



Department of Computer Science and Engineering

Title: Software testing tools part I (Selenium Webdriver -I)

Software Testing & Quality Assurance Lab
CSE 434



Green University of Bangladesh

1 Objective(s)

- To be familiar with web testing tool.
- To gain practical knowledge on how to Selenium Web-driver.

2 Introduction

Selenium is a free (open-source) automated testing framework used to validate web applications across

different browsers and platforms. You can use multiple programming languages like Java, C#, Python etc to create Selenium Test Scripts. Testing done using the Selenium testing tool is usually referred to as Selenium Testing.

Selenium is not just a single tool but a suite of software, each with a different approach to support automation testing. It comprises of four major components which include:

3 Selenium

Selenium Software is not just a single tool but a suite of software, each piece catering to different Selenium QA testing needs of an organization. Here is the list of tools

- Selenium Integrated Development Environment (IDE)
- Selenium Remote Control (Now Deprecated)
- Selenium WebDriver
- Selenium Grid

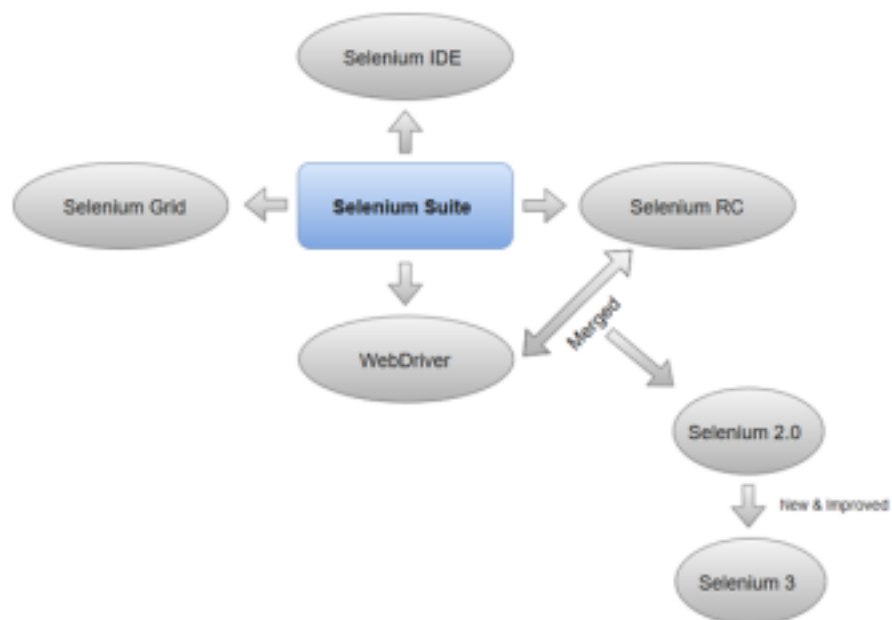


Figure 1: Selenium Tool Suite

3.1 Selenium WebDriver- Architecture

Selenium WebDriver API provides communication facility between languages and browsers. The following image shows the architectural representation of Selenium WebDriver.

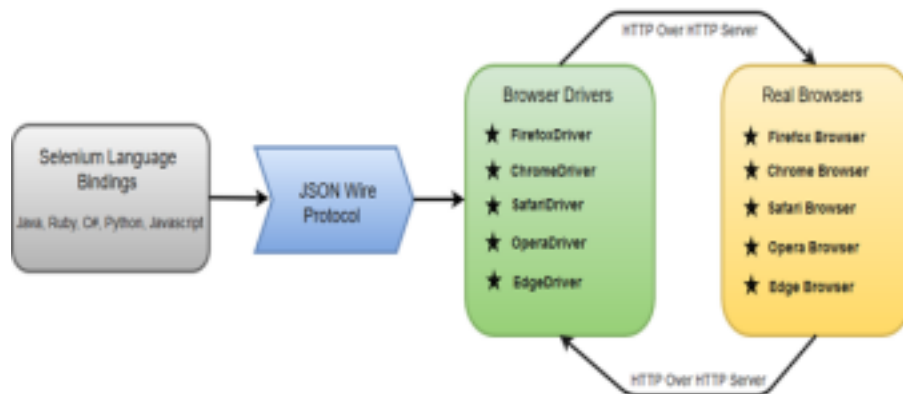


Figure 2: Selenium Tool Suite

3.2 Selenium WebDriver- Features

Some of the most important features of Selenium WebDriver are:

- Multiple Browser Support
- Multiple Languages Support
- Speed
- Simple Commands

4 Selenium WebDriver- Installation

Selenium WebDriver installation process is completed in four basic steps:

