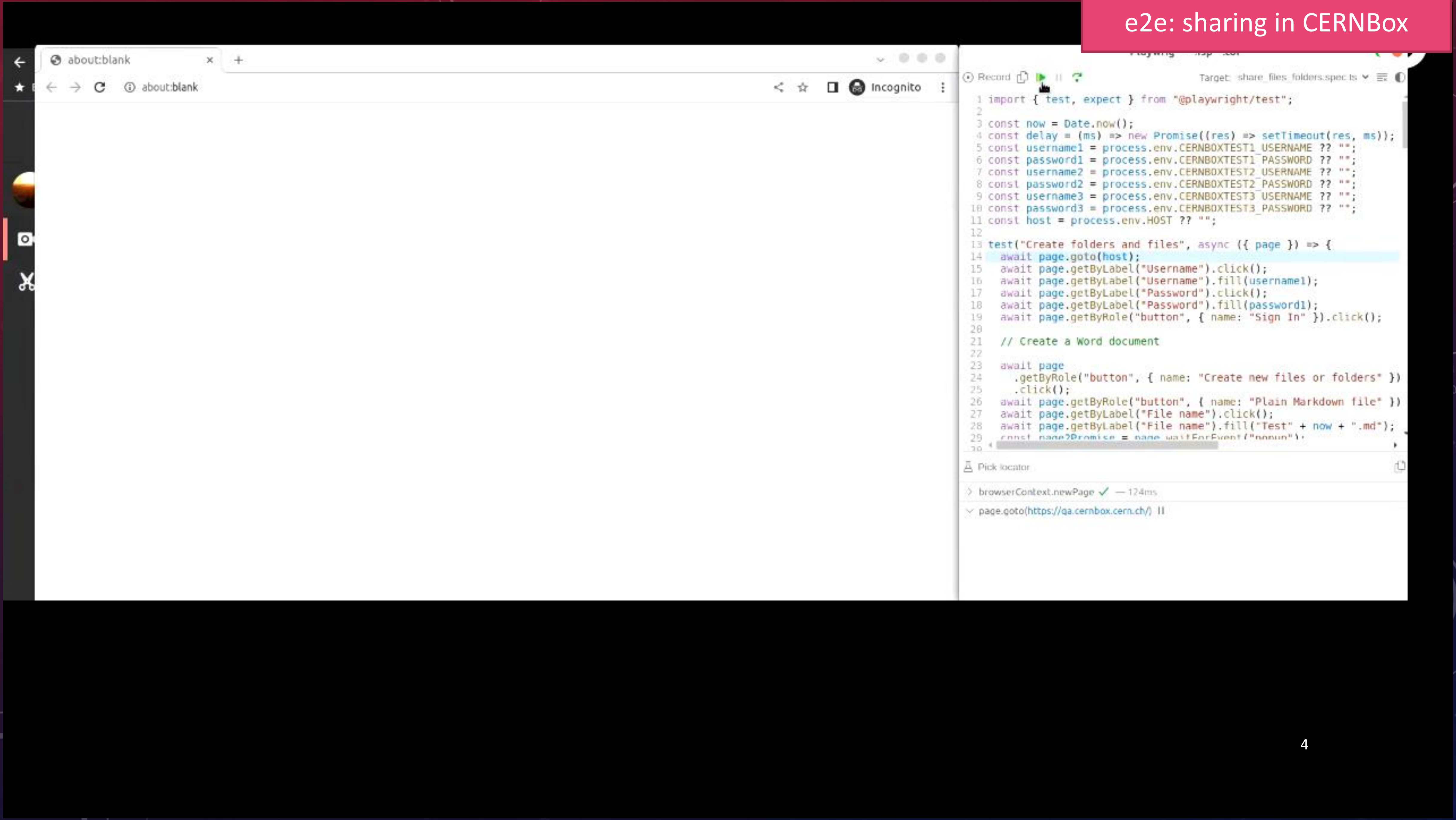
Cross-browser support

Reliable and fast

Language flexibility

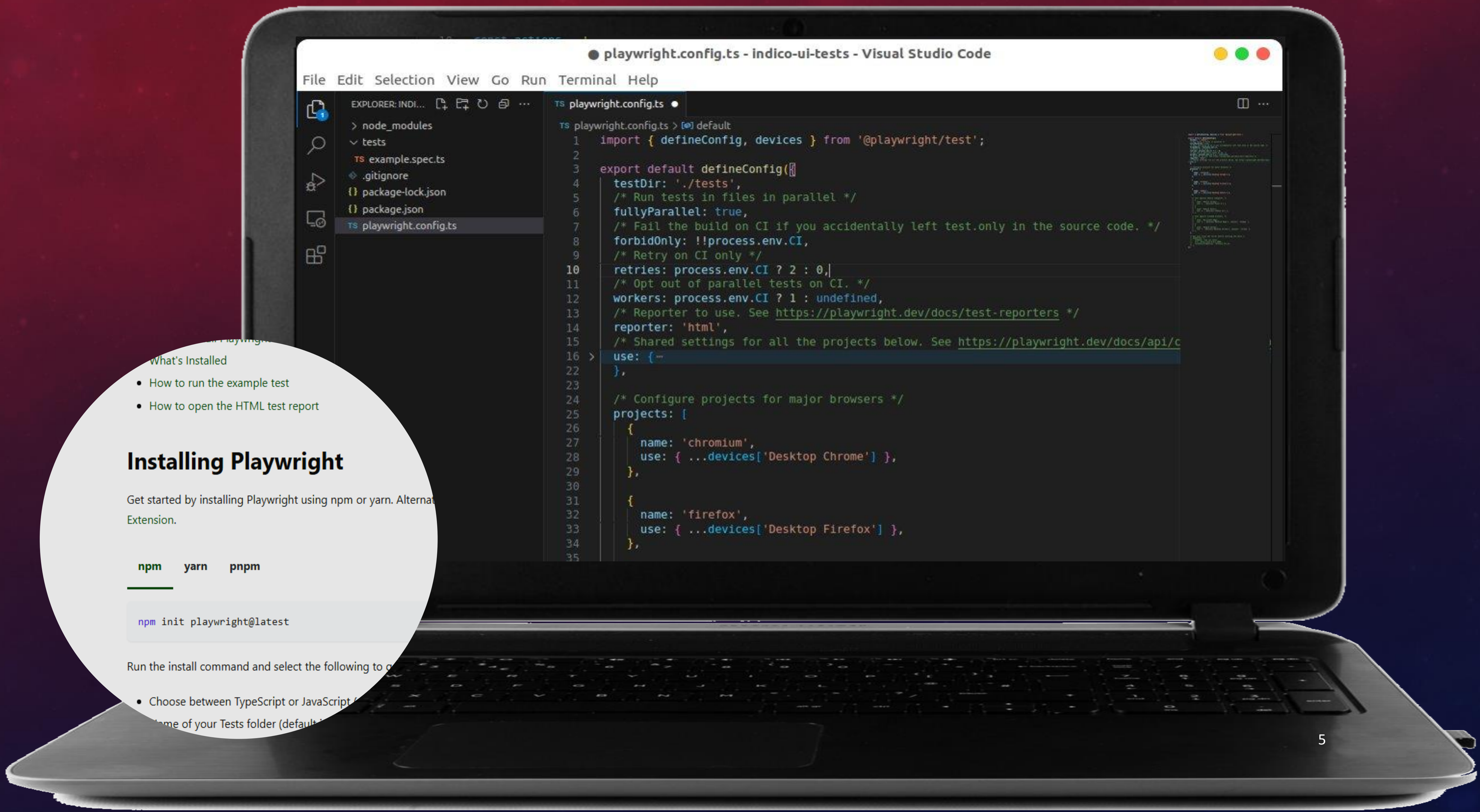
Easy setup and maintenance

e2e: sharing in CERNBox

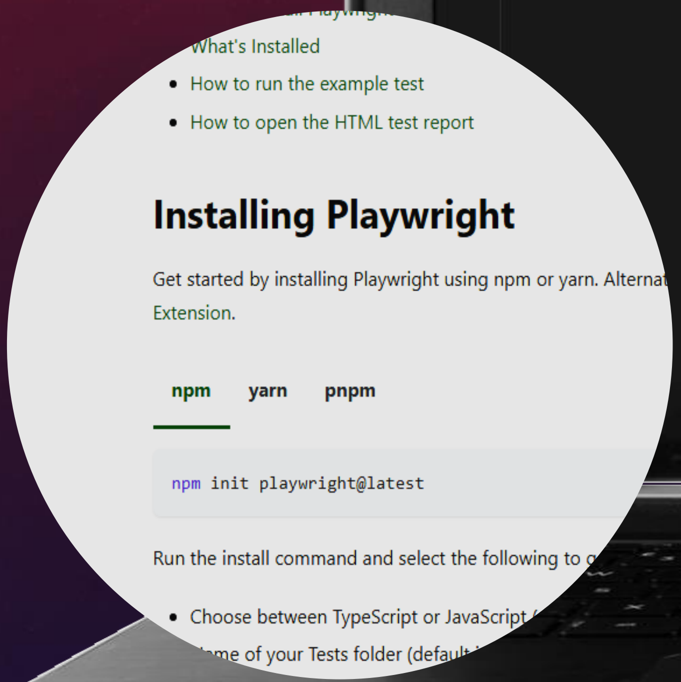


```
import { test, expect } from "@playwright/test";

const now = Date.now();
const delay = (ms) => new Promise((res) => setTimeout(res, ms));
const username1 = process.env.CERNBOXTEST1_USERNAME ?? "";
const password1 = process.env.CERNBOXTEST1_PASSWORD ?? "";
const username2 = process.env.CERNBOXTEST2_USERNAME ?? "";
const password2 = process.env.CERNBOXTEST2_PASSWORD ?? "";
const username3 = process.env.CERNBOXTEST3_USERNAME ?? "";
const password3 = process.env.CERNBOXTEST3_PASSWORD ?? "";
const host = process.env.HOST ?? "";

test("Create folders and files", async ({ page }) => {
  await page.goto(host);
  await page.getByLabel("Username").click();
  await page.getByLabel("Username").fill(username1);
  await page.getByLabel("Password").click();
  await page.getByLabel("Password").fill(password1);
