

Selenium



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Agenda

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- ▶ Selenium Features
- ▶ Installation
 - ▶ Java 8
 - ▶ Selenium IDE
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 - ▶ Selenium Webdriver ..etc
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 - ▶ Selenium RC
 - ▶ Selenium Webdriver
 - ▶ Selenium Grid

What is Selenium

- ▶ Selenium is a free (open source) automated testing suite for web applications across different browsers and platforms.
- ▶ **It was the first cross-platform testing framework that could control the browser from the OS level.**
- ▶ Selenium was **created by Jason Huggins in 2004.**
An engineer at ThoughtWorks
- ▶ Named this program as the **"JavaScriptRunner."**

Selenium Features

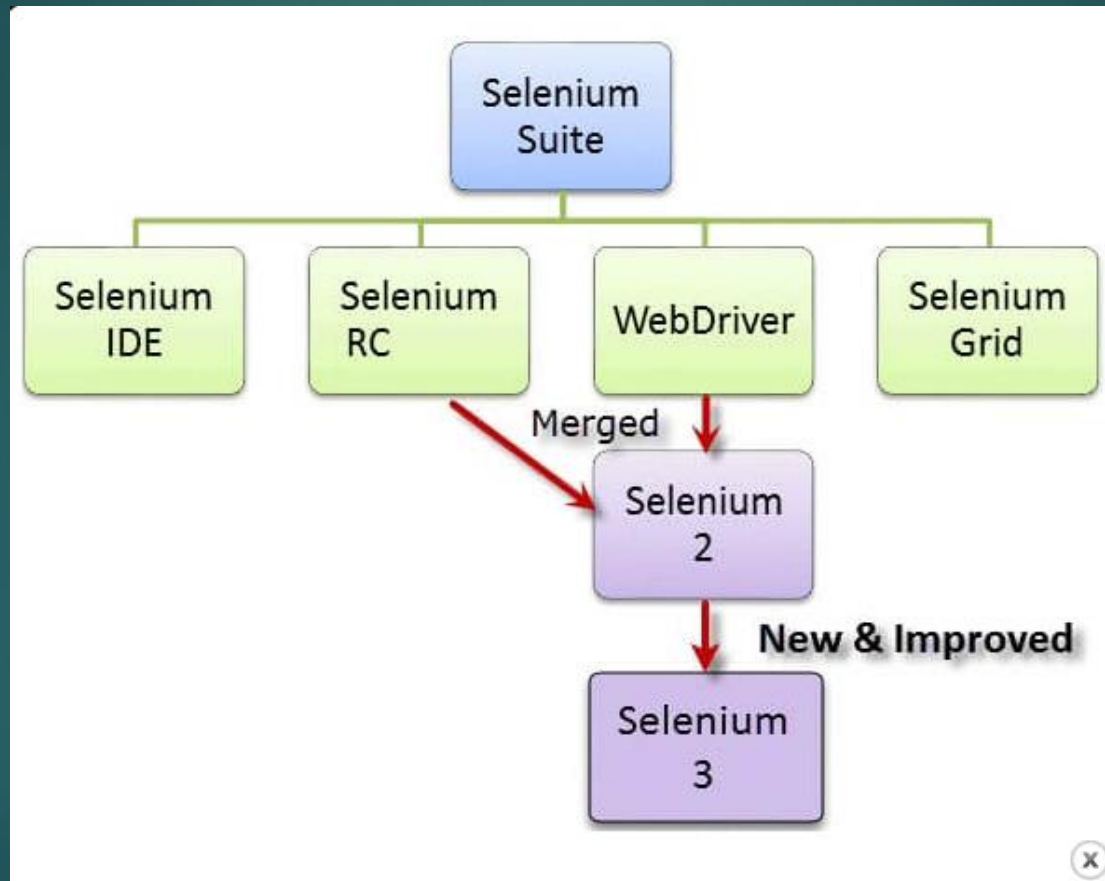
- ▶ Selenium is pure open source, freeware and portable tool.
- ▶ Selenium supports variety of languages that include **Java, Perl, Python, C#, Ruby, Groovy, Java Script, and VB Script**. etc.
- ▶ operating systems like **Windows, Macintosh, Linux etc.**
- ▶ supports many browsers **like Internet explorer, Chrome, Firefox, Opera, Safari** etc.
- ▶ integrated with **ANT or Maven** kind of framework for source code compilation.
- ▶ Selenium can be integrated with **TestNG testing framework** for testing our applications and generating reports.
- ▶ Selenium can be integrated with **Jenkins or Hudson** for continuous integration.
- ▶ Selenium can be integrated with other open source tools for supporting other features.
- ▶ Selenium can be used for **Android, iPhone, Blackberry** etc. based application testing.
- ▶ Selenium supports very **less CPU and RAM** consumption for script execution.
- ▶ Selenium comes with different component to provide support to its parent which is Selenium IDE, Selenium Grid and Selenium Remote Control (RC).

