

Selenium An Effective Weapon In The Open Source Armory

Komal Joshi

Director: Atlantis Software Limited

Anand Ramdeo

Head of Quality Assurance: GCAP Media

Agenda

- Introduction to Selenium
- Selenium IDE – Lets play
- Limitations of Selenium IDE
- Selenium RC – Play Again
- Ruby with Selenium RC
- Discussion / Questions

What is Selenium?



Selenium is...

- Test automation tool for web applications.
- Developed in Java Script.
- Can be used for most of the browser / platform combinations.
- Support many languages, including Ruby, Python, Java and so on.
- Free & Open Source !!!

Effect of Open Source on Selenium

- Selenium IDE
- Selenium Core
- Selenium Remote Control
- Selenium Grid

User / developer community solving problems for most of us and making us more productive.

Why Learn Selenium?

To make this world a better place!!!

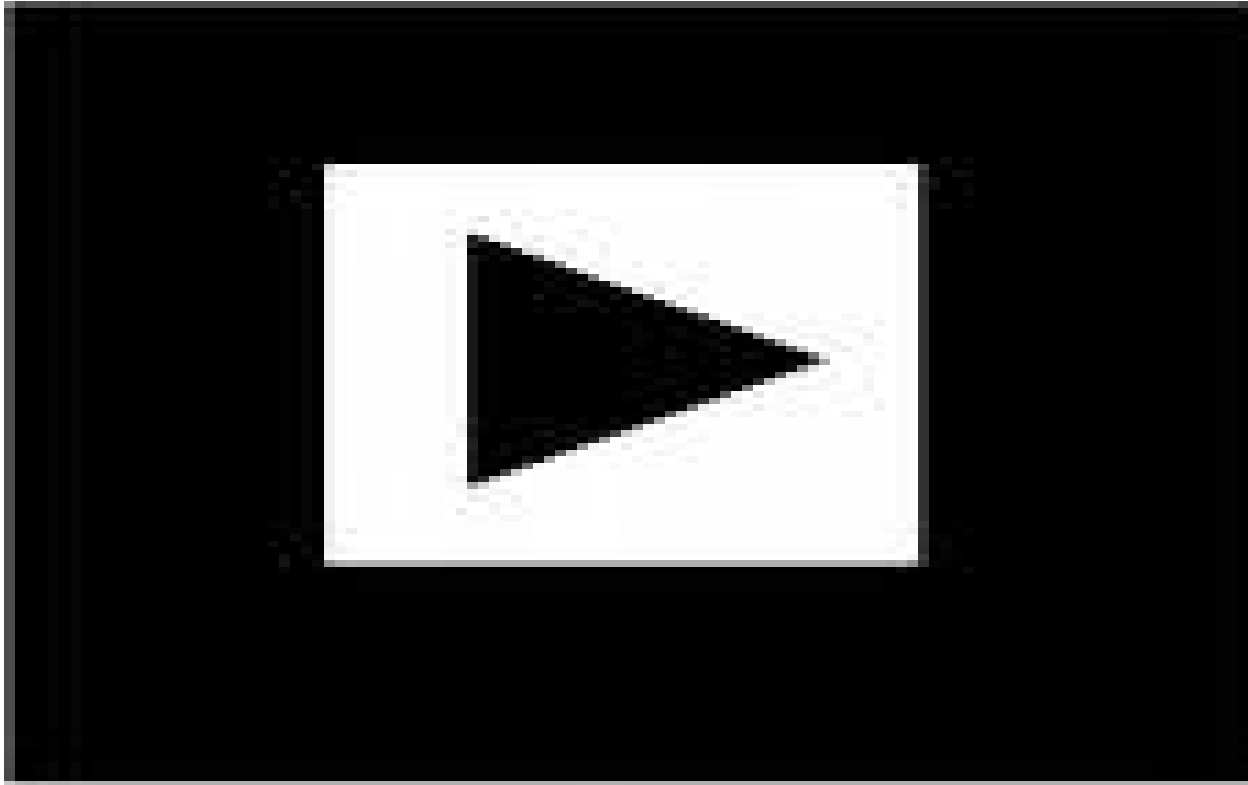
How??

Well tested web applications will result in less frustration for the end-users and will make them happy!!!

Learn Selenium Because..

- Web is becoming important.
- Desktop applications are slowly becoming history.
- Most of the Rich Web and AJAXified Applications involve Java Script.
- Selenium is the best tool for testing Java Script and Java Script interactions.

