AUTOMATED TESTING AND SELENIUM CONFIGURATION

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Abstract

Testing has become the most important part in the case of software development life cycle. Good quality of software is given with greater attention, which is resulting in reduction of software error in order to make quality software. Software testing is the process of testing bugs in lines of code of a program that can be performed by manual or automation testing. Automation testing helps to generate the testing reports in an efficient way rather than manual testing. These tools are widely used for testing graphical user interface and functionality of web-based applications developed for all types of industries such as e-commerce, travel, bio tech, pharmaceuticals, and other mechanization.

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1. Introduction

Software testing is a technique of estimating a system or its module with the purpose of finding bugs and errors in the module. Software testing is also used to test the software for other software quality factors like reliability, usability, integrity, security, capability, efficiency, portability, maintainability, compatibility etc. Testing identifies faults, whose removal increases the software quality by increasing the software's potential reliability. Testing is the measurement of software quality. We measure how closely we have achieved quality by testing the relevant factors such as correctness, reliability. Selenium is a portable software testing framework for web applications. Selenium contributes a record appliance for authoring tests without learning a test scripting language such as Selenium IDE. Selenium is a collection of various software tools each with a different approach to support test automation. But here we present that's the test cases can be automated on the multiple browsers according to users choice If user want to run on Mozilla or Google chrome using cross browsers platform. Mining specifications from such tests can be very useful for understanding, verifying, and debugging the system under test.

2. Research Method

Selenium automation testing tool using all object oriented programming language such as Java, Python, Perl, Ruby, PHP, .Net…etc, except C++. Selenium is an open source automated testing suite for web applications across different browsers and platforms. Selenium is a type of functional web testing tool. Selenium is not only a single tool which has four components: Selenium Grid, Selenium Remote control, Selenium IDE and Selenium Web Driver. Selenium Integrated development environment is a Firefox plug-in which can be used to develop test cases, Selenium Remote control run tests inside every JavaScript compatible browser using a wide range of programming language, Web Driver was developed for better support dynamic web pages where elements of a page may change without the page itself being reloaded and Selenium Grid allows you to run your tests on different machines against different browsers. The selection of particular automated testing tool is based on the type of application we are testing and the cost associated with the tool. In the present work, we have evaluated the open source software testing tool Selenium. Our main motive is to perform black box testing on the web application. Web Applications only it supports addition of plugins to achieve desired results that are not provided by Selenium Core. Since, selenium is open source, plug-ins are also available

free of cost. Selenium supports several operating system like Windows PC/MAC/UNIX Platforms. here test cases are splits into various modules, Keywords and data are strung together in an excel sheet to form automated test frameworks. So it facilitates the technique of automation test scripts. It also records the success and failure of test cases and reports generation using testing.

Selenium Tool Suit

Selenium is composed of multiple software tools. Each has specific role.

Selenium RC

Selenium Remote Control (RC) is an automation test tool that allows us to write automated web application UI tests in any programming language except C and C++, against any HTTP website using any mainstream Java script-enabled browser. Selenium Remote control can be classified into two parts.

A server which automatically launches and kills browsers and act as an HTTP proxy for web requires from browsers.

(ii) Choose client libraries for our known computer language Architecture representation of selenium remote control.

Selenium Web Driver

Selenium Web Driver is the successor to Selenium RC which sends commands directly to the browser and retrieves results.

Selenium Grid

It is a tool used to run parallel tests across different machines and different browsers concurrently which results in minimized execution time. Selenium grid allows running test in parallel that is different tests can run at the same time on different remote machines.

Features of Selenium Grid

 a) It enables simultaneous running of tests in multiple browsers and environments.

b) It saves time enormously.

c) It utilizes the hub-and-nodes concept. The hub acts as a central source of Selenium commands to each node connected to it

 Selenium IDE

Selenium Integrated Development Environment (IDE) is a Firefox plug-in that lets testers to record their actions as they follow the workflow that they need to test. It is a prototyping tool for building test scripts. It is a Firefox plug-in and provides an easy to use interface for developing automated tests. It has recoding feature, which records user actions as they are performed and then exports them as a reusable script. It has save feature that allows users to keep the test in a table based format for later import and execution It provides a Graphical User Interface for recording user actions using Firefox which is used to learn and use Selenium, but it can only support with Firefox browser as other browsers are not supported.

