## Using Selenium Builder with DevTest 9.5.1

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August 2016



#### Agenda

**0. INTRODUCTION** 

**1. INSTALL THE SELENIUM BUILDER PLUGIN FOR FIREFOX** 

2. INSTALL THE CA APPLICATION TEST FOR SELENIUM BUILDER 1.0 PLUGIN

**3. CREATE A RECORDING IN FIREFOX USING SELENIUM BUILDER** 

4. EXPORT THE RECORDING FROM SELENIUM BUILDER

5. IMPORT THE RECORDING TO DEVTEST WORKSTATION

6. EDIT THE RECORDED TEST STEPS IN DEVTEST WORKSTATION

7. INSTALL A WEB BROWSER DRIVER

8. RUN THE TEST IN DEVTEST WORKSTATION



#### Introduction

#### • What is Selenium?

- Open source tool to create automated, cross-browser functional tests
- Record and playback test cases for web-based applications through a UI without writing any code
- Why use Selenium with DevTest?
  - Quickly and easily create test cases and import into DevTest
  - Excels at Web application regression testing using various browsers
- The CA Application Test plugin lets you export the recording so you can edit and run these test cases in DevTest

NOTE: Web browser support for recording Selenium tests is limited to Firefox. After you import these steps to DevTest you can run the test cases on Chrome, Firefox, Safari, or Internet Explorer.



### 1. Install the Selenium Builder plugin for Firefox

- Install the Mozilla Firefox Web-browser (version 43 to 45)
  - https://www.mozilla.org/en-US/firefox/new/
- Install the Selenium Builder add-on for Firefox (version 3.0.9)
   *https://addons.mozilla.org/en-US/firefox/addon/selenium-builder/*
- Run the add-on at least once before installing the CA Application Test for Selenium Builder 1.0 Plugin
  - From the Firefox menu select *Developer*  $\rightarrow$  *Launch Selenium Builder*



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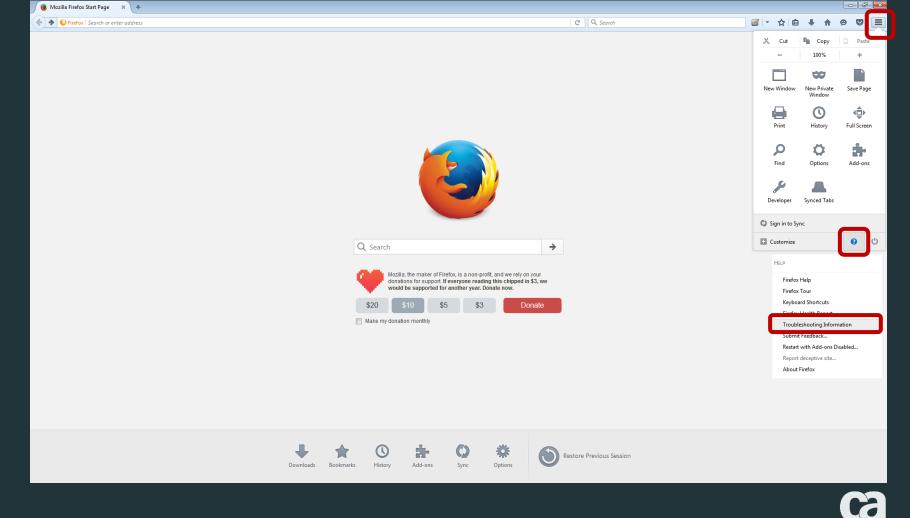
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# Install the CA Application Test for Selenium Builder Plugin

