DYNACRON GROUP

Running Parallel Web Tests Using Selenium, JUnit & SauceLabs

A tester wanting to get started web testing with Selenium and JUnit, and is also interested in performing the tests using multiple platforms and multiple browsers in parallel and also interested in performing the tests in the clouds often has many questions:

- How do I get started?
- What do I need to do first?
- How do I get a sample test going?
- What settings do I need to configure?
- How do I get my tests running using SauceLabs services to test public facing Web pages and/or locally hosted pages?

The Dynacron Group has put together a quick start Maven project that leverages the Dynacron Group parallel-webtest Java library with the instructions to do the settings and configurations needed to run the tests.

The project includes an html web page that is hosted on your local machine using Cargo and Tomcat and runs simple tests on the page; it also connects to publicly hosted pages and runs tests on them.

This exercise was configured using a Windows environment. It's easy to run the same suite on Mac OS X or Linux – the main differences are operating system specific (e.g. different mechanisms for setting environment variables).

Let's get started!

What you need:

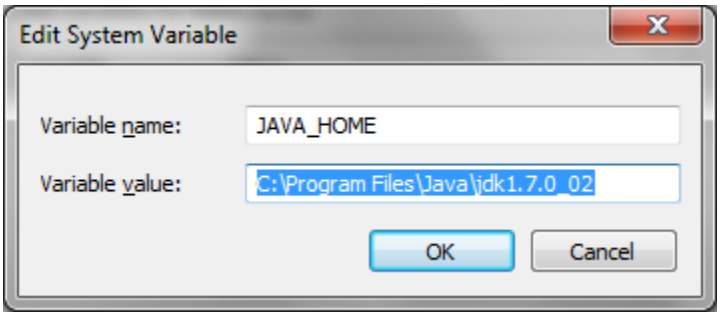
1. Download and install Java JDK: http://www.oracle.com/technetwork/java/javase/downloads/index.html
2. Download and install Apache Maven: http://maven.apache.org/download.html
3. Download the webtest-quickstart package from the Dynacron Group: https://github.com/dynacron-group/webtest-quickstart
4. An active account with SauceLabs: http://saucelabs.com
5. Download SauceConnect: https://saucelabs.com/docs/sauce-connect
6. Download and install Firefox: http://www.mozilla.org/en-US/firefox/new/

1. **Set up your environment variables for Java and Maven:**

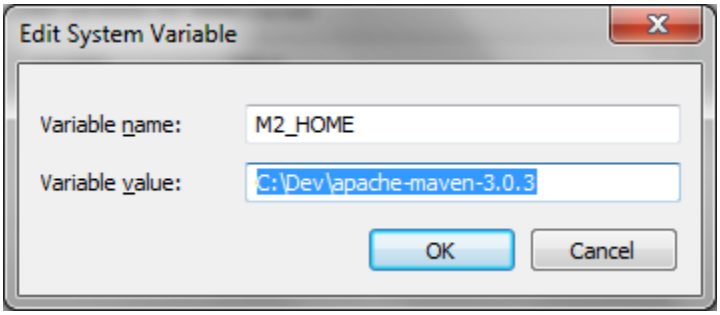
Once you have downloaded and installed Java and Maven

In Windows 7 go to Control Panel → System and Security → System → Advanced System Settings → Environmental Variables

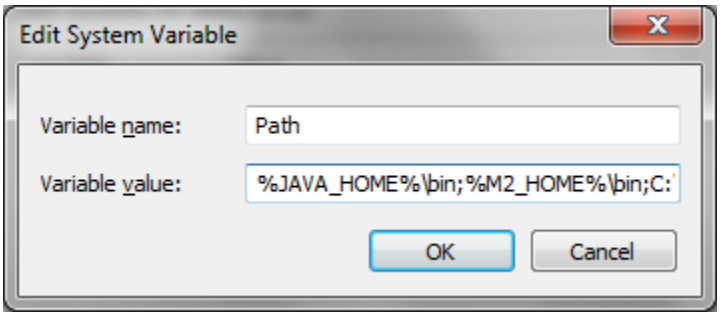
Add JAVA_HOME to your environment variables



Add M2_HOME to your environment variables for Maven



Add JAVA_HOME path and M2_HOME to your path



Note: To Validate your installation of java; open a command prompt and run the command: java –version

You should get something like:

```
java version "1.7.0_02"
Java(TM) SE Runtime Environment (build 1.7.0_02-b13)
Java HotSpot(TM) 64-Bit Server VM (build 22.0-b10, mixed mode)
```

