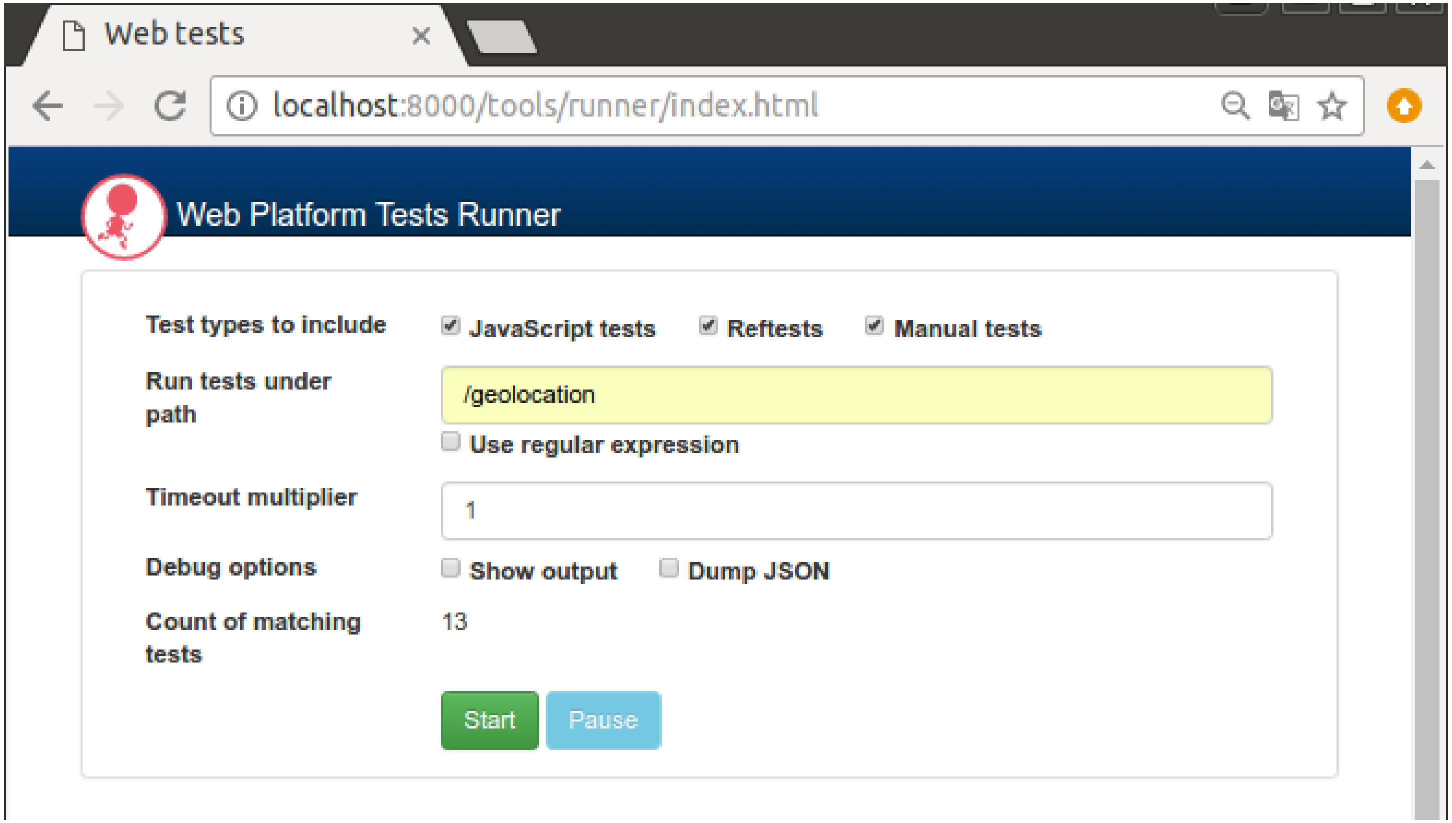
W3C Vehicle API Test Suite Development

2017/5/8
Shinjiro Urata
ACCESS

W3C Suite

- "Web Platform Test" is W3C's standard automated test framework.


Web tests
localhost:8000/tools/runner/index.html
Web Platform Tests Runner
Start
Pause