- Download and Install Java 8 or higher version.
- Download and configure Eclipse or any Java IDE of your choice.
- Download Selenium WebDriver Java Client
- Selenium Standalone Server
- Configure Selenium WebDriver

4.1 Download and Install Java

Download and install the Java Software Development Kit (JDK) here (<https://www.oracle.com/java/technologies/downloads/>) Once you have downloaded and installed the latest version of Java, you need to set path or con-

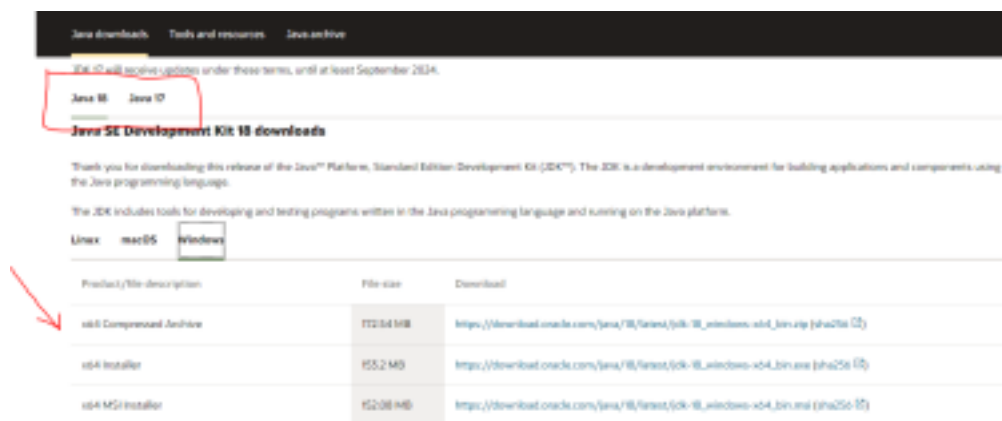
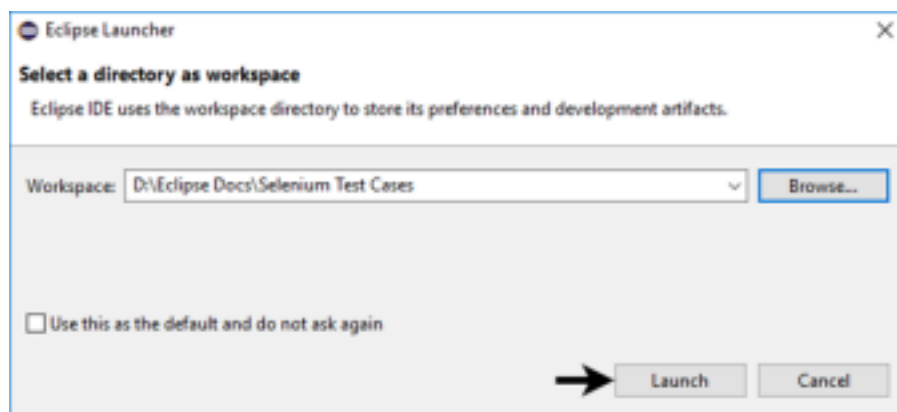


figure the environment variables in your system. Refer the link given below to understand how we can set path and configure environment variables in Java. (<https://www.javatpoint.com/how-to-set-path-in-java>)

4.2 Download and Configure Eclipse IDE

- Eclipse IDE for Java Developers: <https://www.eclipse.org/downloads/>
- To configure the workspace, select a convenient directory where you want to keep all of your Selenium trails and click on Launch button.



4.3 Download Selenium WebDriver Java Client

- Open URL: <https://www.selenium.dev/downloads/> It will redirect you to the "downloads page" of Selenium official website.
- Scroll down through the web page and locate Selenium Client WebDriver Language Bindings.
- Click on the "Download" link of Java Client Driver