  await page.getByRole("button", { name: "Sign In" }).click();

  // Create a Word document

  await page
    .getByRole("button", { name: "Create new files or folders" })
    .click();
  await page.getByRole("button", { name: "Plain Markdown file" })
  await page.getByLabel("File name").click();
  await page.getByLabel("File name").fill("Test" + now + ".md");
  const page2Promise = page.waitForEvent("popup");
```

```
> browserContext.newPage ✓ — 124ms
v page.goto(https://qa.cernbox.cern.ch/)
```


playwright.config.ts - indico-ui-tests - Visual Studio Code
File Edit Selection View Go Run Terminal Help
EXPLORER: INDI...
node_modules
tests
example.spec.ts
.gitignore
package-lock.json
package.json
playwright.config.ts
playwright.config.ts > default

```
import { defineConfig, devices } from '@playwright/test';

export default defineConfig({
  testDir: './tests',
  /* Run tests in files in parallel */
  fullyParallel: true,
  /* Fail the build on CI if you accidentally left test.only in the source code. */
  forbidOnly: !!process.env.CI,
  /* Retry on CI only */
  retries: process.env.CI ? 2 : 0,
  /* Opt out of parallel tests on CI. */
  workers: process.env.CI ? 1 : undefined,
  /* Reporter to use. See https://playwright.dev/docs/test-reporters */
  reporter: 'html',
  /* Shared settings for all the projects below. See https://playwright.dev/docs/api/c
  use: {⋯
  },

  /* Configure projects for major browsers */
  projects: [
    {
      name: 'chromium',
      use: { ...devices['Desktop Chrome'] },
    },

    {
      name: 'firefox',
      use: { ...devices['Desktop Firefox'] },
    },
```



- What's Installed
- How to run the example test
- How to open the HTML test report

Installing Playwright

Get started by installing Playwright using npm or yarn. Alternat
Extension.

```
npm init playwright@latest
```

Run the install command and select the following to g

- Choose between TypeScript or JavaScript (
- me of your Tests folder (default

THE BASICS

Locators

- CSS selectors
- getByRole, getByText, …

```
const locator = page.getByRole('checkbox',
{ name: 'Subscribe' })
```