Test types to include ☑ JavaScript tests ☑ Reftests ☑ Manual tests

Run tests under path: /geolocation

□ Use regular expression

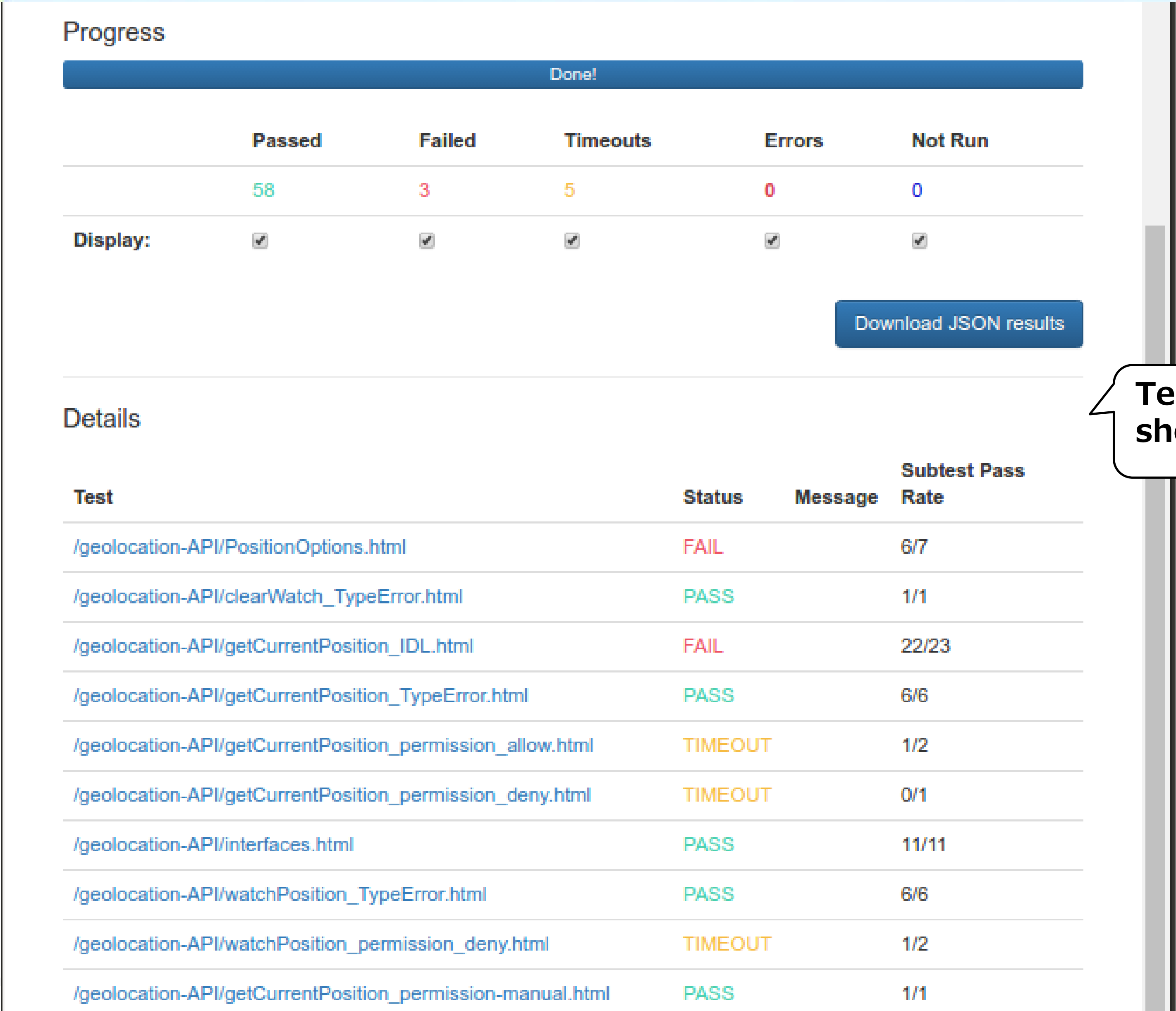
Timeout multiplier: 1

Debug options □ Show output □ Dump JSON