Let's Play



Selenium IDE

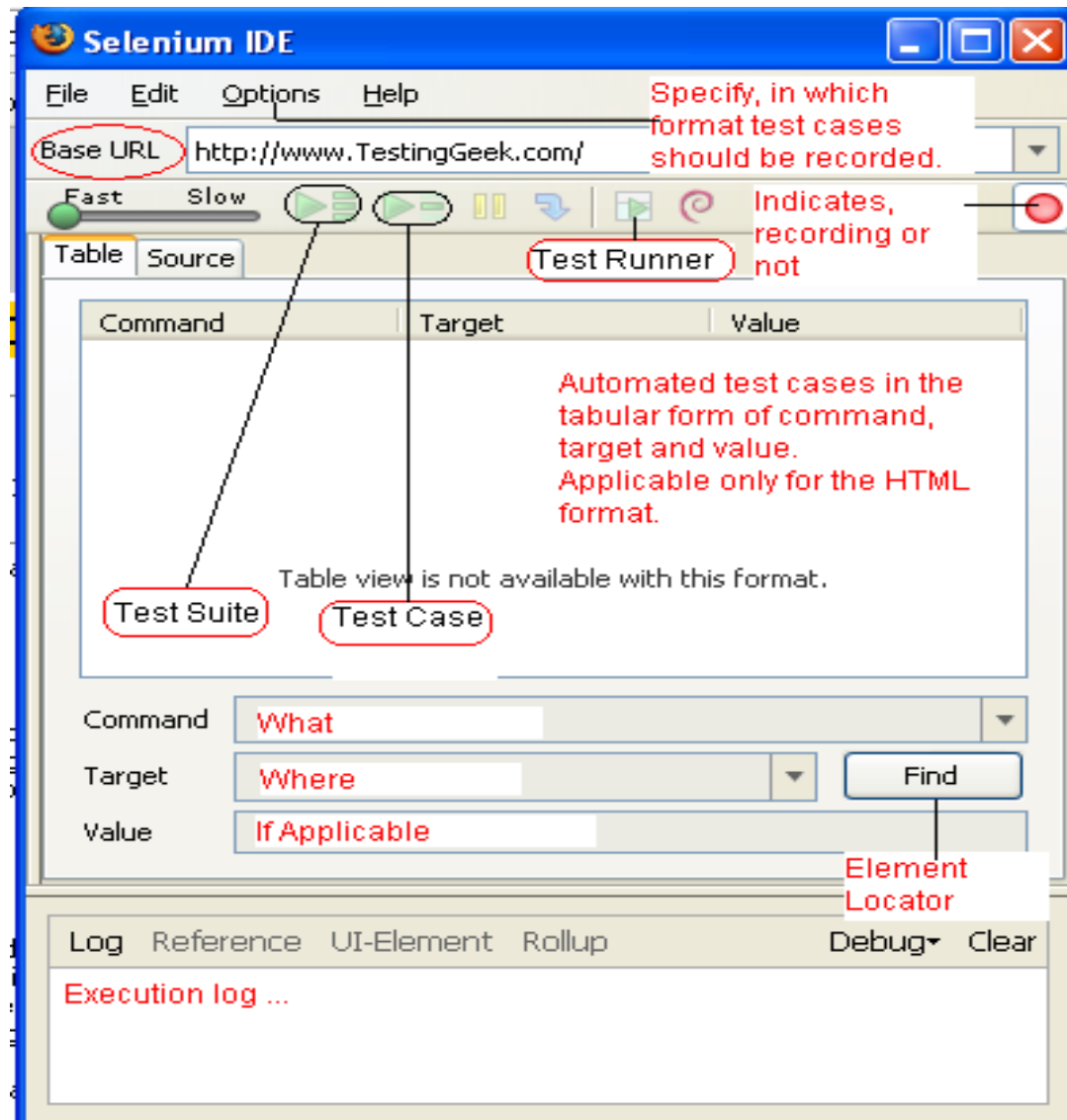
- Firefox plug-in
- Integrated Development Environment for Selenium Tests.
- Provides record and playback functionality.
- Provides the ability to debug test scripts.
- Auto complete common selenium commands.
- Export tests in different formats like HTML, Ruby, Python and so on.
- Supports user extensions.

Install & Start

- Download from - <http://www.openqa.org>
- Access
Tools – Selenium IDE
from Firefox
browser toolbar.



