

Introduction to WebdriverIO

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About me



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About ECP

East Coast Product designs & develops modern JavaScript apps for entrepreneurs, enterprises, and everyone in between



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Agenda

- What is WebdriverIO?
- Ways of using WebdriverIO
- Setting it up locally
- Automating runs with CI & GitHub
- Examples, tips & tricks, & discussion



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A Brief History

- WebdriverIO originated from Camilo Tapia's initial Selenium project, **WebdriverJS**, the first webdriver project on NPM
- In 2014 renamed to **WebdriverIO**
- WebdriverIO current version - 4.4.0



Selenium



- Selenium is an open source browser automation library
- Supports most browsers and programming languages
- Frequently used for testing web applications



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- Locators:

- Class
- CSS
- Selector ID
- Link Text
- Name
- Partial Link Text
- Tag Name
- XPath



How does WebDriverIO work?

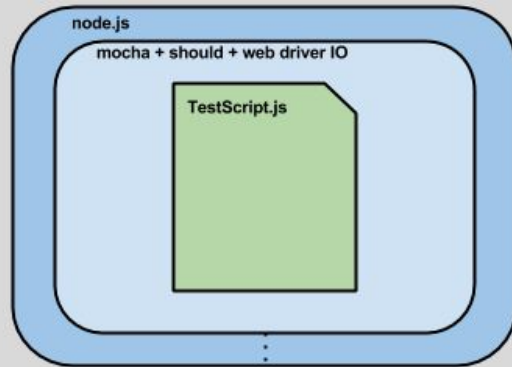


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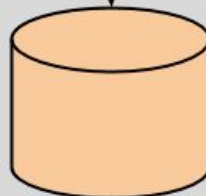


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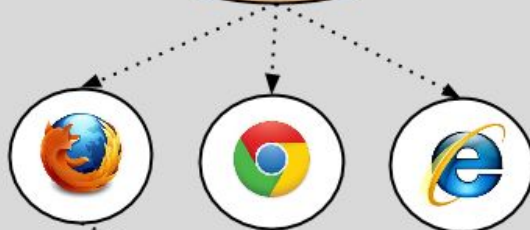
Your Computer



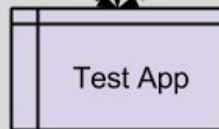
JSON Wire Protocol



Selenium Standalone



Browsers + drivers



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Why WebDriverIO?



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Example in selenium-webdriver:

```
driver.get('http://www.google.com');  
driver.findElement(webdriver.By.id('q')).sendKeys('webdriver');  
driver.findElement(webdriver.By.id('btnG')).click();
```

Example in WD.js:

```
1 browser  
2   .get('http://www.google.com')  
3   .elementById('q')  
4   .sendKeys('webdriver')  
5   .elementById('btnG')  
6   .click();
```

Example in WebDriverIO:

```
1 client  
2   .url('http://google.com')  
3   .setValue('#q', 'webdriver')  
4   .click('#btnG');
```



Plugins & Services



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Ways of using WebDriverIO



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- wdio runner + mocha & chai + Chrome browser driver

```
1  'use strict';
2
3  suite('Test the Login Functionality using wdio test runner - ', () => {
4    > test('Confirm Login', () => {
5
6      ... browser
7      ... .url('https://accounts.craigslist.org/login/home')
8      ... .setValue('#inputEmailHandle', 'ana+example@ecp.io')
9      ... .setValue('#inputPassword', 'Testpass135!')
10     ... .click('.accountform-btn');
11
12     ... browser.getTitle().should.be.equal('craigslist account');
13     ... browser.getText('.bhead>a:nth-of-type(2)').should.be.equal('home of '
14     ... + 'ana+example@ecp.io');
15   });
16 });
```