Count of matching tests: 13

* https://github.com/w3c/web-platform-tests

W3C TEST SUITE



Progress

Done!

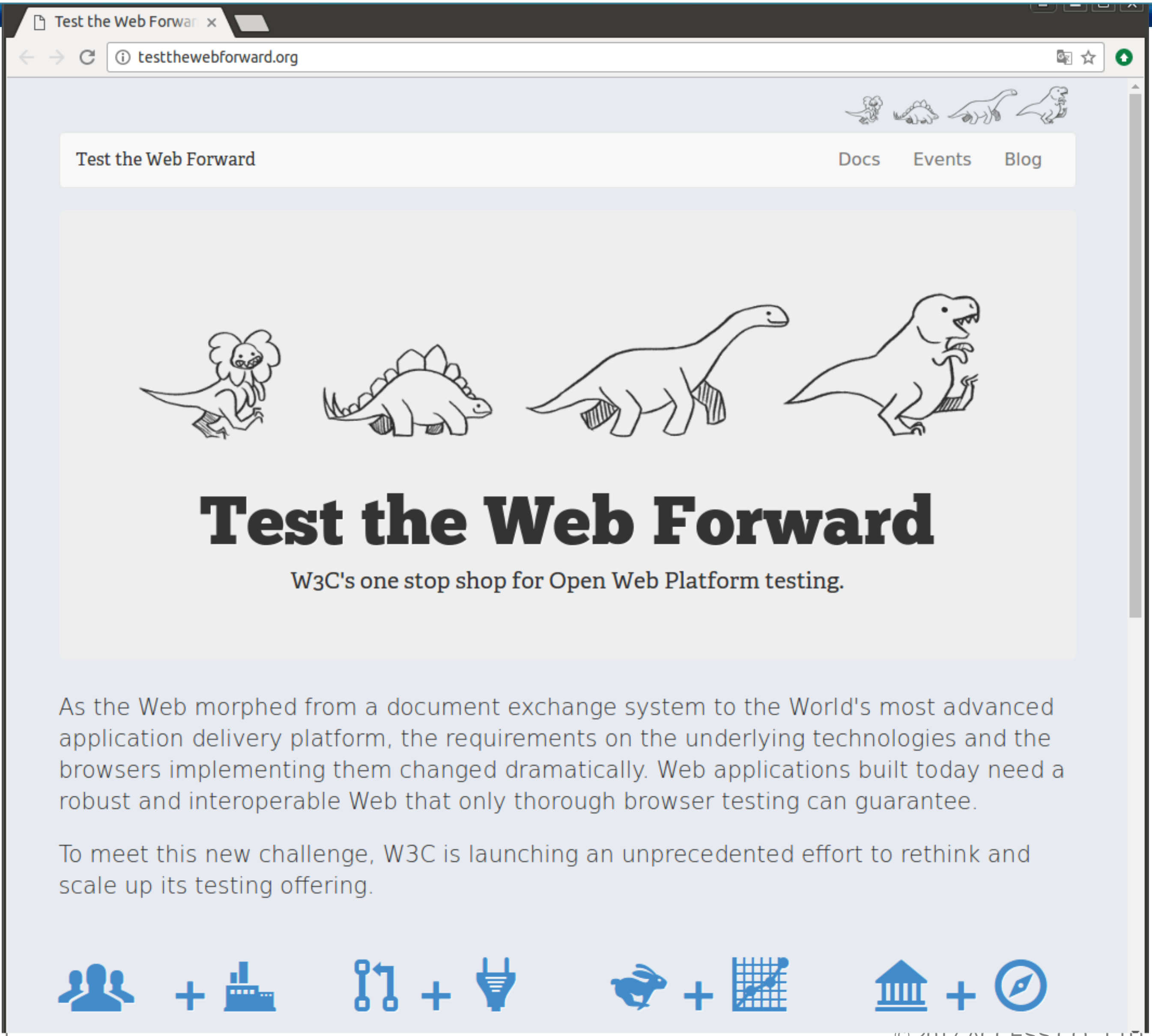
	Passed	Failed	Timeouts	Errors	Not Run
	58	3	5	0	0
Display:	☑	☑	☑	☑	☑