IDE Explained

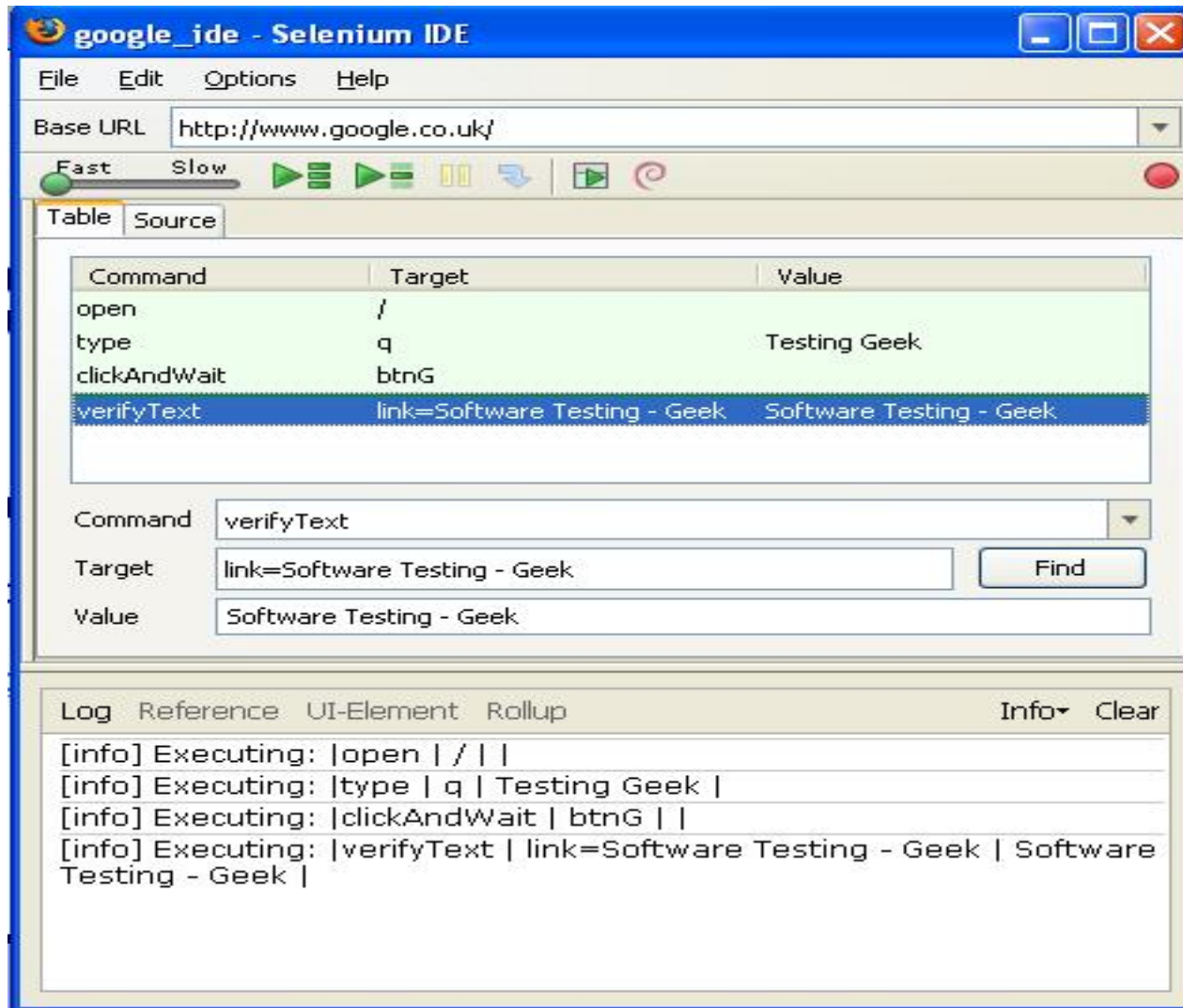


Exercise

Ensure that <http://www.TestingGeek.com> is the first link for Google search on “Testing Geek”

- Open <http://www.google.co.uk> in Firefox
- Open Selenium IDE, Tools – Selenium IDE
- Ensure that Selenium IDE is in recording mode.
- Type “Testing Geek” in the Google search bar and click Search
- On the search results verify that
 - “[Software Testing - Geek](#)” is present at the first place.
- Save the test case as google_ide
- Run the saved test case back again using the IDE.
- View the results back in the IDE

Selenium IDE contd..