Disadvantages

- ▶ Selenium only supports web based application and does not support windows based application.
- ▶ Verification of audio and Video clips
- ▶ Unable to handle Captcha images
- ▶ Selenium does not support built in add-ins support.
- ▶ Selenium user lacks online support for the problems they face.
- ▶ Selenium script creation time is bit high.
- ▶ Selenium does not support file upload facility.

HP UFT (QTP)	Selenium
commercial tool	open source tool
It can test web- based as well as desktop applications	Using Selenium only web applications can be tested
QTP tests can only be developed in QTP IDE	Selenium has the option of using wide range of IDEs like Visual Studio, Eclipse, Netbeans
HP UFT only supports VB script	Selenium supports JAVA, .NET, Ruby, Perl, PHP, and many other programming languages
HP UFT comes with built in object repository.	object can be managed by using UI element user extension
It supports different environments like SAP, Oracle, .NET but user need to purchase add-on license for them	It supports addition of plug-ins to include features that are not provided by core Selenium
HP QTP offers very good technical support	It has no official support, since it is an open source
HP QTP is more user friendly and scripts are developed quickly.	It is a low level tool with less functionality. Script requires more time to develop and maintain

Selenium Components



Selenium IDE

- ▶ **Selenium IDE** is an integrated development environment for Selenium scripts.
- ▶ Easy to use- Record and Playback
- ▶ It has the capability to convert the test to different programming languages such as java,python..etc
- ▶ Programming language experience is not required for Selenium IDE
- ▶ Selenium IDE,user can debug and set breakpoints
- ▶ Selenium IDE is flexible for the users

File Edit Actions Options Help

Base URL

Fast

Slow



Test Case

Untitled

Runs:

0

Failures:

0

Table

Source

Command

Target

Value

Command

Target

Value

Select

Find

Log

Reference

Expert

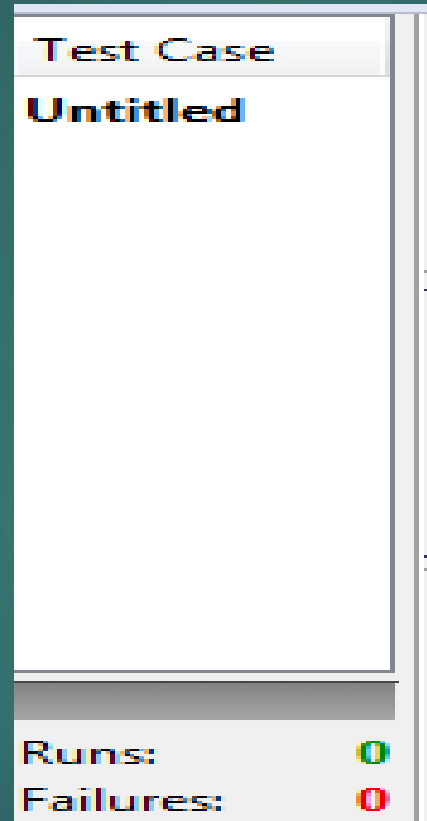
UI-Element

Rollup

Info

Clear

Test Case Pane



Test Step Pane

Table

Source

Command	Target	Value
open	/selenium-ide/test-case-pane/	
clickAndWait	//section[@id='presscore-cu...	