Details

Test	Status	Message	Subtest Pass Rate
/geolocation-API/PositionOptions.html	FAIL		6/7
/geolocation-API/clearWatch_TypeError.html	PASS		1/1
/geolocation-API/getCurrentPosition_IDL.html	FAIL		22/23
/geolocation-API/getCurrentPosition_TypeError.html	PASS		6/6
/geolocation-API/getCurrentPosition_permission_allow.html	TIMEOUT		1/2
/geolocation-API/getCurrentPosition_permission_deny.html	TIMEOUT		0/1
/geolocation-API/interfaces.html	PASS		11/11
/geolocation-API/watchPosition_TypeError.html	PASS		6/6
/geolocation-API/watchPosition_permission_deny.html	TIMEOUT		1/2
/geolocation-API/getCurrentPosition_permission-manual.html	PASS		1/1

Test result shown like this

Test the Web Forward



Test the Web Forward

Docs Events Blog

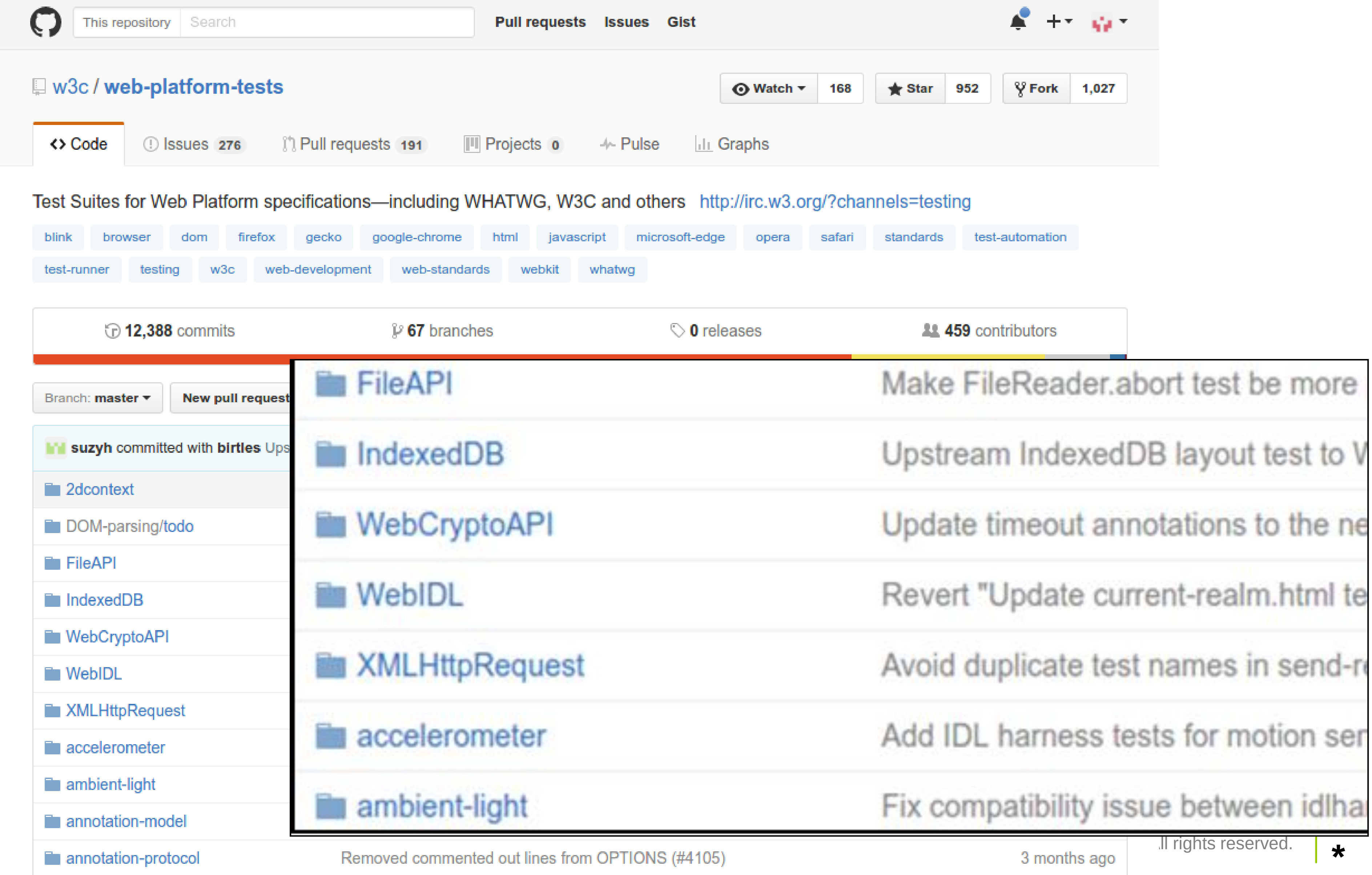
Test the Web Forward

W3C's one stop shop for Open Web Platform testing.

As the Web morphed from a document exchange system to the World's most advanced application delivery platform, the requirements on the underlying technologies and the browsers implementing them changed dramatically. Web applications built today need a robust and interoperable Web that only thorough browser testing can guarantee.