Actions

- click, push, focus, hover, type, …

```
await locator.click();
```

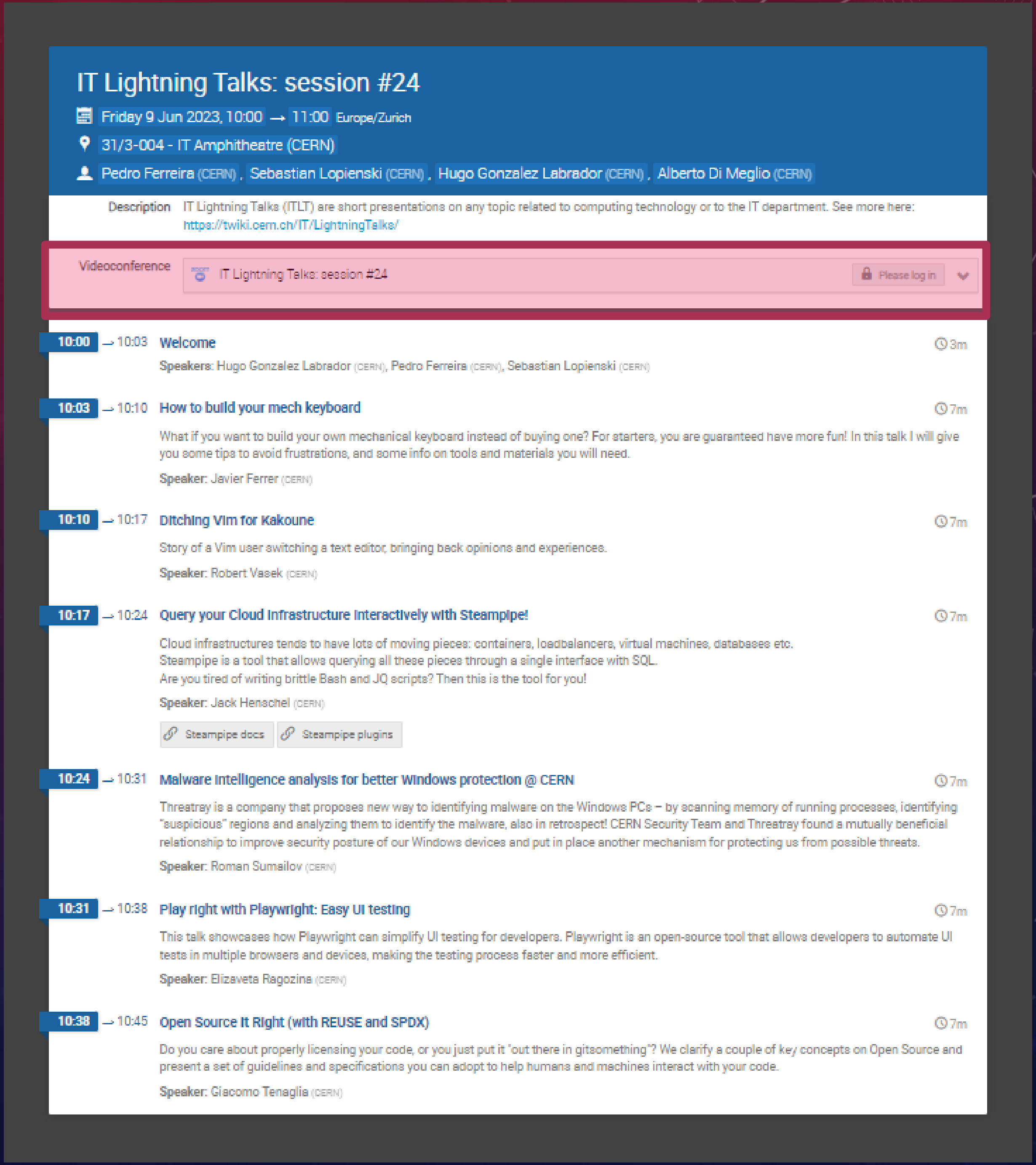
Assertations

- toBeVisible, toBeEnabled, toHaveCount, toContainText, …

```
await expect(locator).toBeVisible();
```

LET'S WRITE A SIMPLE TEST FOR INDICO

USING THE
CODE GENERATOR MAGIC



IT Lightning Talks: session #24

Friday 9 Jun 2023, 10:00 → 11:00 Europe/Zurich

31/3-004 - IT Amphitheatre (CERN)

Pedro Ferreira (CERN), Sebastian Lopienski (CERN), Hugo Gonzalez Labrador (CERN), Alberto Di Meglio (CERN)

Description IT Lightning Talks (ITLT) are short presentations on any topic related to computing technology or to the IT department. See more here: https://twiki.cern.ch/IT/LightningTalks/