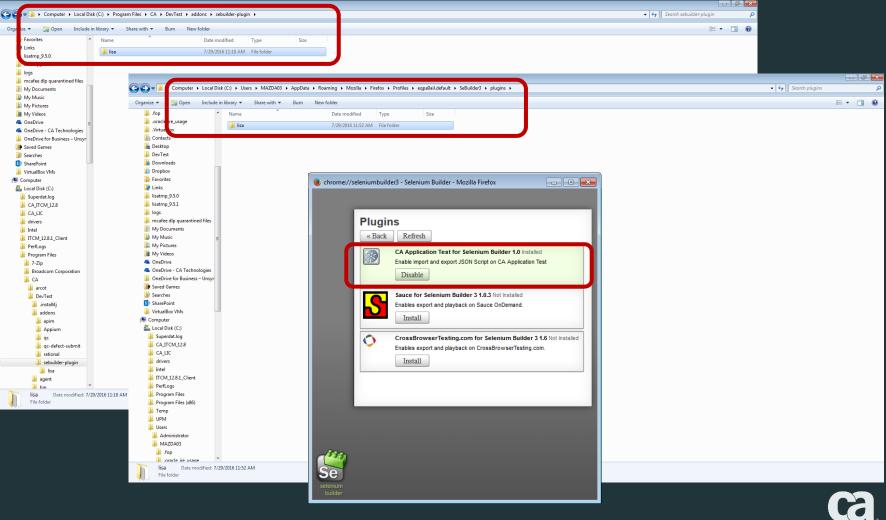
- Plugins extend Selenium Builder's functionality (Sauce, GitHub, etc.)
- Go to the <DEVTEST\_HOME>\addons\sebuilder-plugin directory
  - Typically C:\Program Files\CA\DevTest\addons\sebuilder-plugin
- Copy the entire *lisa* directory (and its contents)
- Go to your <*Firefox profile*>\*SeBuilder3*\*plugins* directory
  - To find your Firefox Profile Folder: From Firefox, select Help ightarrow Troubleshooting Information
  - Example: C:\Users\<USERNAME>\AppData\Roaming\Mozilla\Firefox\Profiles\eqpa9ail.default
- Paste the *lisa* directory into *<Firefox* profile>\SeBuilder3\plugins
- Verify that the plugin was successfully installed
  - From the Firefox menu, select Developer ightarrow Launch Selenium Builder ightarrow Manage Plugins

https://docops.ca.com/devtest-solutions/9-5/en/reference/test-step-descriptions/selenium-integration-steps/import-a-selenium-builder-json-into-caapplication-test/install-the-ca-application-test-for-selenium-builder-1-0-plugin

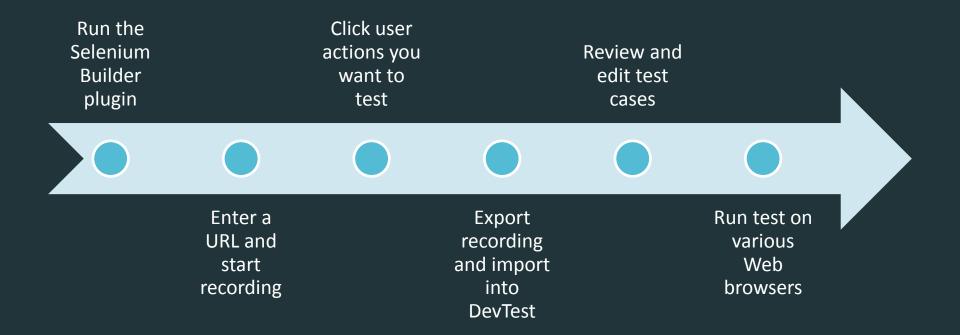




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# Once installed, follow these steps to record and play back test cases in DevTest