The screenshot shows the Selenium IDE interface with the following components:

- Menu:** File, Edit, Options, Help
- Base URL:** `http://www.google.co.uk/`
- Speed Control:** Fast (selected), Slow, and playback controls (play, pause, stop, reset, repeat).
- Table View:** A table with columns Command, Target, and Value.

Command	Target	Value
open	/	
type	q	Testing Geek
clickAndWait	btnG	
verifyText	link=Software Testing - Geek	Software Testing - Geek
- Command Editor:** Fields for Command (verifyText), Target (link=Software Testing - Geek), and Value (Software Testing - Geek), with a Find button.
- Log:** A list of execution steps:
 - [info] Executing: |open | / | |
 - [info] Executing: |type | q | Testing Geek |
 - [info] Executing: |clickAndWait | btnG | |
 - [info] Executing: |verifyText | link=Software Testing - Geek | Software Testing - Geek |

Test Runner

Test Suite
google_ide

google_ide		
open	/	
type	q	Testing Geek
clickAndWait	btnG	
verifyText	link=Software Testing - Geek	Software Testing - Geek

Web [Images](#) [Maps](#) [News](#) [Shopping](#) [Mail](#) [more ▼](#)



[Ad](#)
[Pre](#)

Search: ☒ the web ☐ pages from the UK

Web

Software Testing - Geek

A platform for sharing the knowledge of Software **Testing**, **Testing** Tools and Techniques, approaches and methodologies.

www.testinggeek.com/ - 35k - [Cached](#) - [Similar pages](#)

[Types](#)

[Tools](#)

[Blackbox](#)

[Templates](#)

[User Acceptance Testing](#)

[Article](#)

[Backward](#)

[UI Testing CheckList](#)

[More results from testinggeek.com »](#)

Selenium TestRunner

Execute Tests

Fast
Slow

☐ Highlight elements

Elapsed: 00:01

Tests	Commands
1 run	1 passed
0 failed	0 failed
	0 incomplete

Tools

View DOM

Show Log

Limitations

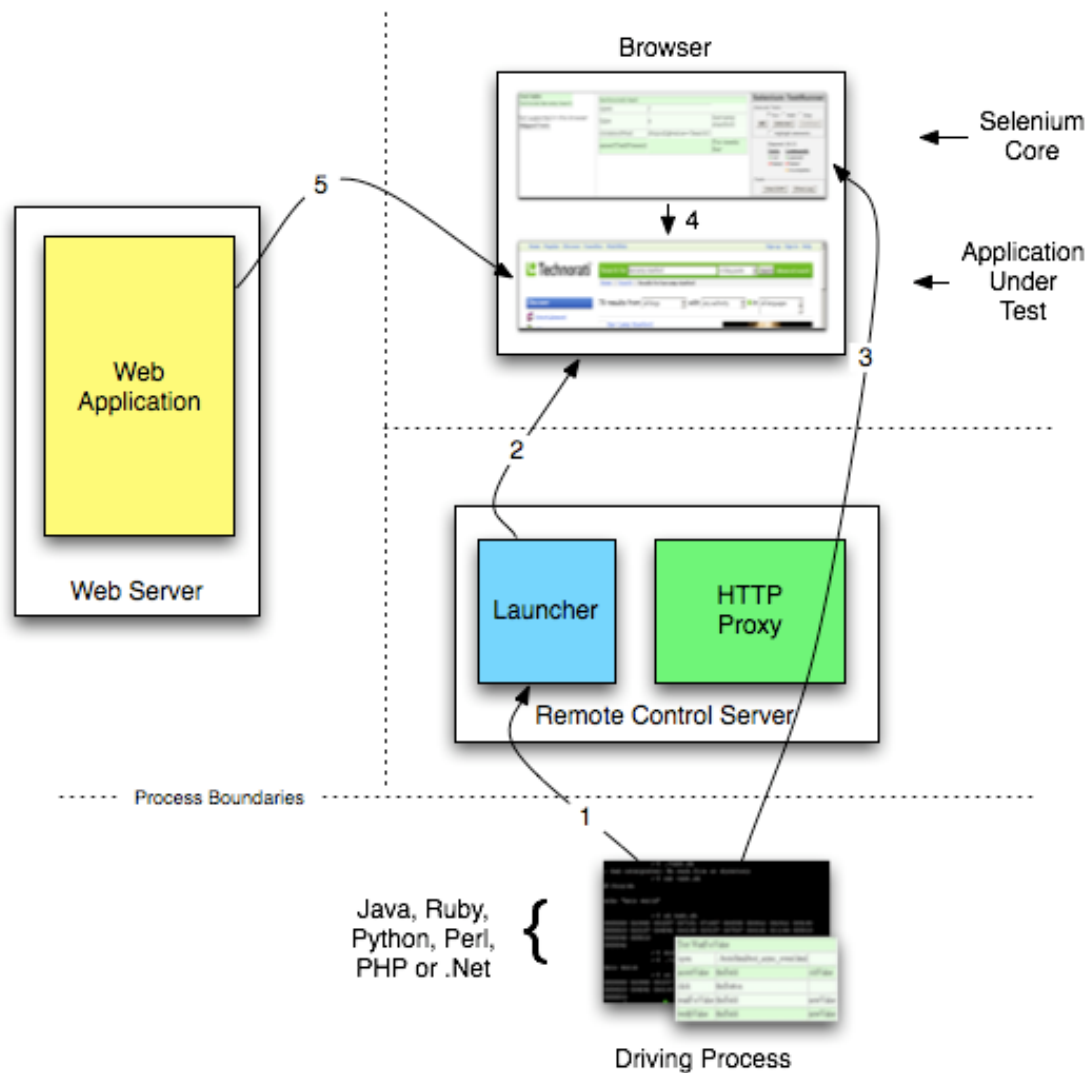
- Browser
 - Selenium IDE is only available for the Firefox. It can not be used for different browsers.
- Language
 - Selenium IDE can execute scripts created in Selenese only.
- Complexity
 - It is difficult to use Selenium IDE for checking complex test cases involving dynamic contents.