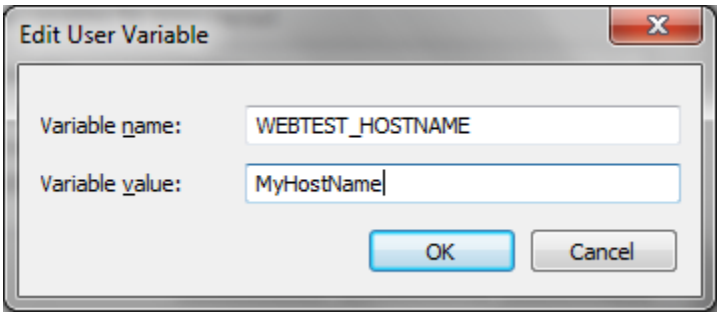
To validate your Maven installation, open a command prompt and run the command: mvn –version

You should get something like:

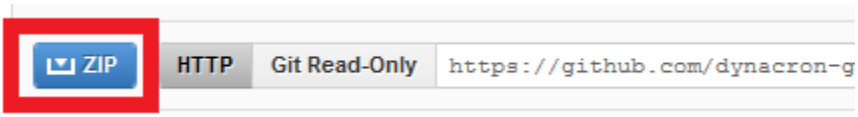
```
Apache Maven 3.0.3 (r1075438; 2011-02-28 09:31:09-0800)
Maven home: C:\DevEnv\apache-maven-3.0.3
Java version: 1.7.0_02, vendor: Oracle Corporation
Java home: C:\Program Files\Java\jdk1.7.0_02\jre
Default locale: en_US, platform encoding: Cp1252
OS name: "windows 7", version: "6.1", arch: "amd64", family: "windows"
```

2. **Set up your environment variables for WEBTEST_HOSTNAME:**

Add WEBTEST_HOSTNAME to your environment variables, for running the tests (your machine name for this exercise)



3. **Download Dynacron Group's sample Web tests** from the Dynacron Group GitHub location: https://github.com/dynacron-group/webtest-quickstart by clicking on the Zip button



Unzip the package to your development environment

4. **Build and execute the tests locally**
   a- Open a command prompt
   b- Navigate to the location of the unzipped folder of the "dynacron-group-webtest-quickstart" in my setup it's "C:\DevEnv\dynacron-group-webtest-quickstart-39a8390>"
   c- Type the command: mvn clean verify
   d- Downloading resources for the first time may take a few minutes.
   e- Once all the downloads are completed you should see Firefox launch and the tests get executed.

At this point you have done the following:

1. Launched and hosted a web page
2. Ran tests on the page hosted locally on your machine (Hello World html page)
3. Ran tests on the Dynacron Group simple test html page (public facing page)

4. Ran tests on Google page

You should see something like:

```
Tests run: 8, Failures: 0, Errors: 0, Skipped: 0
[INFO]
[INFO] --- cargo-maven2-plugin:1.1.3:stop (stop) @ webtest-quickstart ---
[INFO] [talledLocalContainer] Tomcat 7.x is stopping...
[INFO] [talledLocalContainer] Tomcat 7.x is stopped
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time: 1:00.565s
[INFO] Finished at: Fri Jan 13 11:18:53 PST 2012
[INFO] Final Memory: 20M/84M
[INFO] ------------------------------------------------------------------------
```

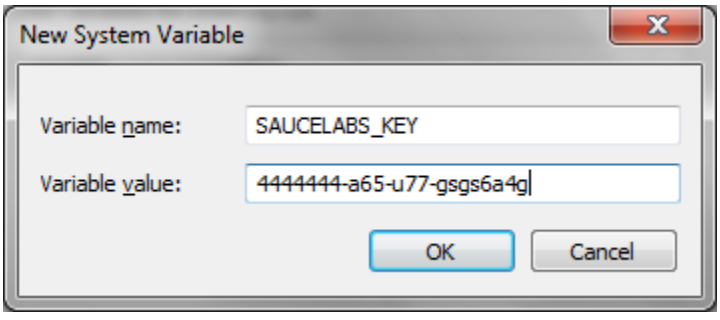
Now suppose you want to run one test (SeleniumIT.java) and not the whole suite of tests, and suppose you want to run the local test on the page hosted by you? You can do that by following these steps:

1. Open a command prompt and navigate to the location of the unzipped folder of the "dynacron-group-webtest-quickstart"
2. Type the command: mvn -Dit.test=SeleniumIT verify
3. You should see the browser launch and your test run