To meet this new challenge, W3C is launching an unprecedented effort to rethink and scale up its testing offering.

TEST CONTENTS



This repository | Search | Pull requests | Issues | Gist

w3c / **web-platform-tests**

Watch 168 | Star 952 | Fork 1,027

Code | Issues 276 | Pull requests 191 | Projects 0 | Pulse | Graphs

Test Suites for Web Platform specifications—including WHATWG, W3C and others http://irc.w3.org/?channels=testing

blink | browser | dom | firefox | gecko | google-chrome | html | javascript | microsoft-edge | opera | safari | standards | test-automation | test-runner | testing | w3c | web-development | web-standards | webkit | whatwg

12,388 commits | **67** branches | **0** releases | **459** contributors

Branch: **master** | New pull request

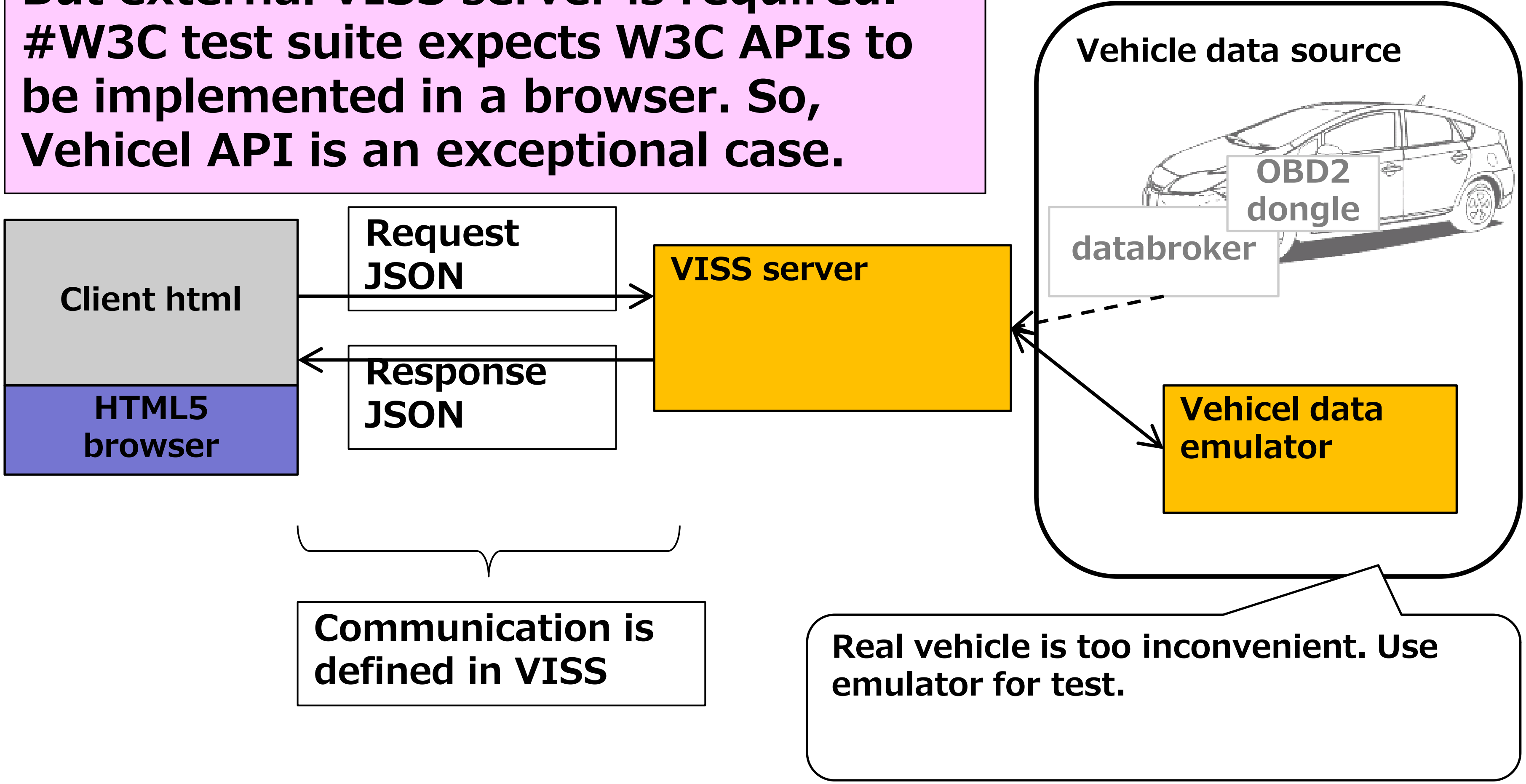
suzyh committed with **birtles** Ups

- 2dcontext
- DOM-parsing/todo
- FileAPI
- IndexedDB
- WebCryptoAPI
- WebIDL
- XMLHttpRequest
- accelerometer
- ambient-light
- annotation-model
- annotation-protocol — Removed commented out lines from OPTIONS (#4105) — 3 months ago