What Next??

Selenium Remote Control

- A server, written in Java and so available on all the platforms.
- Acts as a proxy for web requests from them.
- Client libraries for many popular languages.
- Bundles Selenium Core and automatically loads into the browser

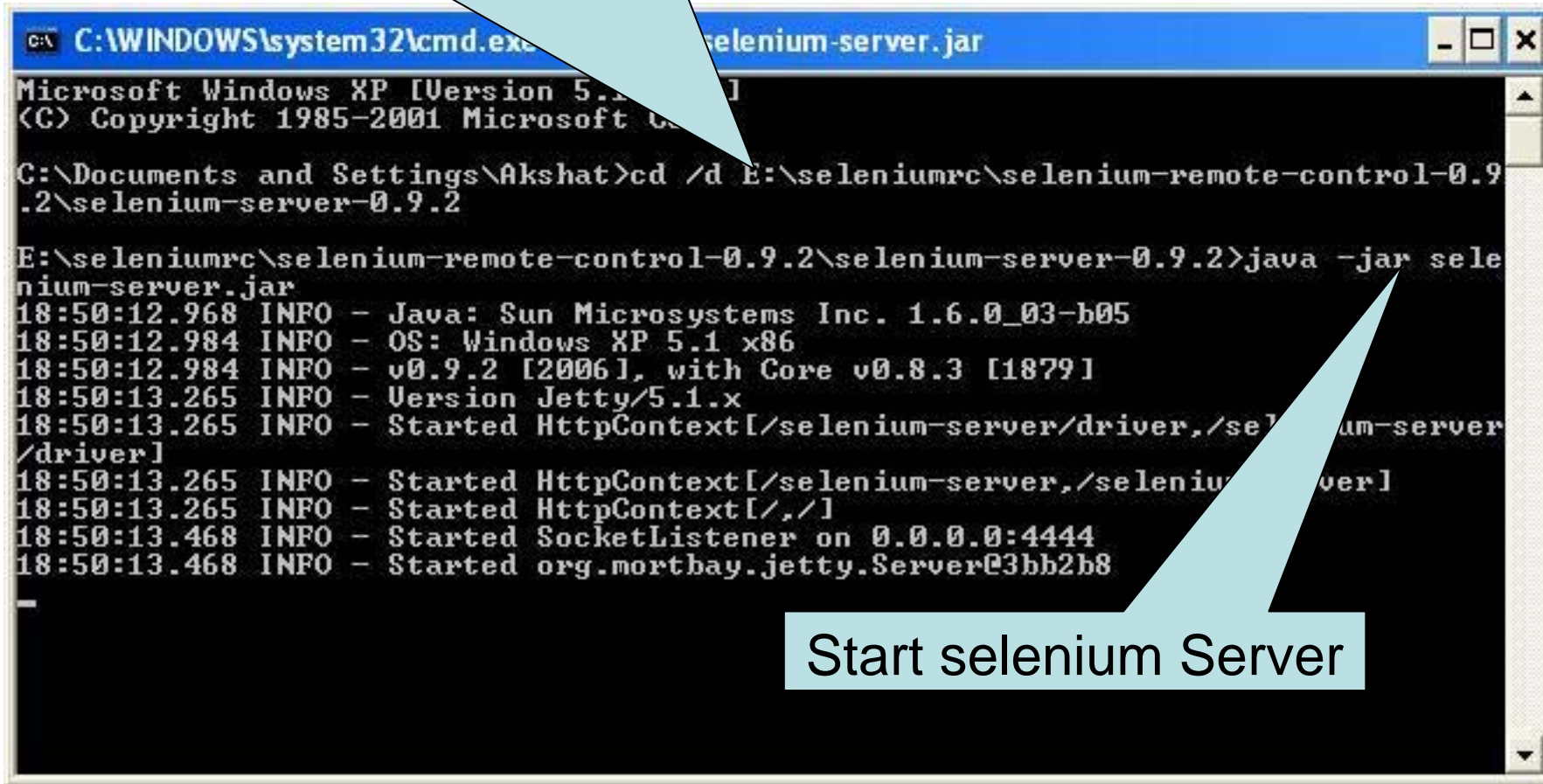
How it works



Install & Start

- Ensure that JDK is present on the machine and is in the class path.
- Downloaded Selenium RC from <http://www.openqa.org>
- Unzip to any directory on your file system.
- Change directory to the Selenium Server on the command line or terminal.
- Start Selenium Server.

Change Directory to Selenium Server



```
C:\WINDOWS\system32\cmd.exe selenium-server.jar

Microsoft Windows XP [Version 5.1.2600.5512]
(C) Copyright 1985-2001 Microsoft Corporation

C:\Documents and Settings\Akshat>cd /d E:\seleniumrc\selenium-remote-control-0.9.2\selenium-server-0.9.2

E:\seleniumrc\selenium-remote-control-0.9.2\selenium-server-0.9.2>java -jar selenium-server.jar
18:50:12.968 INFO - Java: Sun Microsystems Inc. 1.6.0_03-b05
