**Playwright Setup and Testing for Blazor Web Applications**

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# 1. Installation and Setup

### Node.js Requirement

* Ensure you have the latest version of **Node.js** installed before starting with Playwright.
* Download it from [Node.js official website](https://nodejs.org/).
* To check if Node.js is installed or verify the version, run the following command in your terminal:

node -v

**Initializing Playwright**

1. Go to your Blazor project’s main folder.
2. Run the following command to initialize Playwright:

npm init playwright@latest

1. This command will:
   * Install Playwright dependencies.
   * Set up a **tests** folder containing .spec.js/.spec.ts files (test scripts).
   * Download necessary browser binaries (Chromium, Firefox, WebKit).

**Project Structure**

* Once Playwright is initialized, the default folder structure will look like this:

tests/

├── example.spec.js (\*Sample test file generated by Playwright\*)

└── <your custom test files>

**2. Playwright Management and Updates**

**Starting Playwright (New Project Setup)**

* When setting up a new project or integrating Playwright into an existing Blazor project, initialize Playwright with:

npm init playwright@latest

**Updating Playwright**

* To update Playwright to the latest version, run:

npm install -D @playwright/test@latest

**Installing Browser Dependencies**

* If Playwright requires additional browser dependencies (e.g., for CI environments), install them using:

npx playwright install --with-deps

**Checking Playwright Version**

* To verify the current version of Playwright installed, run:

npx playwright --version

1. **Running Tests**

A Playwright test script typically follows this structure:

* **Launching a browser**.
* **Navigating to a webpage**.
* **Interacting with UI elements**.
* **Verifying expected behaviour** (using assertions).

**Running Recorder**

* PS C:\Users\Boyd\Documents\GitHub\playwrite\BlazorApp> cd C:\Users\Boyd\Documents\GitHub\playwrite\BlazorApp
* PS C:\Users\Boyd\Documents\GitHub\playwrite\BlazorApp> npm init -y
* PS C:\Users\Boyd\Documents\GitHub\playwrite\BlazorApp> npm install playwright --save-dev
* PS C:\Users\Boyd\Documents\GitHub\playwrite\BlazorApp> npx playwright install
* **Run application in different terminal**(dotnet run)
* PS C:\Users\Boyd\Documents\GitHub\playwrite\BlazorApp> npx playwright codegen <http://localhost:5128> (running url)
* Make sure its recording, once finished copy the code make a spec.js((only difference to typescript should be Run**(**npm install ts-node @types/node --save-dev) and the file being saved as spec.ts) file paste the code into it fix the structure. Run the code using “npx playwright test –ui”**(better ui),** **or** “npx playwright test”**(answers)**

**Running All Tests**

* To run all tests across multiple browsers (Chromium, Firefox, WebKit), use:

npx playwright test

* + This will open up a tab where you will see all test with the available browsers and you can view the logs

**Running a Specific Test**

* To run a specific test file (e.g., weather.spec.js), run:

npx playwright test weather.spec.js

**Viewing HTML Reports**

* After running tests, Playwright generates a detailed **HTML report**. To view the report, use:

npx playwright show-report

**Interactive Debugging with UI**

* For an more interactive test/running experience with real-time updates, use:

npx playwright test --ui

* + This will open a UI where you can browse test results, inspect errors, and re-run tests.
  + Upon running the tests in here you will be able to see the timeline of the application running
  + If an error occurs then you will be able to see what line in the spec.js/ts the error is within the source tab
  + There is also the before; after buttons so you can see what happens when activating an action

**4. Running Tests for Specific Browsers**

Playwright supports testing across multiple browsers, which is essential for cross-browser testing. Below are commands to run tests on specific browsers.

**WebKit (Safari Engine)**

* To run tests on the **WebKit** engine (Safari), use:

npx playwright test --project=webkit

**Firefox**

* To run tests in **Firefox**, use:

npx playwright test --project=firefox

**Chromium (Chrome/Edge)**

* To run tests on the **Chromium** engine (Chrome, Edge), use:

npx playwright test --project=chromium

**5. Additional Notes and Useful Commands**

**Running Tests in Headed Mode**

* Playwright runs in headless mode (no browser UI) by default. If you want to run it with the browser UI visible for debugging purposes, use:

npx playwright test --headed

**Using Test Filters**

* Playwright allows you to filter and run specific tests based on keywords. To run tests that match a particular keyword, use:

npx playwright test --grep "Login"

**Debugging with Breakpoints**

* You can pause test execution at any point using the following command in your test script:

await page.pause();

* + This opens the browser and pauses the test, allowing you to manually inspect the state.

**Taking Screenshots for Visual Testing**

* You can capture screenshots of specific elements or entire pages during your tests:

await page.screenshot({ path: 'example.png' });

\*Screenshots are useful for visual regression testing, ensuring that the UI does not change unexpectedly between releases.\*

**Cs Running**

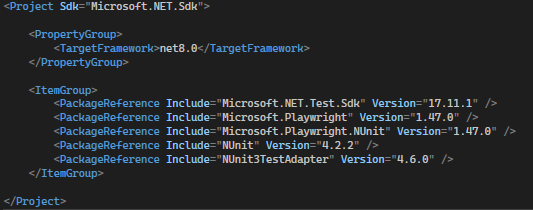
Install-Package NUnit

Install-Package NUnit3TestAdapter

Install-Package Microsoft.Playwright.NUnit

Create a new NUnit Test project (name it something like BlazorApp.PlaywrightTests)

Make sure the .csproj file looks something like this:



Change Test Runner to NUnit (in the record window with the test code)

Recording is the same

Copy the code, Save into .cs file

Build ; Rebuild Solution

Right click and run Debug Tests (Test; Test Explorer; Run(top left))

\*Cs Running only provides the test explorer for the visual, you don’t get a ui test experience like with .js / .ts \*

**Useful links**

* <https://playwright.dev/docs/test-cli> } Command line links
* <https://playwright.dev/docs/test-ui-mode> } UI mode

**Automation**

* make sure that the yml file that your editing is the on the .github folder in the base repository, not the in the application.
* Once that is sorted the testing will run after every commit,