Command

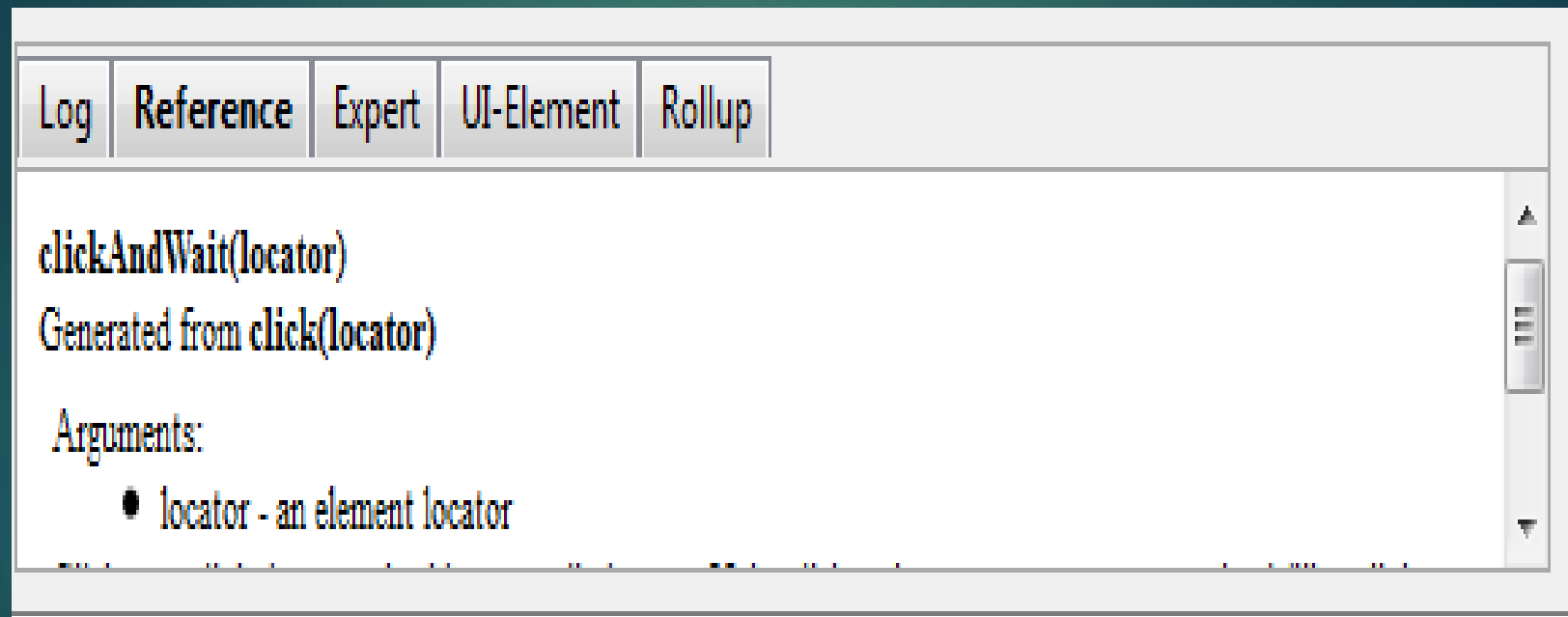
Target

Select

Find

Value

Log Pane



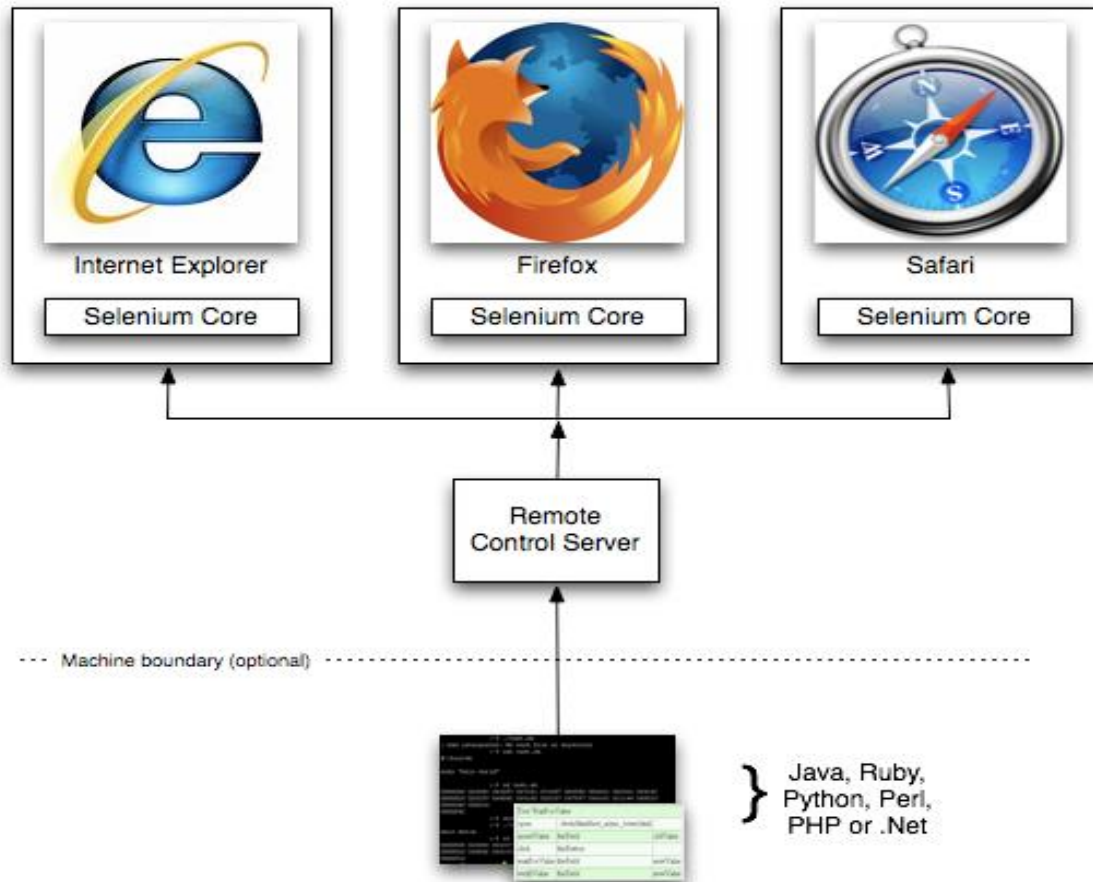
IDE - Disadvantages

- ▶ Selenium IDE is Firefox plugin, thus its support is limited to Firefox only (till 55 Version)
- ▶ It will not support iteration and conditional statement
- ▶ Selenium IDE doesn't support error handling
- ▶ Doesn't support test script grouping
- ▶ Selenium IDE do not support Database testing

Selenium Remote Control(RC)

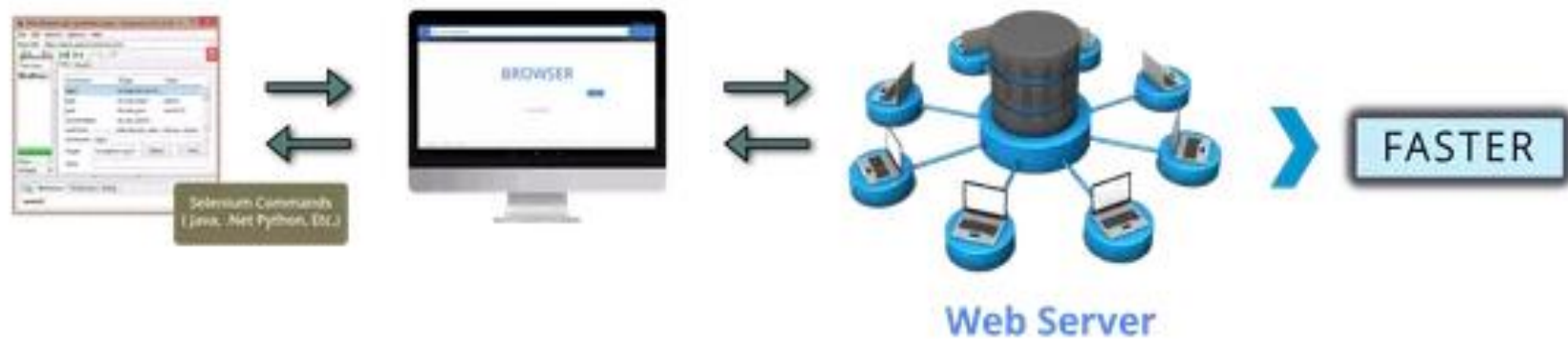
- ▶ Selenium RC works in such a way that the client libraries can communicate with the Selenium RC Server passing each Selenium command for execution. Then the server passes the Selenium command to the browser using Selenium-Core JavaScript commands.
- ▶ The browser executes the Selenium command using its JavaScript interpreter.

Windows, Linux, or Mac (as appropriate)...



RC vs WebDriver

- ▶ WebDriver is faster than Selenium RC since it speaks directly to the browser uses the browser's own engine to control it
- ▶ Selenium RC tends to be slower Than Webdriver since it uses a Javascript program called Selenium Core. This Selenium Core is the one that directly controls the browser, not you.
- ▶ WebDriver can also support HtmlUnit. A headless browser which is very useful in certain circumstances.
- ▶ Webdriver is faster, as compared to RC



Selenese Commands:

► Actions

Actions are commands that manipulate the state of the application. Upon execution, if an action fails the execution of the current test is stopped. For Example, "click a link" and "select an option".

► Accessors

Accessors evaluate the state of the application and store the results in a variable which are used in assertions. For Example, "storeTitle".

► Assertions

Assertions enable us to verify the state of an application and compares against the expected. It is used in 3 modes, viz. - "assert", "verify", and "waitfor". For Example, "verify if an item form the dropdown is selected".

Thanks for your attention...!!!



Any Queries ??