18:50:12.984 INFO - OS: Windows XP 5.1 x86
18:50:12.984 INFO - v0.9.2 [2006], with Core v0.8.3 [1879]
18:50:13.265 INFO - Version Jetty/5.1.x
18:50:13.265 INFO - Started HttpContext[/selenium-server/driver,/selenium-server/driver]
18:50:13.265 INFO - Started HttpContext[/selenium-server,/selenium-server]
18:50:13.265 INFO - Started HttpContext[/,/]
18:50:13.468 INFO - Started SocketListener on 0.0.0.0:4444
18:50:13.468 INFO - Started org.mortbay.jetty.Server@3bb2b8
```

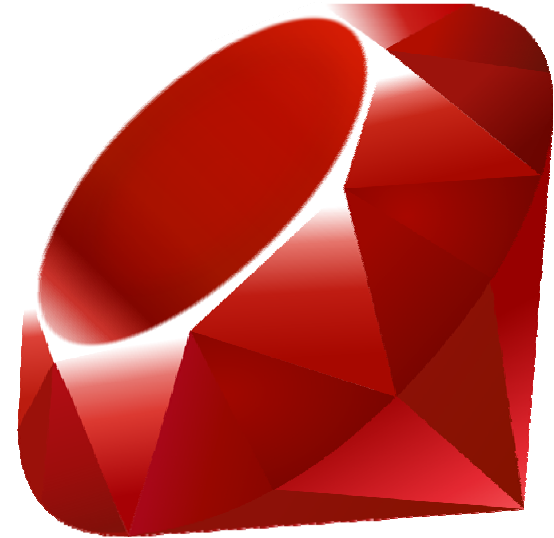
Start selenium Server

Selenium client drivers

- Enables communication with Selenium Remote Control Server.
- Functionality of Selenium is exposed via these drivers.
- Available in Ruby, Python, Java, C-Sharp ... and so on.
- Give access to the rich features and libraries of the language, including their unit testing framework.
- Makes it possible to develop automated scripts in the same language as product.
- Which one you should use?
 - Whatever make sense in your context. For this exercise, we will use Ruby.

What is Ruby???