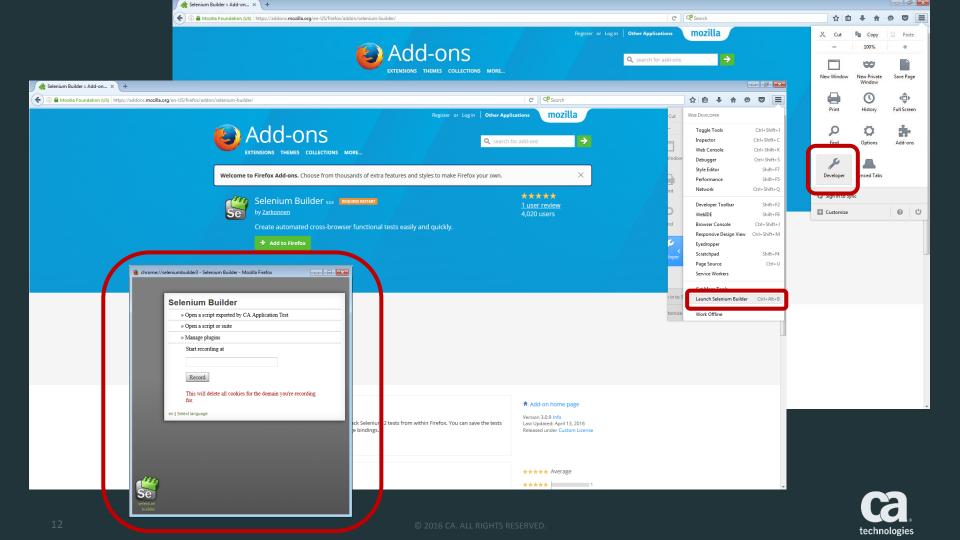


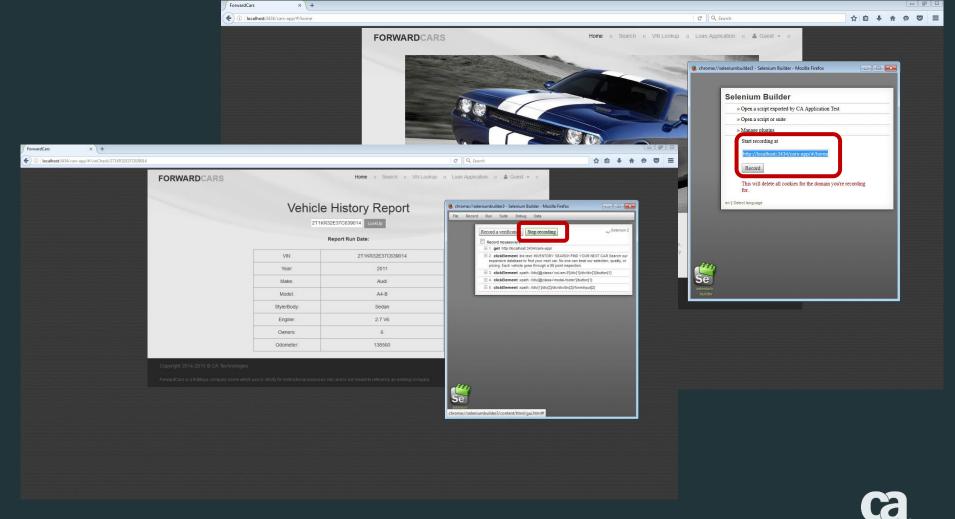


- 3. Create a Recording in Firefox using Selenium Builder
- In Firefox, select *Developer*  $\rightarrow$  *Launch Selenium Builder*
- Enter the URL of the web application you want to test in the Start recording at field
- Click Record
- Perform the actions you want to test on the Web application
- When you are done, return to Selenium Builder and click Stop Recording

https://docops.ca.com/devtest-solutions/9-5/en/reference/test-step-descriptions/selenium-integration-steps/create-and-export-a-selenium-builderrecording







#### 4. Export the Recording from Selenium Builder

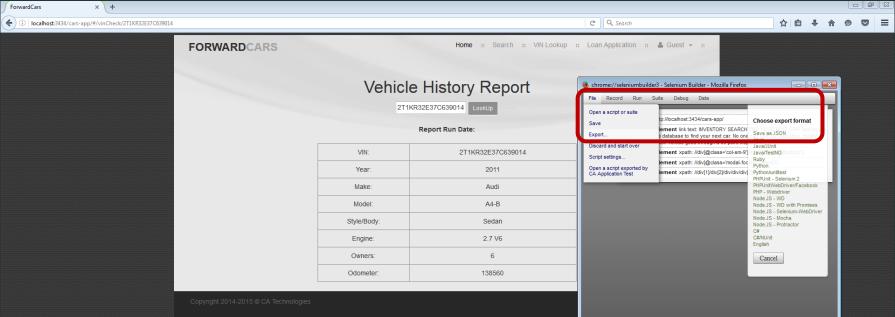
#### • Click File $\rightarrow$ Export $\rightarrow$ Save as JSON