FileAPI	Make FileReader.abort test be more
IndexedDB	Upstream IndexedDB layout test to W
WebCryptoAPI	Update timeout annotations to the ne
WebIDL	Revert "Update current-realm.html te
XMLHttpRequest	Avoid duplicate test names in send-r
accelerometer	Add IDL harness tests for motion ser
ambient-light	Fix compatibility issue between idlha

Vehicle API case

In Vehicle API (VISS), API is not implemented in a browser.
But external VISS server is required.
#W3C test suite expects W3C APIs to be implemented in a browser. So, Vehicel API is an exceptional case.



Vehicle data source

OBD2 dongle

databroker

Client html

HTML5 browser

Request JSON

Response JSON

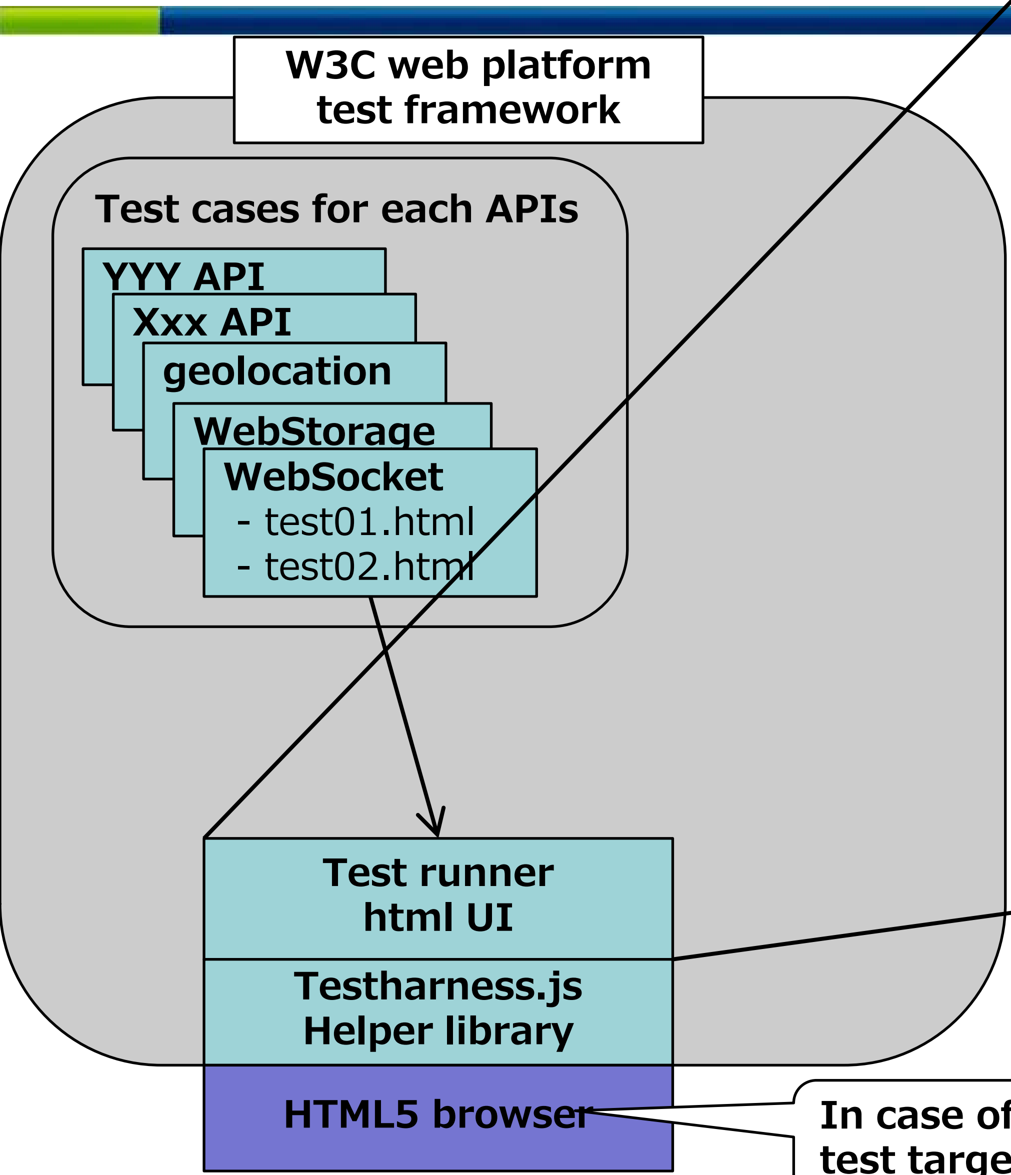
VISS server

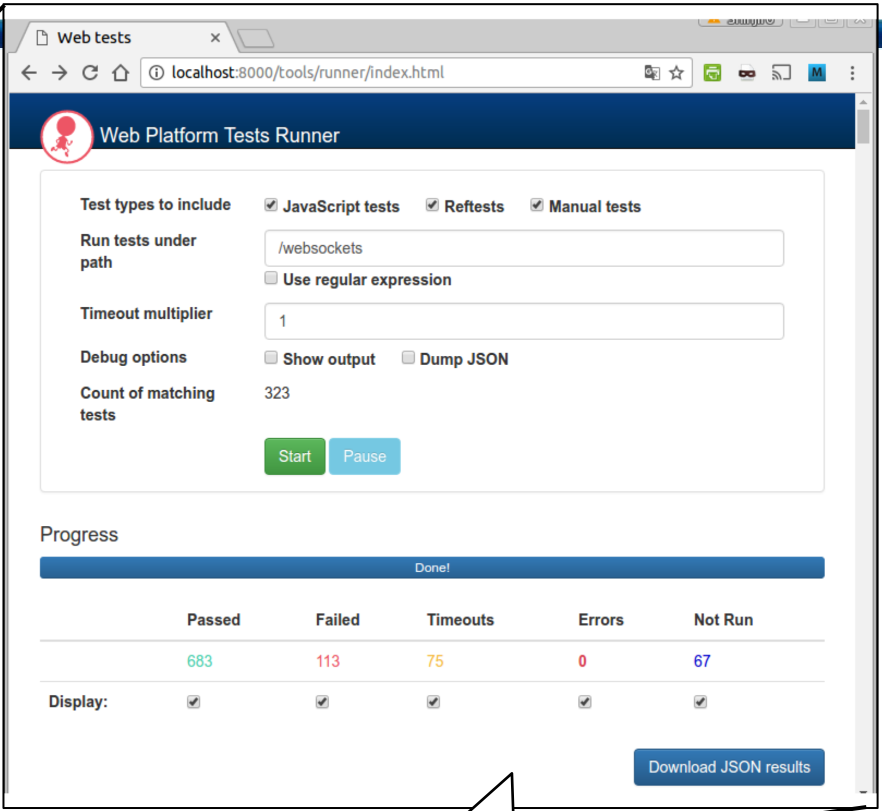
Vehicel data emulator

Communication is defined in VISS

Real vehicle is too inconvenient. Use emulator for test.