- It is object oriented scripting language
- Download from <http://www.ruby-lang.org>
- According to official Ruby Website, Ruby is the successful combination of:
 - *Smalltalk's conceptual elegance,*
 - *Python's ease of use and learning, and*
 - *Perl's pragmatism.*

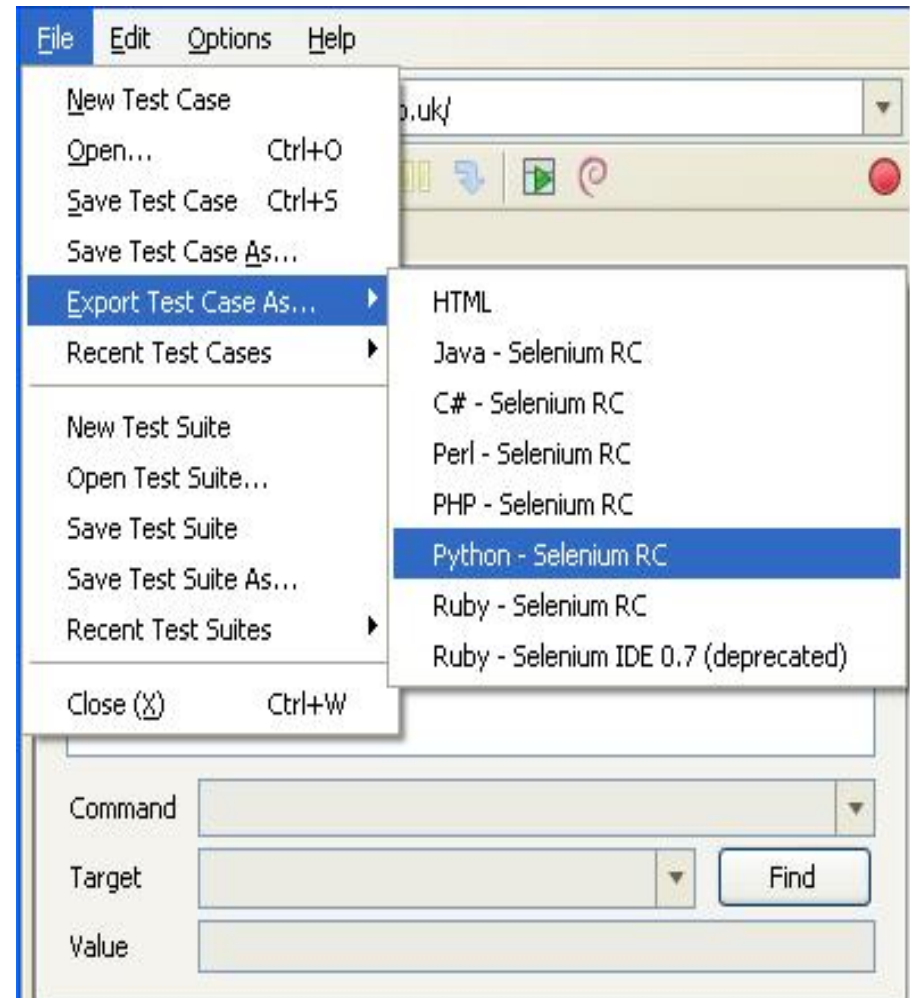


Ruby Client Driver

- Ruby driver is bundled with the product itself.
- Check content of the directory where Selenium was unzipped initially.
- Open a separate command prompt and change its directory to the Ruby Driver.
- Your automation script can live anywhere in the file system as long as path is set properly.

Lets Start

- Record a sample script in Selenium IDE, same as first exercise.
- Export this test case as ruby.
- Analyze the test script.




```
require "selenium"
require "test/unit"
```

Client Driver and ruby unit
testing framework

```
- class NewTest < Test::Unit::TestCase
-   def setup
-       @verification_errors = []
-       if $selenium
-           @selenium = $selenium
-       else
-           @selenium = Selenium::WebDriver.new("localhost", 4444, "*chrome", "http://google.com", 10000);
-           @selenium.start
-       end
-       @selenium.set_context("test_new")
-   end

-   def teardown
-       @selenium.stop unless $selenium
-       assert_equal [], @verification_errors
-   end

-   def test_new|
-       @selenium.open "/"
-       @selenium.type "q", "Testing Geek"
-       @selenium.click "btnG"
-   end
end
```

