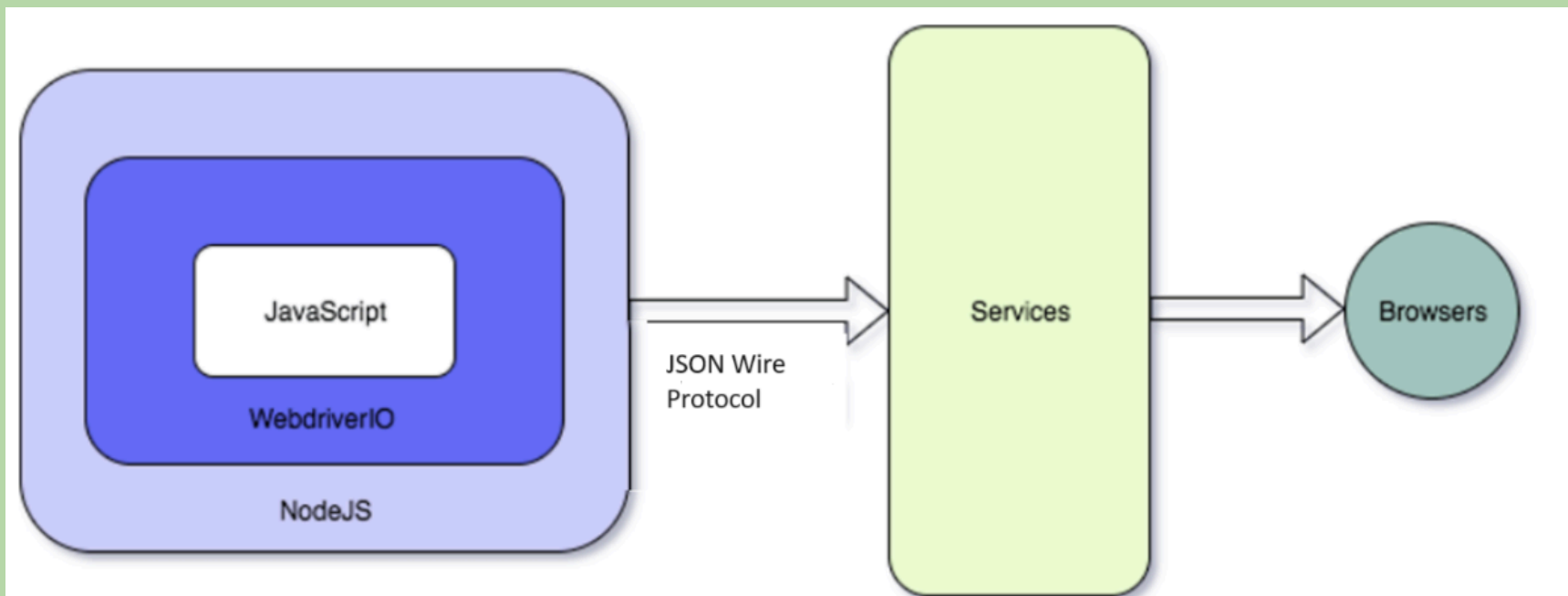


What is WebDriverIO?

- WebDriverIO is an open-source JavaScript-based automation testing framework for mobile and web applications.
- WebDriverIO is built over nodeJs.
- This is considered a Next-gen test automation framework which supports both desktop browsers and mobile apps.
- Which makes WebDriverIO a favorable option for Selenium automation testing.
- WebDriverIO allows us to write unit, functional and even end-to-end tests directly within the browser to check user behavior and interactions.
- By adopting WebDriverIO, we can write tests in a highly readable manner, ensuring efficient and effective testing of web applications across a wide range of browsers and platforms.
- WebDriverIO is extendible, compatible, feature-rich, and easy to install.
- It can support the BDD and TDD test framework.

WebdriverIO Architecture

- NodeJS: NodeJS is an open-source project which helps to run the Javascript runtime environment.
- WebdriverIO: WebdriverIO built on top of NodeJS which communicates with NodeJS.
- JavaScript: The script is written by the user with the help of the WebdriverIO library.
- This flow gets executed when the user runs WebdriverIO test script:
- JavaScript written by the user sends a request by WebdriverIO via nodeJS to the Services which is in the form of HTTP command using JSON Wire Protocol.
- Now, services forward the request to browsers to perform user actions.



Why WebdriverIO is a popular test Framework?

- WebdriverIO is a widely used test automation framework in Javascript. It has various features like It supports many reports and services, Test Frameworks and WDIO CLI Test Runners

The followings are the test framework supports

- Mocha
- Jasmine
- Cucumber

Features and some interesting Facts about WDIO -

1. Why not just use the Selenium JavaScript binding?

- Selenium is just an API that requires to create all the pieces of an automation framework yourself.
- WebdriverIO gives us a full-fledged framework out of the box. It doesn't require you to implement anything from scratch like you would with straight Selenium.
- It comes with everything we need to build scalable and sustainable test suites.
- Also, this tool has extra features not found in the straight Selenium version.
- It automatically handles all the boilerplate of setting up a real testing framework.

2. Simpler Selenium Syntax

- WebdriverIO is super intelligent. For instance, with regular Selenium WebDriver you have to say “find element” by CSS or ID, or by name or partial text.
- With WebdriverIO, it's just a simple `driver.click` on the element, and in any background, it will decide based on the element you passed which locator to use.
- So if it's a CSS, a partial text or XPath, it can figure it out for itself.
- The beauty of WebdriverIO is that its syntax is very concise and to the point.