Most commonly used commands

These are the regularly used commands in the Selenium IDE:

open: Used to open a page using a URL.

click: Clicks the object or element in the page.

clickAndWait: Enforce a click operation, and then optionally waits for a new page to load.

verifyTitle: Authenticate the expected title and then continues to run if it fails.

assertTitle: Verifies page title and then stops the execution if it fails.

verifyTextPresent: Verifies that if expected text is present somewhere on the page..

verifyText: Authenticate whether the expected text and its corresponding HTML tag are present on the page

waitForPageToLoad: Recess execution until there is an expected new page loads.

waitForElementPresent: Pauses execution until an expected User Interface element, as defined by its HTML tag, is present on the page.

Play entire test suite. This will sequentially play all the test cases listed the test case pane.

Play current test case. This will play only the currently selected test case in the Test Case Pane

Pause/Resume. This will pause or resume your playback.

Step. This button will allow you to step into each command in your test script

Apply rollup rules. This is an advanced functionality. It allows you to group Selenese commands together and execute them as a single action.

Procedure Of Selenium IDE:-

Firstly put the base URL on the base URL title bar, suppose named(www.google.com)

Any test cases for these sites begin with an open statement should specify a relative url as the argument to open rather than an absolute url.

Selenium IDE will then create an absolute URL by appending the open commands argument onto the end of the value of base URL.

After putting the URL, We apply different commands on browser such assert title, clickandwait etc.

After applying all the test cases, click on run button for executing the test cases.

After successful execution of test case selenium tool shows the green signal otherwise failure test case represent with red signal

Features
• Debug and set breakpoints
• Easy customization through plug-in.
• Flexible test scenario creation
• Powerful correlation engine
• Automatic bottleneck detection
• Supports every maximum web technology
 • Generate load on-premise or in the cloud

Configure selenium RC Tools
Eclipse IDE
Jdk version >=1.5
Selenium Server jar
Selenium java client jar
Jxl jar

junite

Installing Selenium IDE

First download Mozilla Firefox browser form internet.

Then download jar https://selenium-release.storage.googleapis.com/2.53/selenium-java-2.53.1.zip

Go to Mozilla Firefox browser click on open menu then Add-ons (press ctrl+ shift+ a) and download Selenium IDE. Restart now your browser. After restart you will see the Selenium IDE icon under

the Mozilla Firefox Tool Menu.