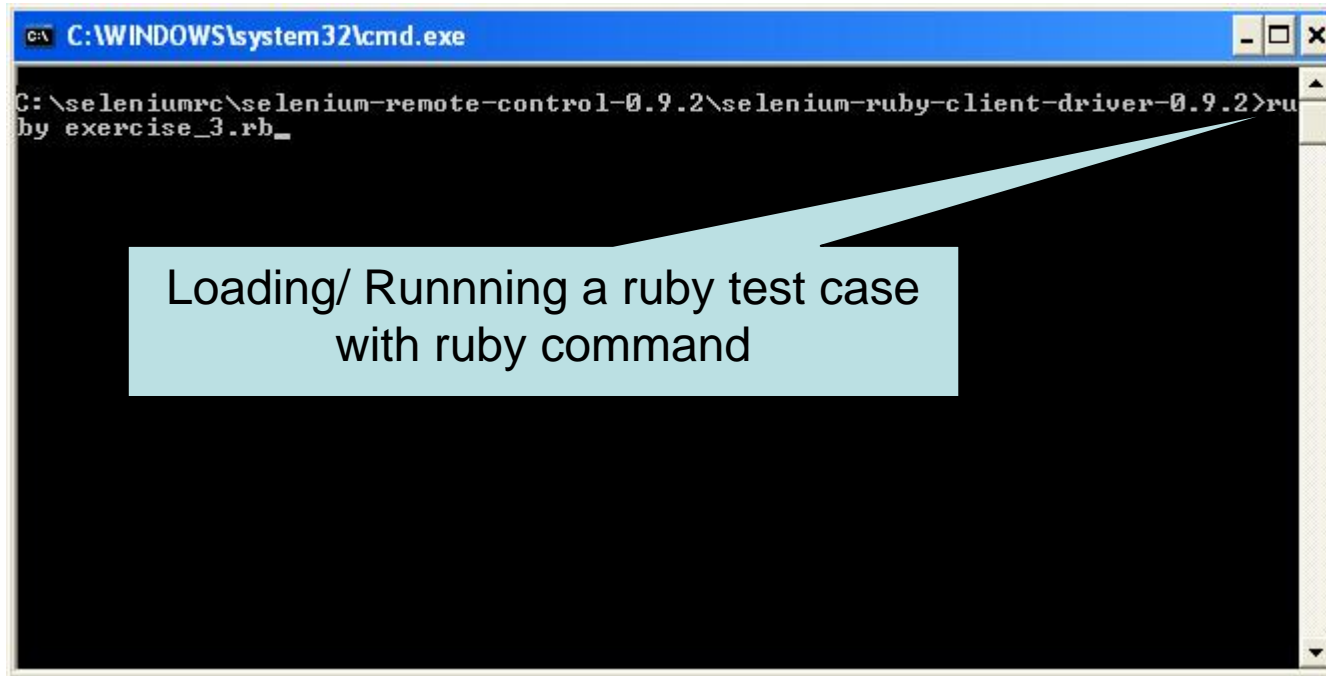
Setup is executed before every test
case, gives selenium object and
launches browser.

Browser

Tear down is executed after every test
case and kills selenium and browser.

Test case, Steps

Run it !!!



A screenshot of a Windows command prompt window. The title bar reads "C:\WINDOWS\system32\cmd.exe". The command prompt shows the directory "C:\seleniumrc\selenium-remote-control-0.9.2\selenium-ruby-client-driver-0.9.2" and the command "ruby exercise_3.rb_". A light blue callout box with a pointer to the command line contains the text "Loading/ Runnning a ruby test case with ruby command".

```
C:\WINDOWS\system32\cmd.exe  
C:\seleniumrc\selenium-remote-control-0.9.2\selenium-ruby-client-driver-0.9.2>ruby exercise_3.rb_
```

Loading/ Runnning a ruby test case
with ruby command

Selenium RC Benefits

- Can be used for any Java Script enabled browser.
- Have access to the complete features / libraries of the high level language.
- Can be used to automate complex test cases.
- Makes it possible to create fast, robust and scalable automation.

Interesting Stuff

- Element Locators
 - Based on XPath, use XPather from <http://xpath.alephzarro.com/download>
 - Based on DOM
- Element Filters
 - Based on Index
 - Based on Value
- Regular expression
- *WaitForXXX , eval, screenshot and so on.*

What if I have Questions?

- Well, Contact us 😊
 - info@atlantissw.com
 - testinggeek@gmail.com
- Visit www.openqa.org for official documentation, troubleshooting and information on support.
- Selenium articles on <http://www.TestingGeek.com>

Thank You!!!

QUESTIONS??