TEST FRAMEWORK STRUCTURE




Web tests
localhost:8000/tools/runner/index.html
Web Platform Tests Runner

Test types to include ☑ JavaScript tests ☑ Reftests ☑ Manual tests

Run tests under path: /websockets

□ Use regular expression

Timeout multiplier: 1

Debug options □ Show output □ Dump JSON

Count of matching tests: 323

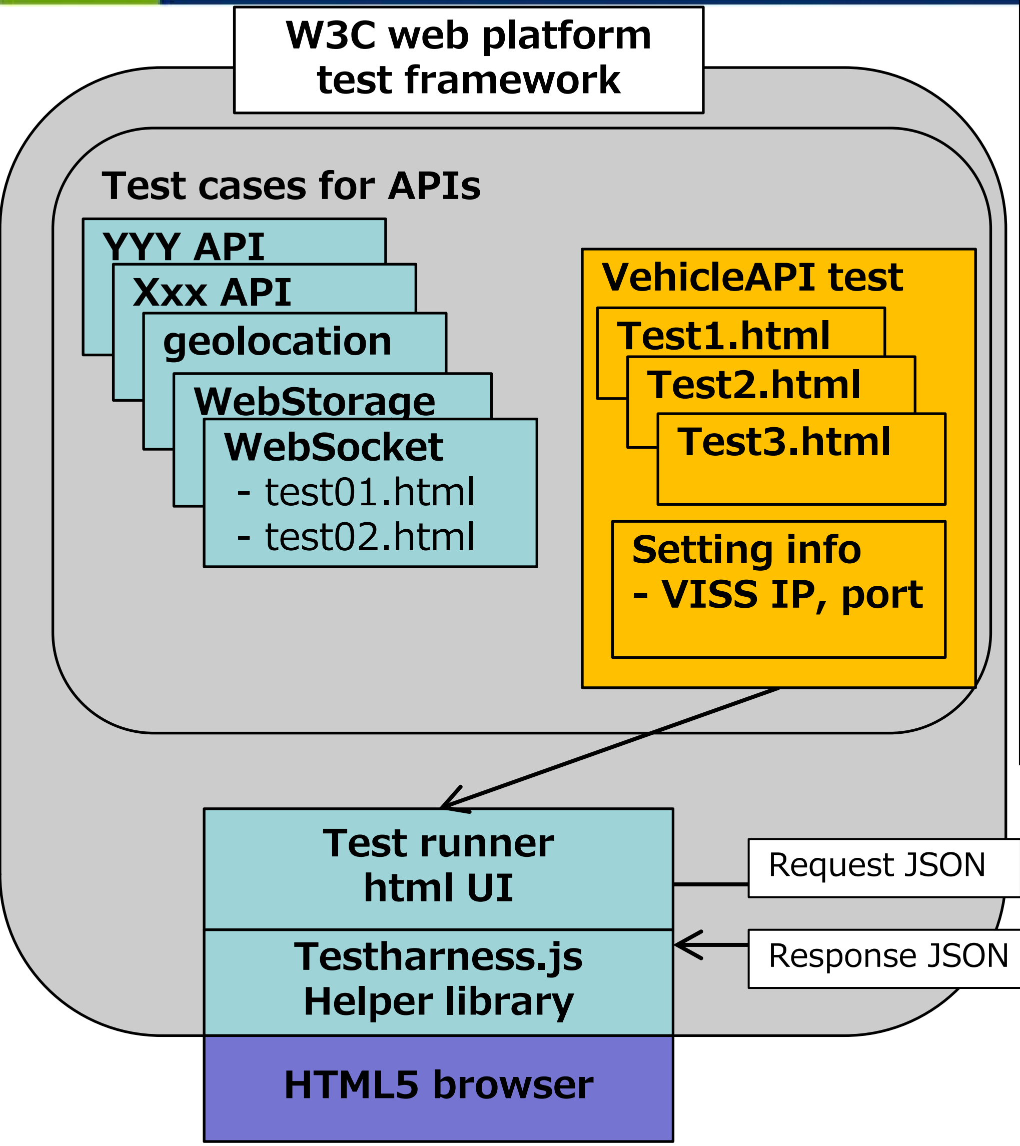
Progress

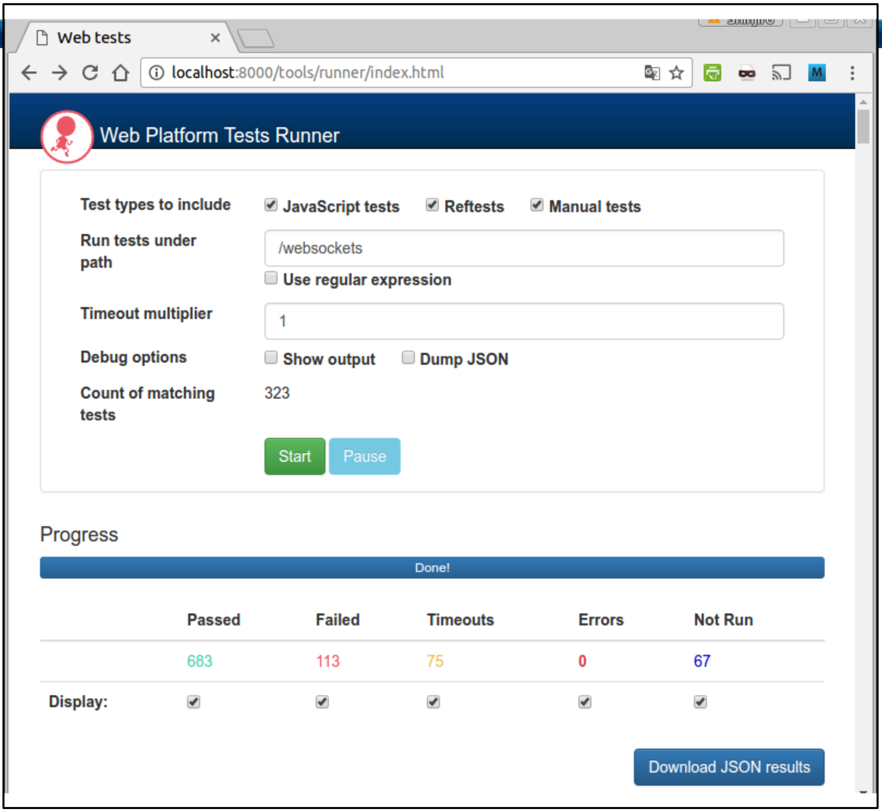
	Passed	Failed	Timeouts	Errors	Not Run
	683	113	75	0	67
Display:	☑	☑	☑	☑	☑

Open Test runner UI in a browser and run the tests.

In case of standard W3C APIs, test target is implementation in browsers

IN CASE OF VEHICLE API




Web tests
localhost:8000/tools/runner/index.html
Web Platform Tests Runner

Test types to include ☑ JavaScript tests ☑ Reftests ☑ Manual tests

Run tests under path: /websockets

☐ Use regular expression

Timeout multiplier: 1

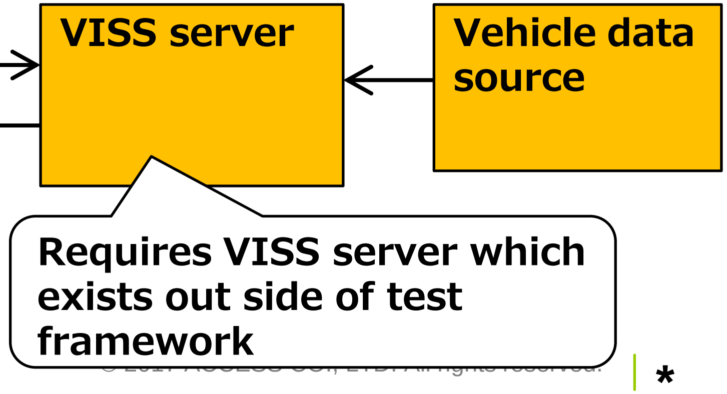
Debug options ☐ Show output ☐ Dump JSON

Count of matching tests: 323

Progress

Done!