- Start the Chrome browser driver on port 4444 by typing:

```
➔ meetup-examples /Users/ana/meetup-examples/node_modules/chromedriver/lib/chromedriver/chromedriver --url-base=/wd/hub --port=4444
Starting ChromeDriver 2.25.426935 (820a95b0b81d33e42712f9198c215f703412e1a1) on port 4444
Only local connections are allowed.
```



```
➔ meetup-examples ./node_modules/.bin/wdio
```

```
=====
Selenium 2.0 / webdriver protocol bindings implementation with helper commands in nodejs.
For a complete list of commands, visit http://webdriver.io/api.html.
=====
```

```
[12:16:45] COMMAND POST "/wd/hub/session"
[12:16:47] COMMAND POST "/wd/hub/session/366b27a3c99795b13762674776390816/url"
[12:16:50] COMMAND POST "/wd/hub/session/366b27a3c99795b13762674776390816/elements"
[12:16:50] COMMAND POST "/wd/hub/session/366b27a3c99795b13762674776390816/element/0.0225920775323889-1/clear"
[12:16:50] COMMAND POST "/wd/hub/session/366b27a3c99795b13762674776390816/element/0.0225920775323889-1/value"
[12:16:50] COMMAND POST "/wd/hub/session/366b27a3c99795b13762674776390816/elements"
[12:16:50] COMMAND POST "/wd/hub/session/366b27a3c99795b13762674776390816/element/0.0225920775323889-2/clear"
[12:16:50] COMMAND POST "/wd/hub/session/366b27a3c99795b13762674776390816/element/0.0225920775323889-2/value"
[12:16:50] COMMAND POST "/wd/hub/session/366b27a3c99795b13762674776390816/element"
[12:16:51] COMMAND POST "/wd/hub/session/366b27a3c99795b13762674776390816/element/0.0225920775323889-3/click"
[12:16:52] COMMAND GET "/wd/hub/session/366b27a3c99795b13762674776390816/title"
[12:16:52] COMMAND POST "/wd/hub/session/366b27a3c99795b13762674776390816/elements"
[12:16:52] COMMAND GET "/wd/hub/session/366b27a3c99795b13762674776390816/element/0.3694808716985314-1/text"
. [12:16:52] COMMAND DELETE "/wd/hub/session/366b27a3c99795b13762674776390816"
```

```
1 passing (7.70s)
```



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- wdio runner + selenium-standalone server + gulp

```
1  'use strict';
2
3  import account from '../test/helpers/account.js';
4
5  suite('Test the Login Functionality using selenium-standalone - ', () => {
6    test('Test the user login', () => {
7
8      browser
9        .url('/login/home')
10       .waitForVisible('.accountform-btn');
11
12      account().login(); //defaults to globals
13
14      browser.getTitle().should.be.equal('craigslist account');
15      browser.getText('.bhead>a:nth-of-type(2)').should.be.equal('home of '
16        + globalEmail);
17    });
18
19    test('Test Logout', () => {
20
21      account().logout();
22
23      browser.getTitle().should.be.equal('craigslist - account log in');
24    });
25  });
26
27
28 }
```




```
→ meetup-examples ./node_modules/.bin/gulp test
[13:36:17] Requiring external module babel-register
[13:36:17] Using gulpfile ~/meetup-examples/gulpfile.babel.js
[13:36:17] Starting 'test'...
```

Selenium 2.0 / webdriver protocol bindings implementation with helper commands in nodejs.
For a complete list of commands, visit <http://webdriver.io/api.html>.

```
[13:36:29] COMMAND POST "/wd/hub/session"
[13:36:29] COMMAND POST "/wd/hub/session/e6ea35a7-8d0f-404b-ac5e-25765ccf50ea/url"
[13:36:29] COMMAND POST "/wd/hub/session/e6ea35a7-8d0f-404b-ac5e-25765ccf50ea/elements"
[13:36:29] COMMAND GET "/wd/hub/session/e6ea35a7-8d0f-404b-ac5e-25765ccf50ea/element/0/displayed"
[13:36:29] COMMAND GET "/wd/hub/session/e6ea35a7-8d0f-404b-ac5e-25765ccf50ea/element/1/displayed"
[13:36:29] COMMAND POST "/wd/hub/session/e6ea35a7-8d0f-404b-ac5e-25765ccf50ea/elements"
[13:36:29] COMMAND POST "/wd/hub/session/e6ea35a7-8d0f-404b-ac5e-25765ccf50ea/element/2/clear"
[13:36:29] COMMAND POST "/wd/hub/session/e6ea35a7-8d0f-404b-ac5e-25765ccf50ea/element/2/value"
[13:36:29] COMMAND POST "/wd/hub/session/e6ea35a7-8d0f-404b-ac5e-25765ccf50ea/elements"
[13:36:29] COMMAND POST "/wd/hub/session/e6ea35a7-8d0f-404b-ac5e-25765ccf50ea/element/3/clear"
[13:36:29] COMMAND POST "/wd/hub/session/e6ea35a7-8d0f-404b-ac5e-25765ccf50ea/element/3/value"
[13:36:29] COMMAND POST "/wd/hub/session/e6ea35a7-8d0f-404b-ac5e-25765ccf50ea/element"
[13:36:29] COMMAND POST "/wd/hub/session/e6ea35a7-8d0f-404b-ac5e-25765ccf50ea/element/0/click"
[13:36:30] COMMAND POST "/wd/hub/session/e6ea35a7-8d0f-404b-ac5e-25765ccf50ea/elements"
[13:36:30] COMMAND GET "/wd/hub/session/e6ea35a7-8d0f-404b-ac5e-25765ccf50ea/element/4/displayed"
[13:36:30] COMMAND GET "/wd/hub/session/e6ea35a7-8d0f-404b-ac5e-25765ccf50ea/title"
[13:36:30] COMMAND POST "/wd/hub/session/e6ea35a7-8d0f-404b-ac5e-25765ccf50ea/elements"
[13:36:31] COMMAND GET "/wd/hub/session/e6ea35a7-8d0f-404b-ac5e-25765ccf50ea/element/5/text"
[13:36:31] COMMAND POST "/wd/hub/session/e6ea35a7-8d0f-404b-ac5e-25765ccf50ea/url"
[13:36:31] COMMAND POST "/wd/hub/session/e6ea35a7-8d0f-404b-ac5e-25765ccf50ea/elements"
[13:36:31] COMMAND GET "/wd/hub/session/e6ea35a7-8d0f-404b-ac5e-25765ccf50ea/element/6/displayed"
[13:36:31] COMMAND GET "/wd/hub/session/e6ea35a7-8d0f-404b-ac5e-25765ccf50ea/title"
[13:36:31] COMMAND DELETE "/wd/hub/session/e6ea35a7-8d0f-404b-ac5e-25765ccf50ea"
```