Open Selenium IDE select it from the Firefox Tools menu. It opens as follows with a popup window.
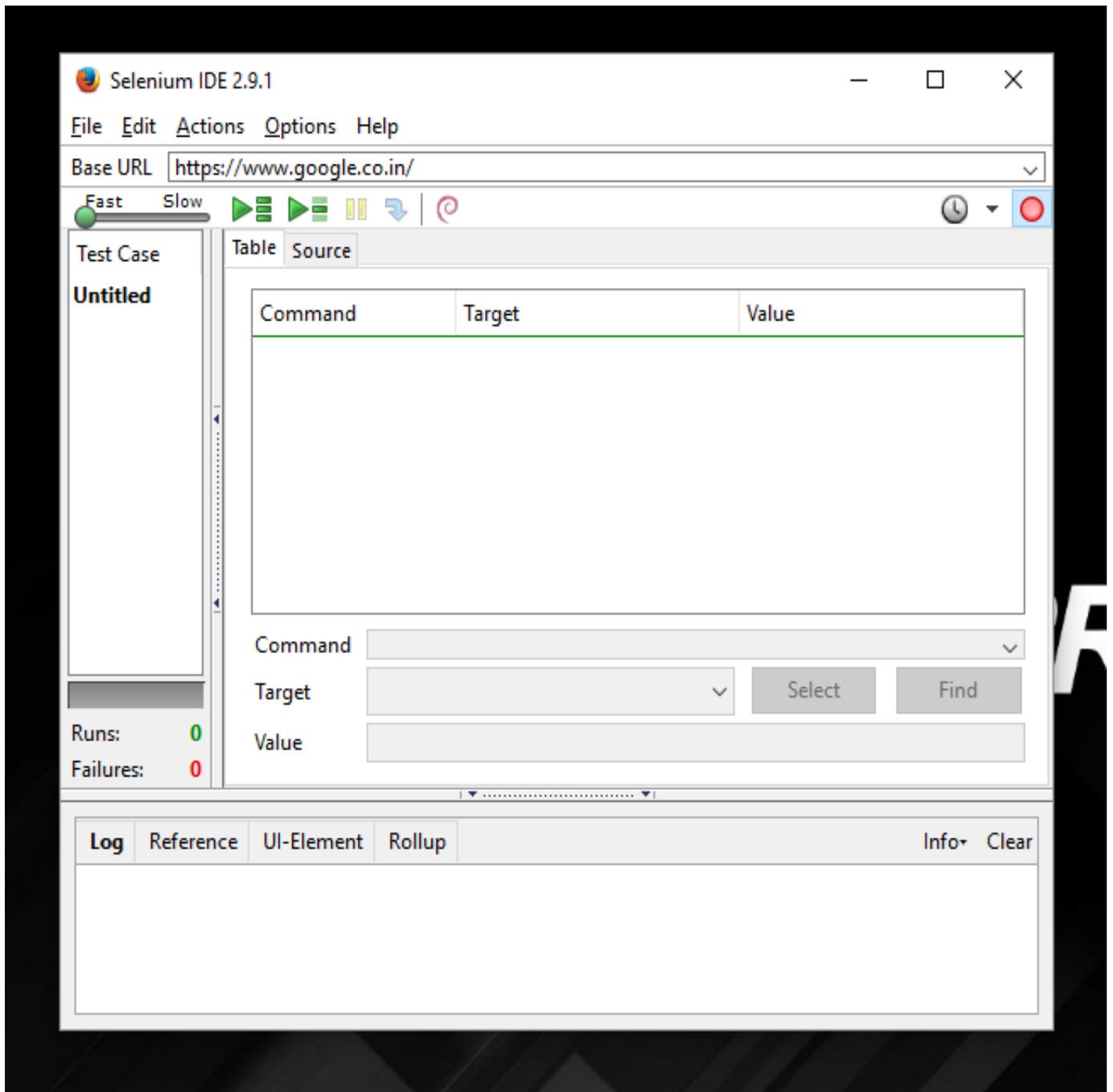
Now you can see menu bar, Tool bar, Test case pane.