	Passed	Failed	Timeouts	Errors	Not Run
	683	113	75	0	67
Display:	☑	☑	☑	☑	☑



Requires VISS server which exists out side of test framework

SIMPLE TEST CASE

Simple test case example(partial)

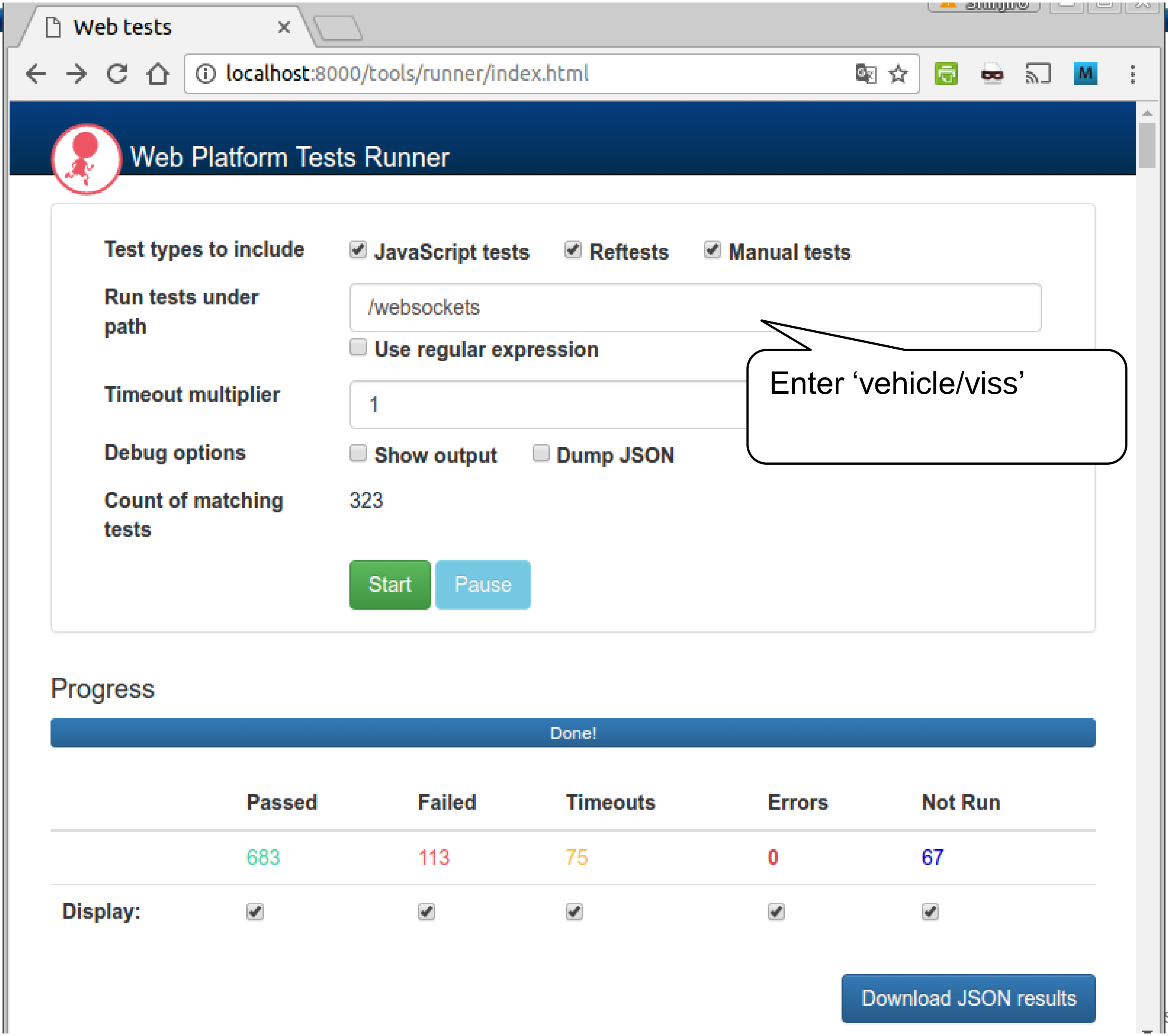
```
var vehicle  = new WebSocket(VISS_URL);

vehicle.onopen = function() {
  var reqId = "12345";
  var path = "Signal.Drivetrain.Transmission.Speed";

  vehicle.onmessage = t.step_func(function(event) {
    var msg = JSON.parse(event.data);
    var result = isGetSuccessResponse(reqId, msg);

    assert_true(result, "Get method successed");
  });
  vehicle.send('{"action":"get","path":"'+ path
               +'"  ,"requestId":"'+reqId+'"}');
}
```

Getting vehicle speed

Send request

Success if true

Demo: run vehicle API test



Web tests

localhost:8000/tools/runner/index.html

Web Platform Tests Runner

Test types to include ☑ JavaScript tests ☑ Reftests ☑ Manual tests

Run tests under path: /websockets

□ Use regular expression

Timeout multiplier: 1

Debug options □ Show output □ Dump JSON

Count of matching tests: 323

Enter ‘vehicle/viss’

Progress

Done!

	Passed	Failed	Timeouts	Errors	Not Run
	683	113	75	0	67
Display:	☑	☑	☑	☑	☑

SUMMARY

- In case of Vehicle API, external VISS server is required and this is exceptional use of test framework.
- According to Test framework rule, “Test framework should be able to run standalone, should not communicate with external servers.” Although the Vehicle API test does not conform this, this is not avoidable because of VISS system structure.
- Because of communicating with external server via WebSocket, all the tests run asynchronously. Since the response time depends on data reception from vehicle data source, timeout time settings become difficult. (uniform time out setting may not fit to every VISS implementation and data source.)
- Depend on vehicle data source (real vehicle, emulator, etc.) avalable data types, range of data are different. Therefore, in this test cases, received data types, values are not verified but tested conformance of VISS communication behavior.

END