- Test cases recorded in the Selenium Builder plugin can be saved in various formats, but must be exported as JSON to be used with DevTest
- Once exported, the test cases can be imported into DevTest Workstation for editing and playback
- Test cases can be replayed in various Web browsers such as Firefox, Chrome, and Internet Explorer

# *NOTE: Selenium Builder test scripts must be exported in JSON-based format for editing in DevTest*

https://docops.ca.com/devtest-solutions/9-5/en/reference/test-step-descriptions/selenium-integration-steps/create-and-export-a-selenium-builder recording





ForwardCars is a fictitious company name which use is strictly for instructional purposes only and is not meant to reference an existing compan





#### Notes about the JSON script Format

- Selenium Builder JSON-based scripts can be played back by a standalone interpreter so you can view and edit them in DevTest
- Selenium 2 JSON scripts contain:
  - A list of steps (such as "get" or "clickElement") which have named parameters
  - Locators which describe how to find a particular DOM element (a link to click, for example) and contain a type (id, name, link text, css selector, or xpath) and value
  - Negation for Assertion and Verification steps to invert their condition
  - Variables to store values referenced in parameters (such as checking that a page's title appears in the page itself)
  - Version information for compatibility between Selenium versions

<u> https://github.com/admc/se-builder/wiki/JSON-Forma</u>

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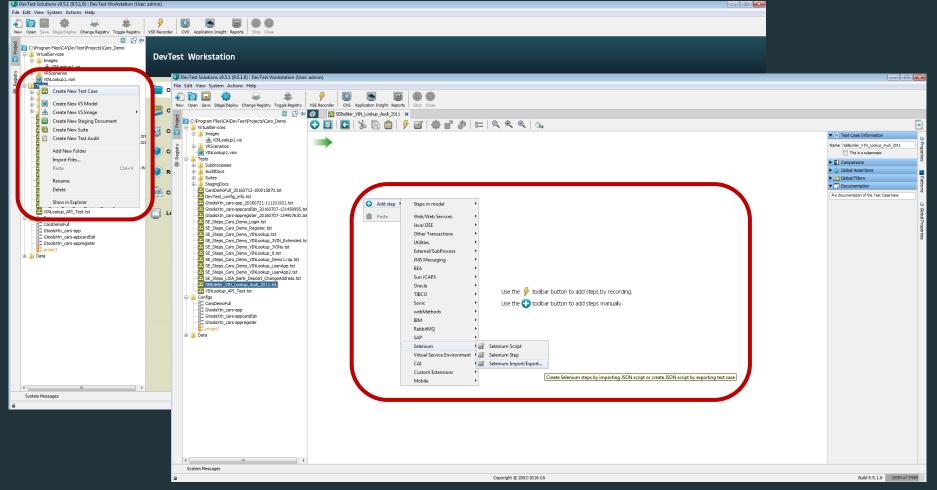


#### 5. Import the Recording to DevTest Workstation

- In DevTest Workstation, create a new test case
  - Right-Click on Tests  $\rightarrow$  Create New Test Case
- Then add the Selenium test steps you exported previously
  - − Right-Click in the blank space → Add Step → Selenium → Selenium
     Import/Export

https://docops.ca.com/devtest-solutions/9-5/en/reference/test-step-descriptions/selenium-integration-steps/import-a-selenium-builder-json-into-ca application-test