Menu Bar

Using these you can add a new Test Case, open a Test Case, save a Test Case, export Test Case in a language of your choice. Edit menu allows copy, paste, delete, undo, and select all operations for editing the commands in your test case.
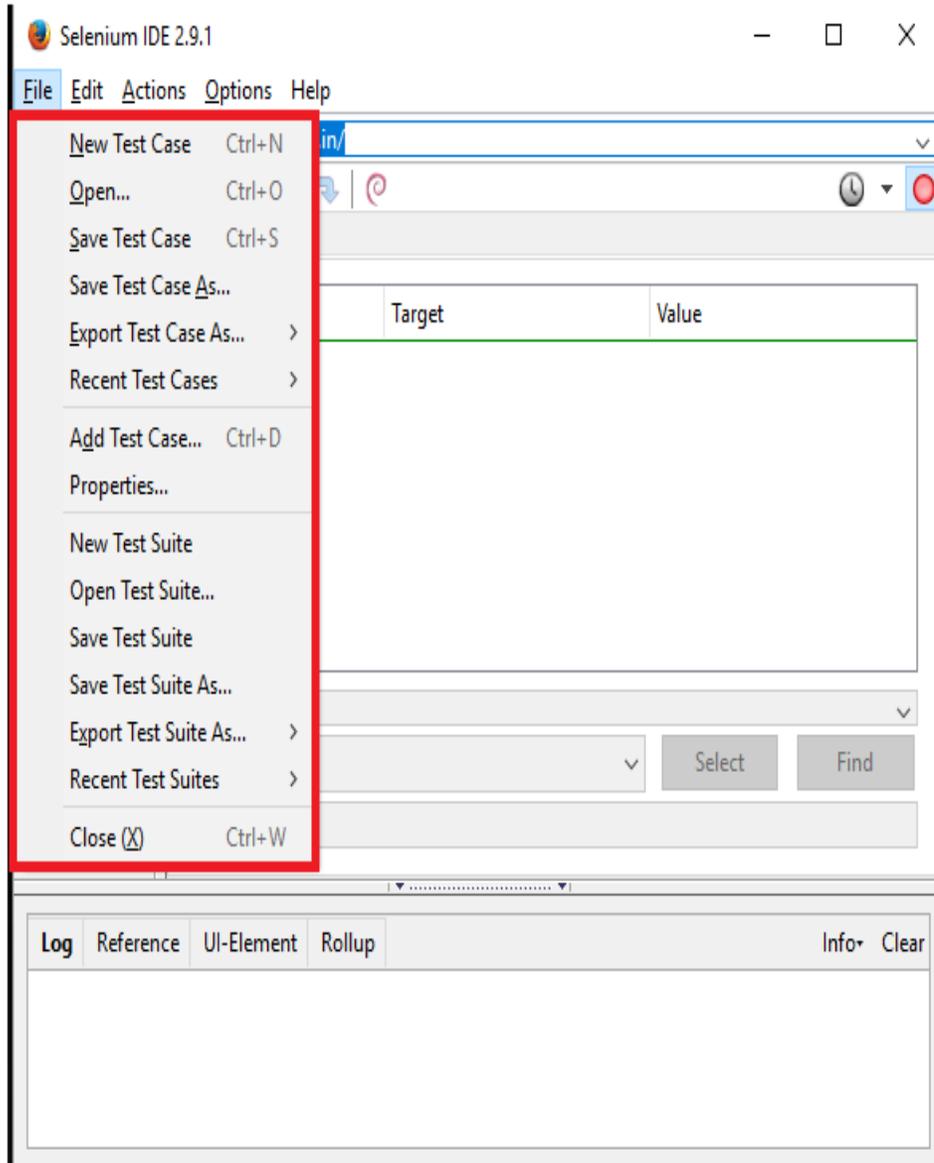
Tool Bar