3. Shadow Doms Support

- One of the trends of building web components that's becoming popular in software development is the use of Shadow Doms.
- Automating this can be tricky since this technique allows hidden DOM trees to be associated with elements in a standard DOM, which means that many elements are not readily available for creating a “point and click” type of script.
- With the release of WebdriverOP v5.5.0, it now contains built-in support for shadow Doms with two newly introduced commands called shadow\$ and shadow\$\$.

4. JavaScript Test Ecosystem

- WebdriverIO has an excellent plug-in and service ecosystem that allows you to add services and plug-ins easily.
- It also has a nice installer that gives you options for adding different frameworks and built-in support for other third-party tools.

The Following are the supported reporters' examples:	The following are an example of the supported services
<ul style="list-style-type: none"> ★ Concise Reporter ★ Dot Reporter ★ JUnit Reporter ★ Spec Reporter ★ Sumologic Reporter ★ Report Portal Reporter ★ Video Reporter ★ HTML Reporter ★ JSON Reporter ★ Mochawesome Reporter ★ Timeline Reporter ★ CucumberJS JSON Reporter ★ Allure Reporter 	<ul style="list-style-type: none"> ★ Appium Service ★ Devtools Service ★ Firefox Profile Service ★ Selenium Standalone Service ★ Shared Store Service ★ Static Server Service ★ ChromeDriver Service ★ Report Portal Service ★ Docker Service

5. Watch Mode WebdriverIO Testrunner

- Another cool feature to run tests is the watch mode.
- With the test runner, you can watch files while you are working on them. They automatically rerun if you change either something in your app or your test files.
- By adding a watch flag when calling the WebDriver.io command, the test runner will wait for file changes after it runs all the tests.
- The testrunner can also use the Appium service to interact with your mobile automation test framework.

6. Debug Command

- With the debug command, you stop execution and pause your test while it's running. The pause will keep the browser open, which is cool because you can then look at the browser and inspect the elements.
- It's helpful to see all the available elements on the page that you can interact with in real time. You can then issue commands from the terminal itself to try things out before adding them to your script.

7. Good for QA and Devs

- Those who is a developer, also believes this framework is a good choice for testers.
- For QA folks I think using JavaScript with WebdriverIO is a lot easier for QA folks to pick up than Java. Even if the person you're teaching is familiar with programming, trying to figure out Java and how that all works is super complicated.
- JavaScript has an easier learning curve; compared to other languages out there it certainly seems simpler.
- I also recommend it for front-end developers, because they don't have to learn a different language to use it.

8. How's the Community?

- When choosing any open-source project tool, it's critical to ensure that the project is active and folks are working on it.
- A project without a community around it is a red flag.
- For Christian, the thing he is most proud of in the WebdriverIO community is the team of people behind the project.
- For instance, there is a Gitter support channel where thousands of people help each other out regularly. So whenever you have a question, there are people that can help you out and vice versa.

- Another useful metric to look at when choosing an open-source tool is how popular it is. The more popular it is, the more folks are probably contributing, and the greater the chance that the tool will keep growing.
- Looking at the download numbers, Selenium is still more popular than WebDriverIO by far. Cypress.io is also getting more and more traction into the automation space.
- But besides those two exceptions, WebDriver Protocol is the most popular browser test automation framework in the JavaScript area.

More Notes -

Why use WebDriverIO for Automation Testing?

- WebDriverIO is a powerful tool for automation testing with a rich feature set, making it an ideal choice for efficient and effective web application testing.
- Cross-Browser Compatibility
 - WebDriverIO allows you to write tests that can be executed across multiple browsers. It provides seamless integration with various browser drivers, enabling you to run your tests on different browsers and ensure consistent behavior across platforms.
- Multi-Language Support
 - With WebDriverIO, you can write your test scripts in multiple programming languages, including JavaScript, TypeScript, and more. This flexibility allows you to leverage your existing coding skills and preferences.
- Rich API and Commands
 - WebDriverIO provides a comprehensive set of APIs and commands that make it easy to interact with web elements, simulate user actions, and validate application behavior. Its intuitive syntax and expressive APIs enhance the readability and maintainability of your test scripts.
- Extensive Documentation and Community Support
 - WebDriverIO has a vast and active community that offers extensive documentation, tutorials, and support. This rich knowledge base provides resources and guidance to help you get started

quickly, troubleshoot issues, and stay up-to-date with the latest trends and best practices in test automation.

- Integration with Testing Frameworks
 - WebdriverIO seamlessly integrates with popular testing frameworks like Mocha and Jasmine. This integration allows you to leverage the features and capabilities of these frameworks, such as test organization, reporting, and parallel test execution.
- Support for Continuous Integration (CI)
 - WebdriverIO can be easily integrated into CI/CD pipelines. It supports various CI tools like Jenkins, Travis CI, and CircleCI, enabling you to automate your testing process and ensure consistent and reliable test execution.
- Community Plugins and Integrations
 - The WebdriverIO community has developed a wide range of plugins and integrations, expanding the capabilities of the framework. These plugins provide additional functionalities, such as generating test reports, capturing screenshots, and integrating with popular tools like Selenium Grid and BrowserStack.