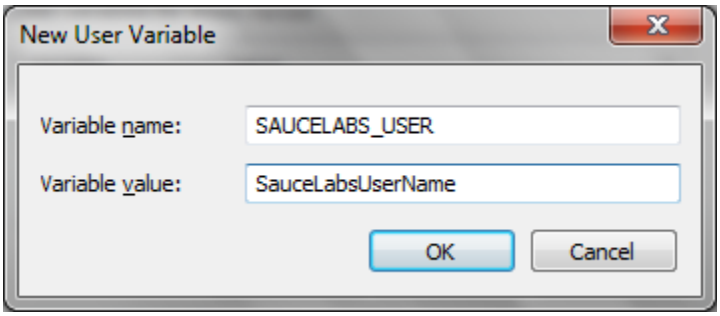
Let's get setup to run the tests in Saucelabs using multiple platforms and multiple browsers.

1. **If you have not done so already, now would be a great time to set up your SauceLabs account**

Once you get your Account UserID and Account API Key add the SAUCELABS_KEY to your environment variables



Add the SAUCELABS_USER to your environment variables



2. **Launch Sauce Connect**
    a. Download Sauce Connect to your local dev environment.
    b. Login to Saucelabs and go to the page https://saucelabs.com/docs/sauce-connect
    c. Copy the Sauce connect command generated for you on the sauce connect page
    d. Using the Command Prompt navigate to the location of your Sauce-Connect.jar
    e. Launch Sauce connect by pasting the command in your command prompt (Example: java -jar Sauce-Connect.jar hostname API key)
    f. Sauce Connect will display 2012-01-13 13:53:56,568 - Connected! You may start your tests.
3. **Run the tests in Saucelabs**
    a. Open a command prompt and navigate to the location of the unzipped folder of the "dynacron-group-webtest-quickstart"
    b. Type the command: mvn clean verify –P sauce-alltarget
    c. The tests will run in the saucelabs environment
    d. Log into your account in Saucelabs and view the tests by going to https://saucelabs.com/jobs
    e. You can view the test log and test videos by clicking on the test you want to view

Once the test is completed the command prompt will display something like:

```
Tests run: 36, Failures: 0, Errors: 0, Skipped: 0
[INFO]
[INFO] --- cargo-maven2-plugin:1.1.3:stop (stop) @ webtest-quickstart ---
[INFO] [talledLocalContainer] Tomcat 7.x is stopping...
[INFO] [talledLocalContainer] Tomcat 7.x is stopped
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time: 1:01.068s
[INFO] Finished at: Fri Jan 13 14:20:23 PST 2012
[INFO] Final Memory: 22M/167M
[INFO] ------------------------------------------------------------------------
C:\DevEnv\dynacron-group-webtest-quickstart-39a8390>
```

Jobs page in Saucelabs https://saucelabs.com/jobs:

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Test Statistics

TEST STATUS	TIME AVERAGES	TIME MAXIMUMS
Queued - 0 Running - 0	Waiting - 0 secs Running - 0 secs	Waiting - 0 secs Running - 0 secs

Tests (Search) All | Failed | Passed | Builds | Filters

Status	Name	Environment	Finished	Duration	Tags	Links
finished	AdamHerbst-SeleniumIT	Windows 2003 - iexplore 8.	Jan 11 2012 13:30:35	29s	AdamHerbst	Video | Log
finished	AdamHerbst-SeleniumIT	Windows 2003 - iexplore 7.	Jan 11 2012 13:30:36	30s	AdamHerbst	Video | Log
finished	AdamHerbst-SeleniumIT	Windows 2008 - iexplore 9.	Jan 11 2012 13:30:57	51s	AdamHerbst	Video | Log
finished	AdamHerbst-SeleniumIT	Windows 2003 - chrome	Jan 11 2012 13:30:42	36s	AdamHerbst	Video | Log
finished	AdamHerbst-SeleniumIT	Windows 2003 - firefox 5.	Jan 11 2012 13:30:41	35s	AdamHerbst	Video | Log

Note: The profile sauce-alltarget runs in parallel using IE8, IE9, IE7, Chrome, and firefox5 you can chose to run a different profile from a list of profiles in the pom.xml of the project.

Example: mvn clean verify –P sauce-ff7 (will run in saucelabs Firefox 7)

Credits

This tutorial written by Adam Herbst & Osama Khalaf.

Parallel Webtest & Webtest QuickStart by Will Iverson & David Drake.

For more information, please contact Dynacron Group, http://www.dynacrongroup.com/