2 passing (13.90s)

[13:36:31] Finished 'test' after 14 s



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- Integration with cloud services



BrowserStack



- Visual regression testing using WebdriverCSS



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Setup



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- Prerequisite: Node.js & Java installed
- *npm install --save-dev gulp webdriverio mocha chai selenium-standalone gulp-webdriver*
- *npm install --save-dev gulp -g* (or use it like this
“./node_modules/.bin/gulp”)
- *selenium-standalone install* (can be done with gulp or via npm script)



The *package.json* file

```
  "author": "Ana Prpic",
  "license": "ISC",
  "devDependencies": {
    "allure-commandline": "latest",
    "babel-preset-es2015": "^6.6.0",
    "babel-register": "^6.18.0",
    "chai": "^3.5.0",
    "gulp": "^3.9.1",
    "gulp-webdriver": "^2.0.2",
    "lodash": "^4.17.0",
    "mocha": "^3.1.2",
    "selenium-standalone": "^5.8.0",
    "webdriverio": "^4.1.1",
    "wdio-allure-reporter": "^0.1.2",
    "wdio-dot-reporter": "0.0.6",
    "wdio-mocha-framework": "^0.5.4",
    "wdio-selenium-standalone-service": "0.0.7",
    "wdio-spec-reporter": "0.0.3"
  },
  "babel": {
    "presets": ["es2015"]
  }
}
```



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The gulpfile (gulpfile.babel.js)

```
1  import gulp from 'gulp';  
2  import webdriver from 'gulp-webdriver';  
3  
4  //Test task  
5  //takes in a callback so the engine knows when the task's done  
6  gulp.task('test', () => {  
7    ...return gulp.src('wdio.conf.js').pipe(webdriver());  
8  });
```



Creating the *config* file

```
→ webdriverio-blog-example git:(master) ✕ wdio config

=====
WDIO Configuration Helper
=====

? Where do you want to execute your tests? On my local machine
? Which framework do you want to use? mocha
? Shall I install the framework adapter for you? Yes
? Where are your test specs located? ./test/specs/**/*.js
? Which reporter do you want to use? spec - https://github.com/webdriverio/wdio-spec-reporter, allure - https://github.com/webdriverio/wdio-allure-reporter
? Shall I install the reporter library for you? Yes
? Do you want to add a service to your test setup? selenium-standalone - https://github.com/webdriverio/wdio-selenium-standalone-service
? Shall I install the services for you? Yes
? Level of logging verbosity verbose
? In which directory should screenshots gets saved if a command fails? ./errorShots/
? What is the base url? https://boston.craigslist.org/

Installing wdio packages:
pkg: wdio-mocha-framework
pkg: wdio-spec-reporter
pkg: wdio-allure-reporter
pkg: wdio-selenium-standalone-service

Packages installed successfully, creating configuration file...

Configuration file was created successfully!
To run your tests, execute:

$ wdio wdio.conf.js
```