Videoconference IT Lightning Talks: session #24 Please log in

10:00 → 10:03 **Welcome** 3m
Speakers: Hugo Gonzalez Labrador (CERN), Pedro Ferreira (CERN), Sebastian Lopienski (CERN)

10:03 → 10:10 **How to build your mech keyboard** 7m
What if you want to build your own mechanical keyboard instead of buying one? For starters, you are guaranteed have more fun! In this talk I will give you some tips to avoid frustrations, and some info on tools and materials you will need.
Speaker: Javier Ferrer (CERN)

10:10 → 10:17 **Ditching Vim for Kakoune** 7m
Story of a Vim user switching a text editor, bringing back opinions and experiences.
Speaker: Robert Vasek (CERN)

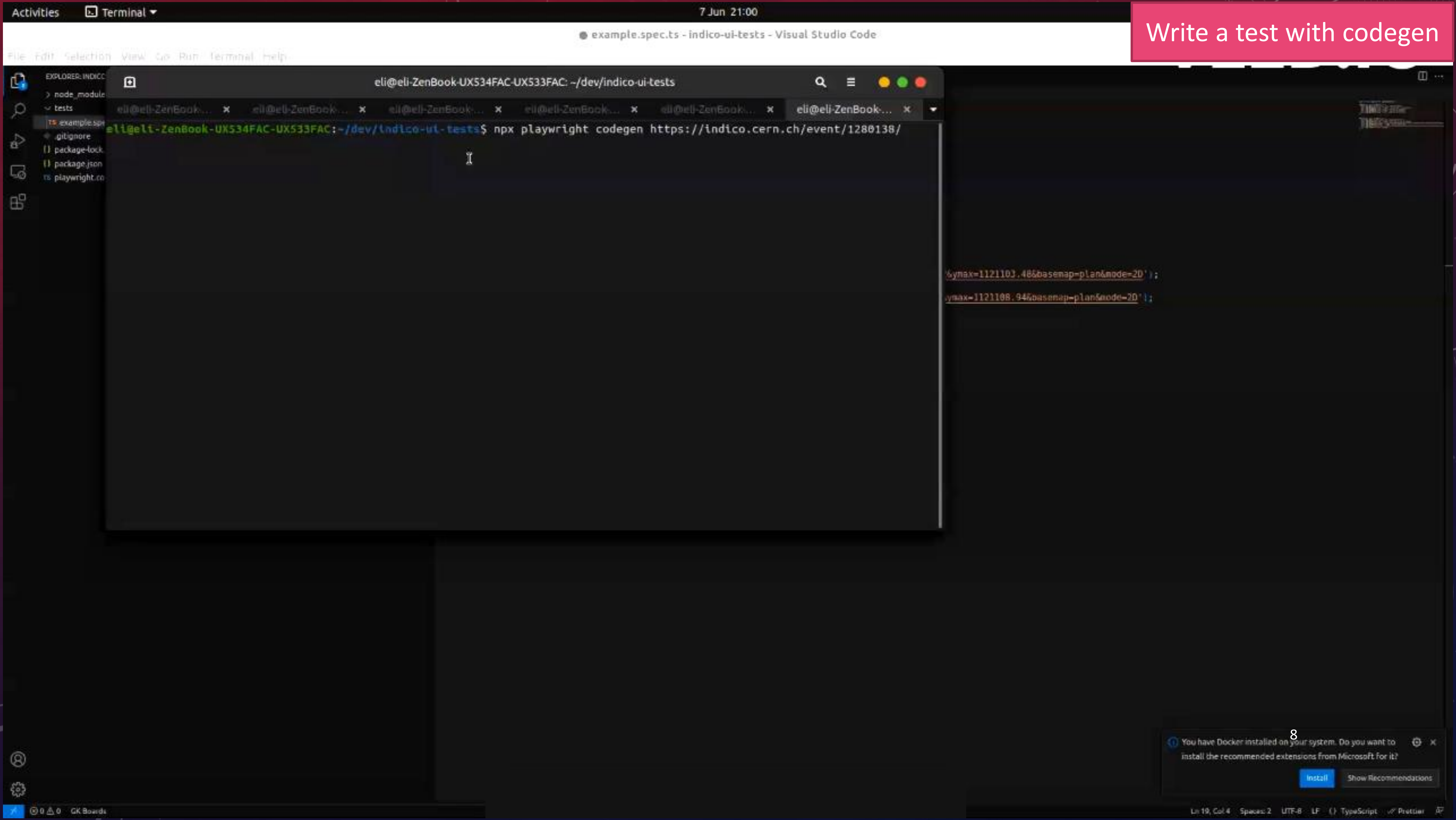
10:17 → 10:24 **Query your Cloud Infrastructure Interactively with Steampipe!** 7m
Cloud infrastructures tends to have lots of moving pieces: containers, loadbalancers, virtual machines, databases etc.
Steampipe is a tool that allows querying all these pieces through a single interface with SQL.
Are you tired of writing brittle Bash and JQ scripts? Then this is the tool for you!
Speaker: Jack Henschel (CERN)
Steampipe docs Steampipe plugins