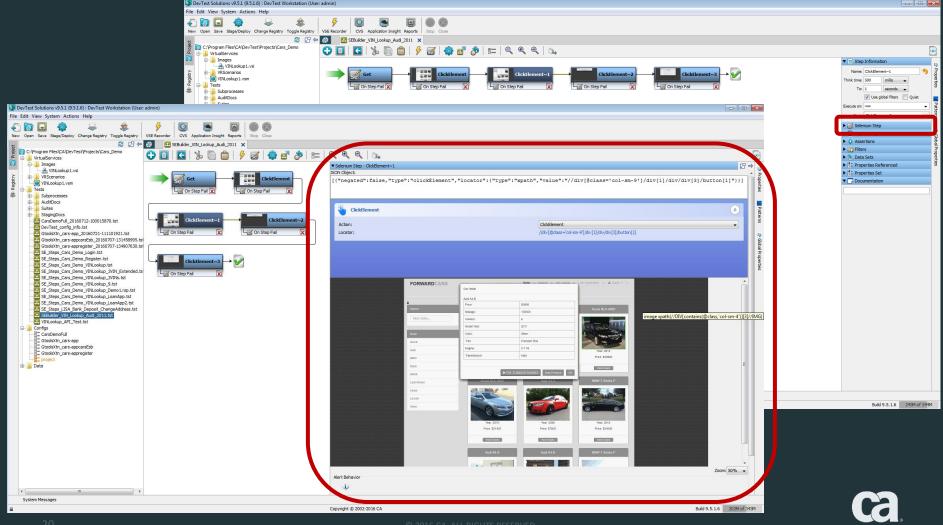


## 6. Edit the Recording in DevTest Workstation

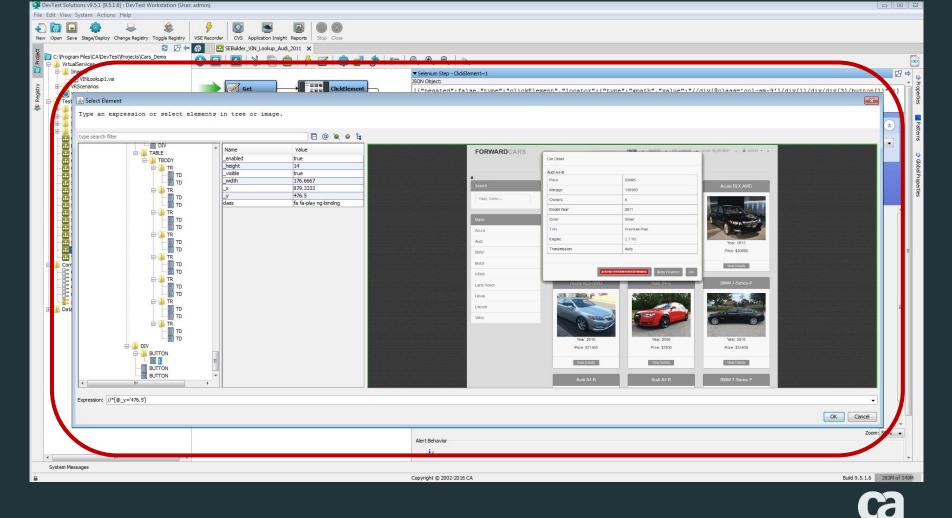
- Once a recording is imported, click on a test step and then click the Selenium Step tab in the right panel
- The details for the step are shown, including:
  - The JSON script that can be modified in-line
  - The step actions or gestures that can be modified
  - A screenshot of the test step
- Some actions can be edited using the XPath Editor
  - Click on the Locator link to open the XPath editor and edit the test step
- To add a new step
  - Right-click on a step and select Add Step after <STEP\_NAME>
  - You can drag-and-drop steps to change the order
  - You can import additional recordings and merge steps together into test scripts

https://docops.ca.com/devtest-solutions/9-5/en/reference/test-step-descriptions/selenium-integration-steps/import-a-selenium-builder-json-into-caapplication-test/edit-selenium-test-steps-within-ca-application-test





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## 7. Install the Browser Driver

- Recordings can be replayed in various Web browsers including Firefox, Chrome, Safari, and Internet Explorer
- To replay in a browser other than Firefox:
  - Download the Web browser driver
    - Chrome
      - https://sites.google.com/a/chromium.org/chromedriver/downloads
    - IE
      - http://selenium-release.storage.googleapis.com/index.html?path=3.0
  - Add the following properties to the project configuration file
    - Key: *selenium.browser.type* 
      - Value: Chrome (or IE, Safari)
    - Key: selenium.chrome.driver.path
      - Value: <PATH\_TO\_DRIVER>
      - Example: C:\lisa-se\chromedriver.exe