How I did it - using helper functions

```
1  'use strict';~
2  import _ from 'lodash';~
3  ~
4  const defaults = {~
5    .. email: globalEmail,~
6    .. password: globalPassword~
7  };~
8  ~
9  module.exports = (options) => {~
10   .. const opts = _.assign({}, defaults, options);~
11   ~
12   ... return {~
13     ~
14     ... login: () => {~
15       ..... browser~
16       ..... .url('/login/home')~
17       ..... .waitForVisible('.accountform-btn');~
18       ~
19       ..... browser~
20       ..... .setValue('#inputEmailHandle', opts.email)~
21       ..... .setValue('#inputPassword', opts.password)~
22       ..... .click('.accountform-btn')~
23       ..... .waitForVisible('#ef'); //span containing the 'log out' options~
24       ..... },~
25     ~
26     ... logout: () => {~
27       ..... browser~
28       ..... .url('/logout')~
29       ..... .waitForVisible('button=Log in');~
30       ..... },~
31   }
```

```
32   ..... forgotPassword: () => {~
33     ..... browser~
34     ..... .url('/reset')~
35     ..... .waitForVisible('#email');~
36     ~
37     ..... browser~
38     ..... .setValue('#email', opts.email)~
39     ..... .click('.accountform-btn');~
40     ..... }~
41     ..... }~
42   };~
43 }
```



The test for *Forgot Password* using a helper function...

```
test('Test Forgot Password Functionality', () => {  
  const someEmail = 'some.email@email.com';  
  account({email: someEmail}).forgotPassword();  
  browser.waitForVisible('.alert-success');  
  
  browser.getText('.alert-success').should.be.equal('A link to create a new'  
    + ' password has been emailed to ' + someEmail + '.');  
});
```



...not how you should do it!

Why not? See here: [Grading your Selenium tests](#) by Dave Haeffner



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Tips / Tricks

- How to run only one specific test file:
npm test -- --spec=/path_to_file/file_name.js
- Debugging: *browser.pause()* vs. *browser.debug()*
- Mocha tips: *suite.skip* & *suite.only*



The *scripts* section of the *package.json* file

```
{
  "name": "webdriverio-blog-example",
  "version": "1.0.0",
  "description": "WebdriverIO Blog Example",
  "scripts": {
    "cleanup": "rm -rf ./allure-report && rm -rf ./errorShots",
    "pretest": "npm run cleanup",
    "test": "gulp test",
    "report": "./node_modules/.bin/allure generate allure-results",
    "posttest": "npm run report",
    "postinstall": "./node_modules/.bin/selenium-standalone install",
    "view-report": "allure report open"
  },
}
```



Continuous Integration



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Continuous Integration with CircleCI

Add Projects Reload Organizations

CircleCI helps you ship better code, faster. Let's add some projects on CircleCI.

To kick things off, you'll need to pick some projects to build:

- 1 Choose an organization that you are a member of.
- 2 Choose a repo to add to CircleCI. We'll start a new build for you each time someone pushes a new commit. You can also follow a project that's already been added to CircleCI. You'll see your followed projects in [Builds](#) and [Insights](#).

GitHub **Bitbucket**

Are you missing an organization? You or an admin may need to enable CircleCI for your organization in [GitHub's application permissions](#). [Refresh this list](#) after you have updated permissions.

- Alkaia
- EastCoastProduct**
- SafetyNetAccess

Linux **OS X**

Filter projects... Show Forks











homepage	Build project
webdriverio-blog-example	Unfollow project
node-postgres-cleaner	Build project
nexus-skeleton	Build project
skeleton	Build project
api-skeleton	Follow project
super-admin-skeleton	Follow project



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BUILDS

INSIGHTS

ADD PROJECTS

TEAM


ACCOUNT SETTINGS

DOCS

SUPPORT

CHANGELOG

LOG OUT

 **New:** You can now get web notifications when your build is done! [Click here to activate web notifications.](#)

Builds » Alkaia » testing » master » build 11

[cancel build](#) Rebuild[Project Settings](#)

QUEUED

Started:00:00 ago

Estimated:00:00


Previous:10

Parallelism:1x out of 1x

Queued:00:00 waiting + 00:00 in queue

Triggered by:
[Ana](#) (updated project settings)

COMMIT (1)

[Alkaia](#)  [a692d3a](#) revert changes to package.json file

Queue (00:00)

Debug via SSH

circle.yml

CircleCI spent **00:00** acquiring containers for this build.

0

Add Containers +

INFRASTRUCTURE

Starting the build

00:00

Installing inference daemon...

Inference daemon installed.

Starting inference daemon...



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Useful links:

- [Setting Up an End-to-End Testing Workflow with Gulp, Mocha, and WebdriverIO](#) by Matija Marohnic
- [The Selenium Guidebook](#) by Dave Haeffner
- [Youtube channel](#) by Kevin Lamping
- [Why we should stop using Grunt & Gulp](#) by Keith Cirkel



Want More?

- GitHub repo with examples:
<https://github.com/EastCoastProduct/webdriverio-blog-example>
- ECP is hiring developers!
 - Contact monika@eastcoastproduct.com
- Come to our **LevelUp Development** meetups in Split:
 - We're discussing the latest tech over pizza and beer
 - Taking suggestions for topics
 - Looking for presenters



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Thank you!



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Q&A Time!



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