10:24 → 10:31 **Malware Intelligence analysis for better Windows protection @ CERN** 7m
Threatray is a company that proposes new way to identifying malware on the Windows PCs – by scanning memory of running processes, identifying "suspicious" regions and analyzing them to identify the malware, also in retrospect! CERN Security Team and Threatray found a mutually beneficial relationship to improve security posture of our Windows devices and put in place another mechanism for protecting us from possible threats.
Speaker: Roman Sumailov (CERN)

10:31 → 10:38 **Play right with Playwright: Easy UI testing** 7m
This talk showcases how Playwright can simplify UI testing for developers. Playwright is an open-source tool that allows developers to automate UI tests in multiple browsers and devices, making the testing process faster and more efficient.
Speaker: Elizaveta Ragozina (CERN)

10:38 → 10:45 **Open Source It Right (with REUSE and SPDX)** 7m
Do you care about properly licensing your code, or you just put it "out there in gitsomething"? We clarify a couple of key concepts on Open Source and present a set of guidelines and specifications you can adopt to help humans and machines interact with your code.
Speaker: Giacomo Tenaglia (CERN)

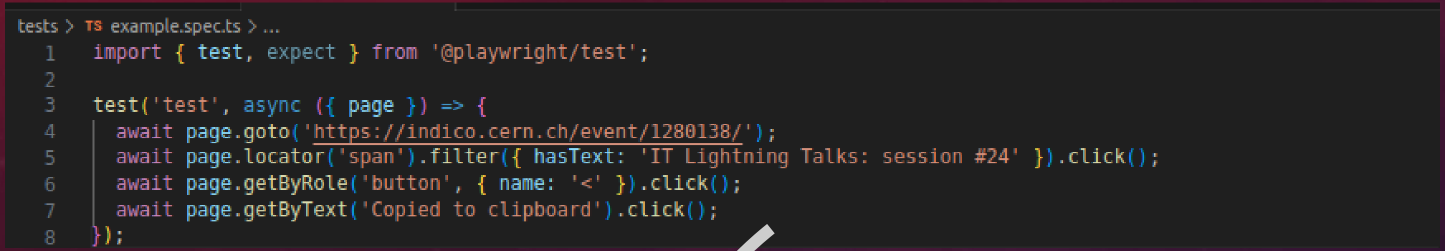
Write a test with codegen



```
eli@eli-ZenBook-UX534FAC-UX533FAC:~/dev/indico-ui-tests$ npx playwright codegen https://indico.cern.ch/event/1280138/
```