Tool bar contains buttons for controlling the execution of your test cases and also have a feature for debugging your test cases.
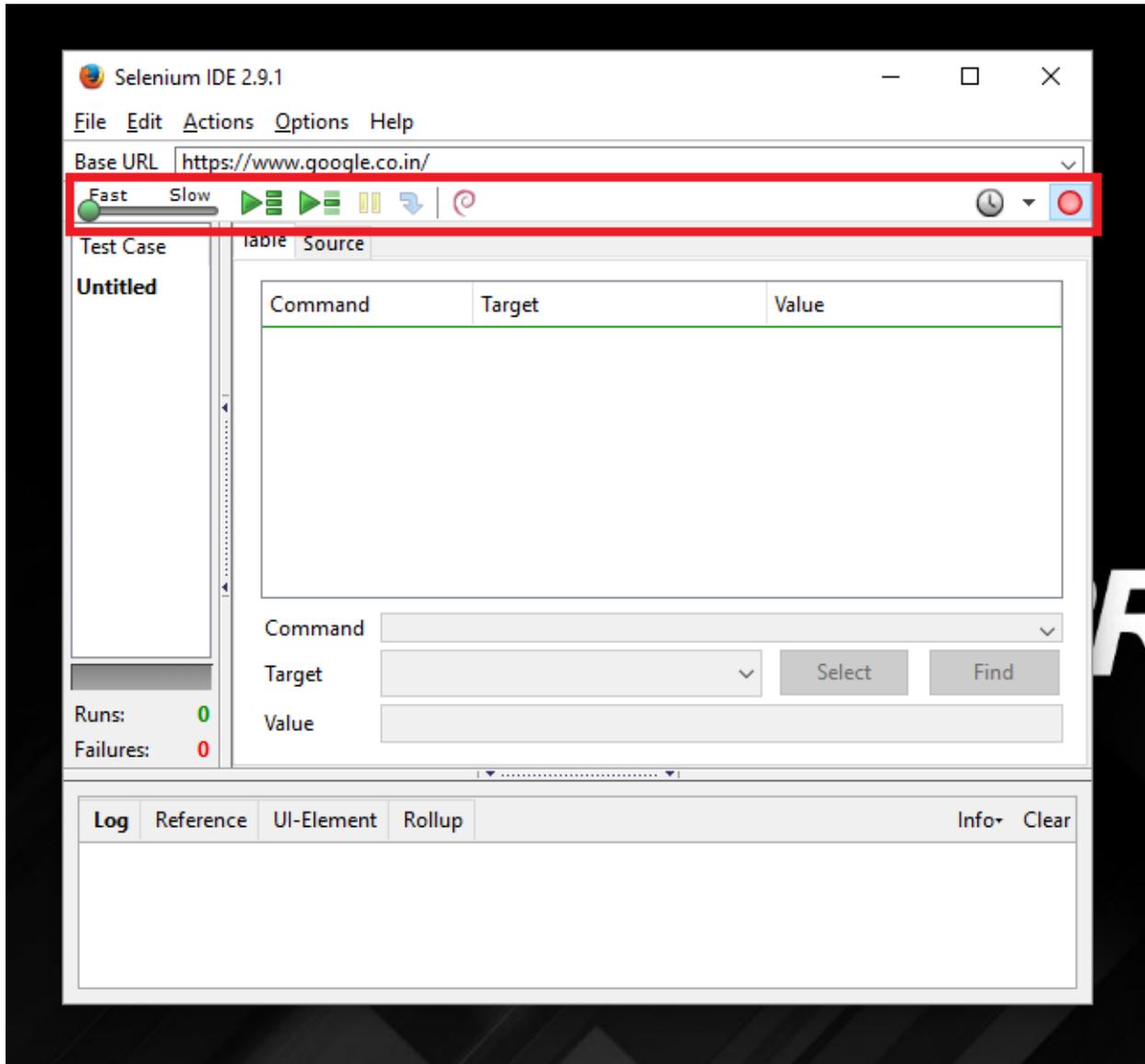
Record: The red record button on the right most for stop recording and start recording.

There is also speed control button controls how fast your test case runs.

Play current test case: Run: When only a single test is loaded this button and the Run All button have the same effect.

Play entire test suite: This will sequentially play all the test cases listed in the Test Case Pane.

Pause/Resume: Allows stopping and re-starting of a running test case.

Step: This button will allow you to step into each command in your test case.

Apply Roll up Rules: This feature allows repetitive sequences of Selenium commands to be grouped into a single action. Detailed documentation on roll up rules can be found in the UI-Element Documentation on the Help menu.

3. Results and Analysis

When we want to understand the value of test automation there are several computational approaches we might employ. Some currently published equations have serious drawbacks and management decisions made based on their use may be flawed. To avoid mistakes, misplaced expectations, and disappointment with automation we need to carefully assess the relevant factors applicable to each test situation, determine if there is cost or gain associated with automation, and estimate the amount of it.

4. Conclusion

Selenium is an open source software and also a web application testing tool . In a very short span of time, Selenium automation testing framework is gaining wide acceptance as a popular and successful mode of website automated testing. Selenium is the best tool for automated testing of Web-sites today. Selenium is a set of tools that supports rapid development of test automation scripts for web based applications. Selenium testing tools provides a rich set of testing functions specifically designed to fulfil needs of testing of a web based application. It is becoming very popular and it is the first/best choice of automation testers as well as organizations for automating the testing of Web Has great flexibility and extensibility. Along with its tight integration with the browser unmatched by available proprietary tools. Today everything is web based thus it is becoming more and more complex. For this, huge information platform, quick release cycle as well as quick regeneration is required. This requires the web application to be comprehensive, sensibility and efficiency.

4. References

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