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ChromeDriver - Chrome	• WebDriver for Search this site
CHROMEDRIVER CAPABILITIES & CHROMEOPTIONS CHROME EXTENSIONS	Downloads
CONTRIBUTING DOWNLOADS	Latest Release: ChromeDriver 2.23
GETTING STARTED     ANDROID	Supports Chrome v49-52
CHROMEOS	Changes include:
EOGGING PERFORMANCE LOG	<ul> <li>A fix for ChromeDriver on Android 6.0 Marshmallow, which sometimes causes session initialization failures</li> <li>A fix for a bug where console log messages were not being seen by ChromeDriver</li> </ul>
MOBILE EMULATION	For details, please refer to the notes. The latest version is recommended, and bugs will not be fixed in previous versions.
NEED HELP?	
CHROME DOESN'T START OR CRASHES IMMEDIATELY	Previous Releases
CHROMEDRIVER CRASHES CLICKING ISSUES	All ChromeDriver releases are hosted on Google Storage: chromedriver.storage.googleapis.com
DEVTOOLS WINDOW KEEPS CLOSING OPERATION NOT SUPPORTED WHEN	ChromeDriver 2.22
USING REMOTE DEBUGGING	Changes include many bug fixes, particularly for Chrome 51+. This includes fixes for various scenarios that caused ChromeDriver to timeout and/or hang.
	ChromeDriver 2.21
	Changes include numerous bug fixes, and improved support for recent versions of Chrome. A few changes were made to bring ChromeDriver in line with other WebDriver implementations, and may break some existing tests:
	<ul> <li>Calls to GetTitle will now return a blank string if the page has no title. Previous versions returned the URL of the page in this case. Tests that need to check for the URL should do so explicitly.</li> <li>Calls to GetUrl will now return the URL of the top-level browsing context, rather than the URL of the current frame. This matches what is shown in the browser's address bar, and tests that need to check for the URL of the frame can evaluate the JS expression window.location.href.</li> </ul>

#### ChromeDriver 2.20



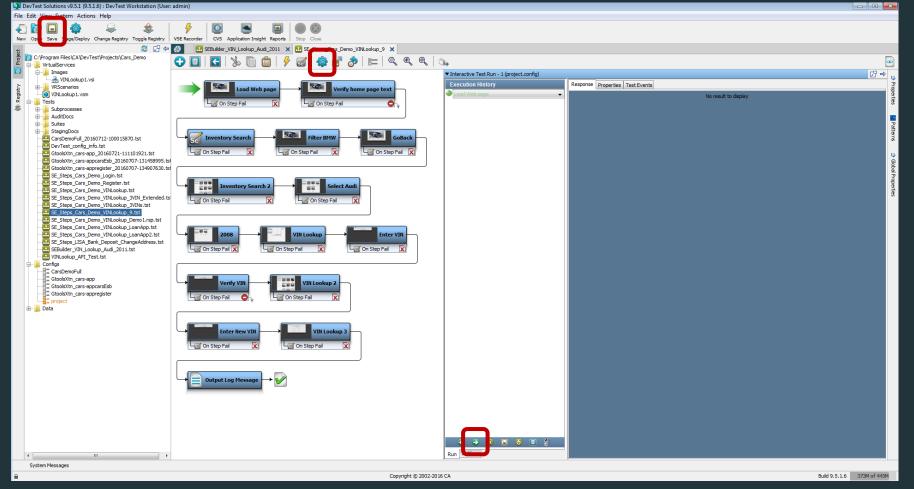
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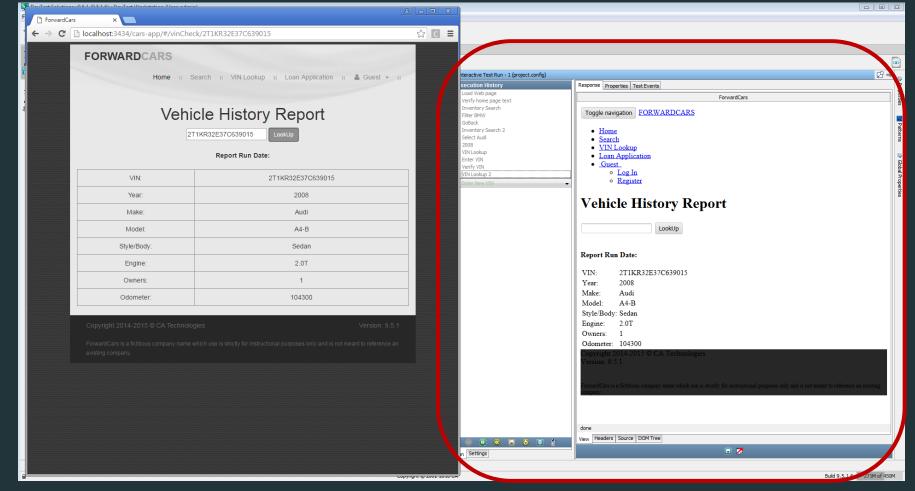
- 8. Run the Test in DevTest Workstation
- Save the Test by clicking *Save* on the toolbar in the top left corner
- Start an Interactive Test Run (ITR) and observe test steps as they are executed
  - Select ITR (gear icon) in the toolbar to open the ITR tab
  - Click the *Play* button to start the test
  - Observe the test actions in the Web browser and follow the steps in the ITR tab on the right