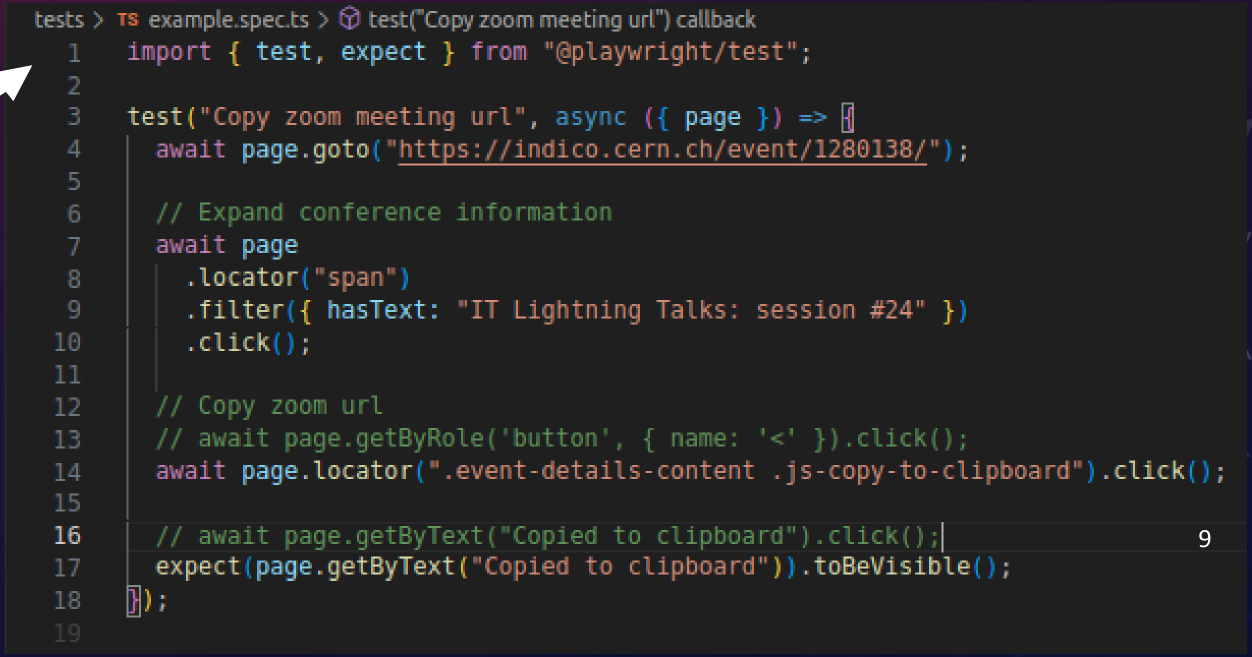
You have Docker installed on your system. Do you want to install the recommended extensions from Microsoft for it?

ADJUST GENERATED CODE



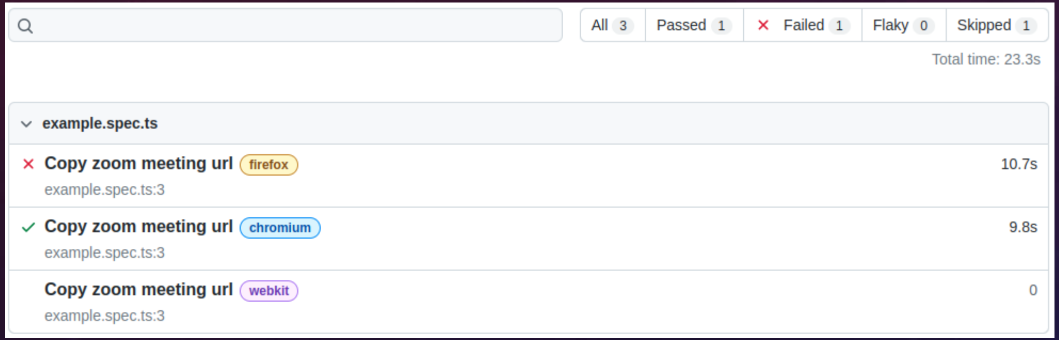
```
tests > TS example.spec.ts > ...
import { test, expect } from '@playwright/test';

test('test', async ({ page }) => {
  await page.goto('https://indico.cern.ch/event/1280138/');
  await page.locator('span').filter({ hasText: 'IT Lightning Talks: session #24' }).click();
  await page.getByRole('button', { name: '<' }).click();
  await page.getByText('Copied to clipboard').click();
});
```

Improve selectors,
Add comments, assertations



```
tests > TS example.spec.ts > test("Copy zoom meeting url") callback
import { test, expect } from "@playwright/test";

test("Copy zoom meeting url", async ({ page }) => {
  await page.goto("https://indico.cern.ch/event/1280138/");

  // Expand conference information
  await page
    .locator("span")
    .filter({ hasText: "IT Lightning Talks: session #24" })
    .click();

  // Copy zoom url
  // await page.getByRole('button', { name: '<' }).click();
  await page.locator(".event-details-content .js-copy-to-clipboard").click();

  // await page.getByText("Copied to clipboard").click();
  expect(page.getByText("Copied to clipboard")).toBeVisible();
});
```

TEST REPORTS

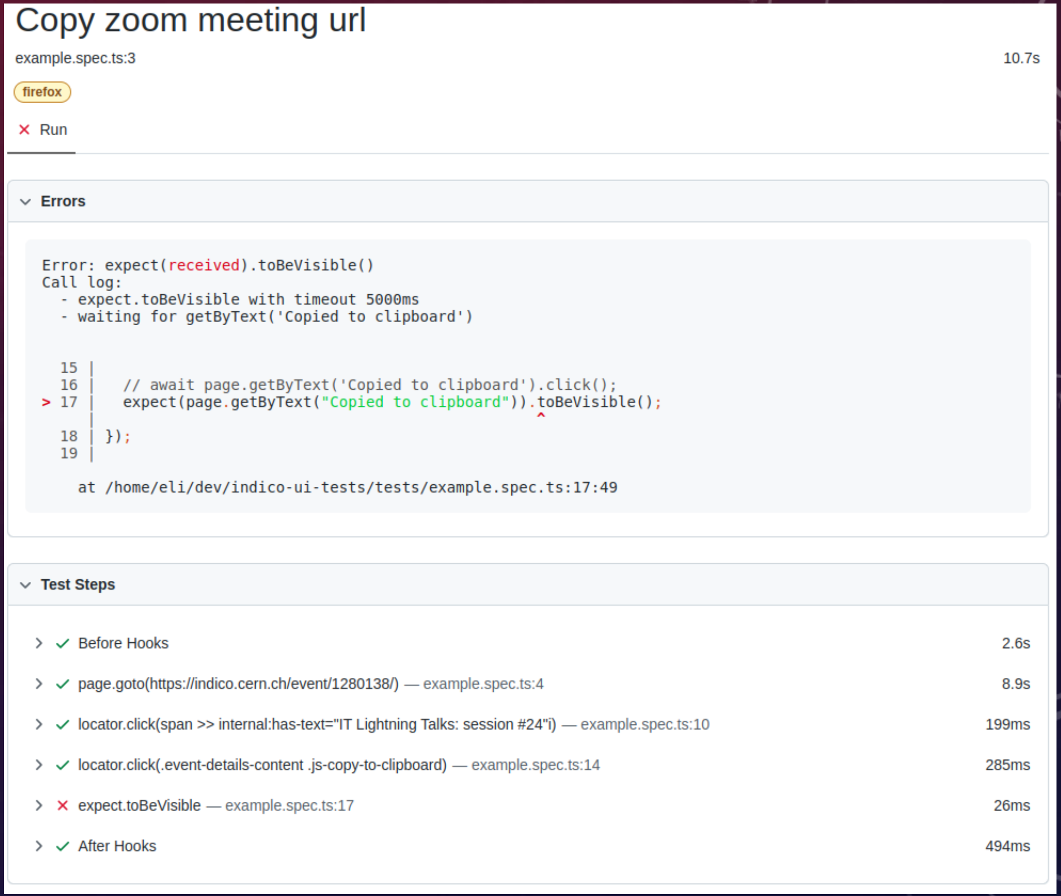


All 3 | Passed 1 | ✕ Failed 1 | Flaky 0 | Skipped 1

Total time: 23.3s

example.spec.ts

✕	Copy zoom meeting url firefox example.spec.ts:3	10.7s
✓	Copy zoom meeting url chromium example.spec.ts:3	9.8s
	Copy zoom meeting url webkit example.spec.ts:3	0



Copy zoom meeting url

example.spec.ts:3 10.7s

firefox

✕ Run

Errors

```
Error: expect(received).toBeVisible()
Call log:
  - expect.toBeVisible with timeout 5000ms
  - waiting for getByText('Copied to clipboard')


  15 |
  16 |   // await page.getByText('Copied to clipboard').click();
> 17 |   expect(page.getByText("Copied to clipboard")).toBeVisible();
     |                                                 ^
  18 | });
  19 |

    at /home/eli/dev/indico-ui-tests/tests/example.spec.ts:17:49
```

Test Steps

✓	Before Hooks	2.6s
✓	page.goto(https://indico.cern.ch/event/1280138/) — example.spec.ts:4	8.9s
✓	locator.click(span >> internal:has-text="IT Lightning Talks: session #24"i) — example.spec.ts:10	199ms
✓	locator.click(.event-details-content .js-copy-to-clipboard) — example.spec.ts:14	285ms
✕	expect.toBeVisible — example.spec.ts:17	26ms
✓	After Hooks	494ms

MORE FEATURES

- Parallelization
- Testing of APIs
- Testing browser extensions
- Mocking different network conditions
- …

https://playwright.dev

DO YOU HAVE ANY QUESTIONS?