https://docops.ca.com/devtest-solutions/9-5/en/using/using-ca-application-test/using-devtest-workstation-with-ca-application-test/running-test-casesand-suites/run-a-selenium-integration-test-case











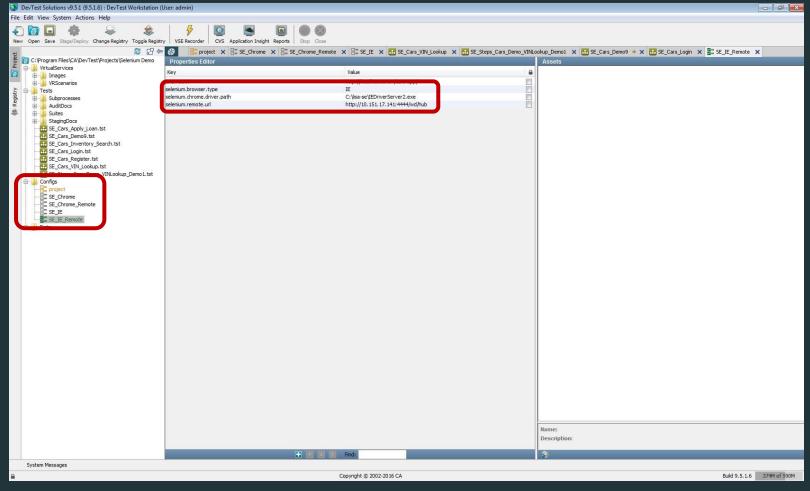
#### 8. Run the Test in a Remote Browser

- On the local computer, add the following properties to the project configuration file you use for running test cases on the remote browser and make it active:
  - Key: selenium.broswer.type
    - Value: Chrome
  - Key: selenium.chrome.driver.path
    - Value: C:\*lisa-se*\chromedriver.exe
  - Key: selenium.remote.url
    - Value: http://<remote\_hostname>:4444/wd/hub

NOTE: If you plan to run Selenium Integration tests on multiple browsers (e.g., Chrome and IE), create a separate project configuration file for each browser type (e.g., SE\_Chrome.config and SE\_IE.config). You can then run the tests on multiple browsers by making different configuration files active for each test run.

https://docops.ca.com/devtest-solutions/9-5/en/using/using-ca-application-test/using-devtest-workstation-with-ca-application-test/running-test-casesand-suites/run-a-selenium-integration-test-case#RunaSeleniumIntegrationTestCase-RunaSeleniumIntegrationTestonaRemoteBrowser





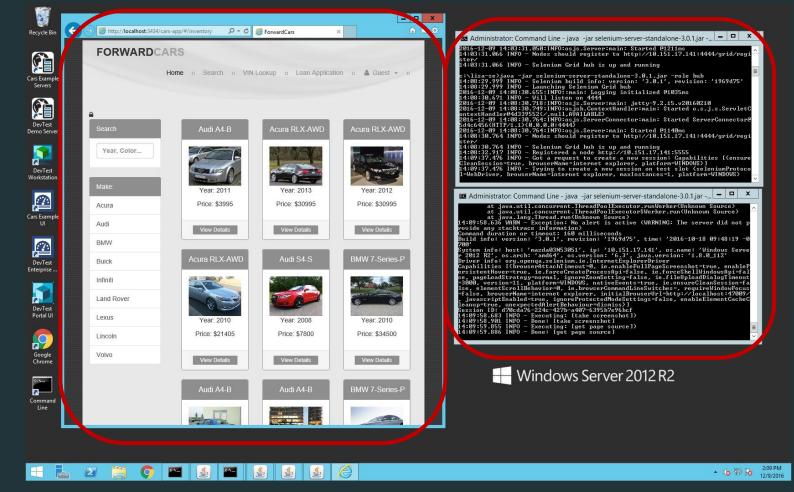


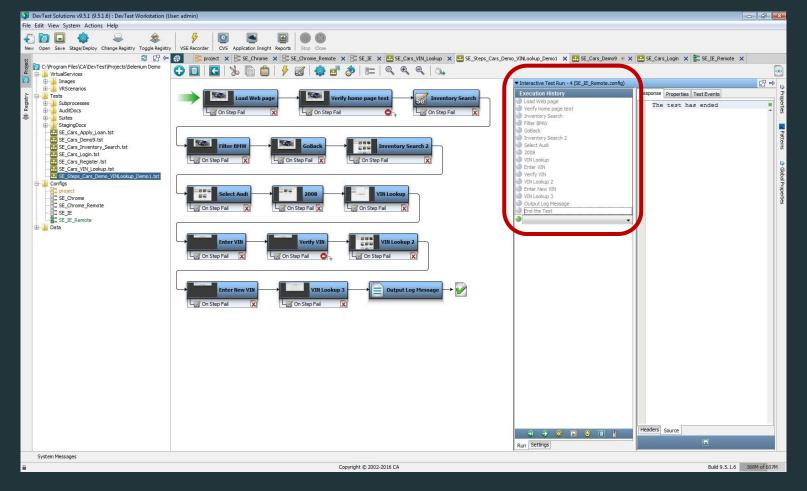
#### 8. Run the Test in a Remote Browser (Cont.)

- Download the Selenium Server and save it to the remote computer
  - Go to http://www.seleniumhq.org/download/
  - Locate the Selenium Standalone Server .jar file and download it
    - selenium-server-standalone-3.0.1.jar
- Verify that the driver for the browser that you want to use is available on the remote computer
  - chromedriver.exe
- Install Java Runtime Environment on the remote computer
  - http://www.oracle.com/technetwork/java/javase/downloads/index.html
- Install Chrome browser on the remote computer
  - https://www.google.com/chrome/browser/desktop/
- On the **remote** computer, run the following command from a command prompt:
  - java -jar selenium-server-standalone-3.0.1.jar -role hub
- On the **remote** computer, run the following command from a **new** command prompt:
  - java -jar selenium-server-standalone-3.0.1.jar -role node -hub http://localhost:4444/grid/register
- Run the test and view the test being run on the remote computer in the Chrome browser











## Things to Remember

- Installation
  - The CA Application Test for Selenium Builder Plugin is a plugin for Selenium Builder (plugin for a plugin)
- Browser Support (drivers)
  - Record in Firefox
  - Playback in Firefox, Chrome, Safari, or IE
- Assert vs. Verify
  - Verify fails at end of the test when step fails
  - Assert stops test when step fails
- Click vs. ClickAndWait
  - Click button may fail Assert/Verify
  - Use ClickAndWait with timeout instead

- Steps vs. Scripts
  - A Selenium Step is displayed as a single action (easy to edit)
  - A Selenium Script is a series of steps displayed together as one step (easy to change inputs using CSV data file)
  - Both can be linked together to form test cases in DevTest
- Selenium issues (it is Open Source, after all)
  - Switch to frames (use multiwindow instead)
  - Script playback in different browsers (requires Web drivers and Properties)
  - Recording not starting (disable and reenable)





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