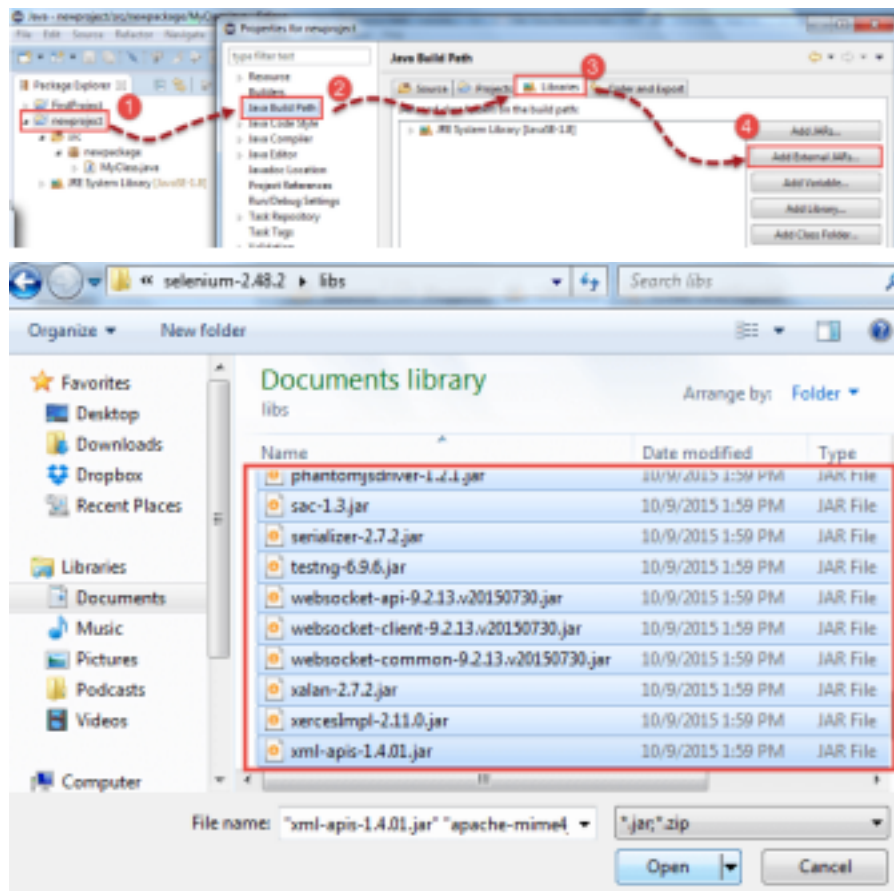
4.4 Configure Eclipse IDE with WebDriver

- Launch the "eclipse.exe" file inside the "eclipse" folder that we extracted in step 2. If you followed step 2 correctly, the executable should be located on C:/eclipse/eclipse.exe.
- When asked to select for a workspace, just accept the default location.
- Create a new project through File > New > Java Project. Name the project as "newproject".
- A new pop-up window will open enter details as follow and click finish.
- Right-click on the newly created project and Select New > Package, and name that package as "newpack age".

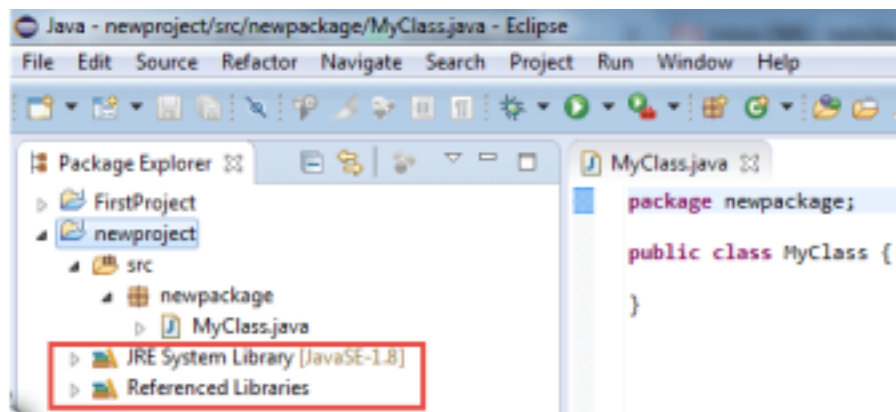
6. A pop-up window will open to name the package, enter the name of the package and click on Finish button
7. Create a new Java class under newpackage by right-clicking on it and then selecting- New > Class, and then name it as “MyClass”. When you click on Class, a pop-up window will open, enter details as Name of the class and Click on Finish button.

Now selenium WebDriver's into Java Build Path. In this step,

- Right-click on “newproject” and select Properties.
- On the Properties dialog, click on “Java Build Path”.
- Click on the Libraries tab, and then
- Click on “Add External JARs..”



When you click on “Add External JARs..” It will open a pop-up window. Select the JAR files you want to add. Select all files inside the lib folder. Select files outside lib folder, once done, click “Apply and Close” button. Add all the JAR files inside and outside the “libs” folder. Your Properties dialog should now look similar to the image below. Finally, click OK and we are done importing Selenium libraries into our project.



5 First Selenium Webdriver Script

```

/ * Open www.facebook.com and try to login. */
package selenium_package;

import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;

public class Demo_class {
    public static void main(String[] args) throws InterruptedException {
        System.setProperty("webdriver.chrome.driver", "C:\\Selenium_practise\\
        chromedriver_win32\\chromedriver.exe");
        WebDriver driver= new ChromeDriver();
        driver.get("http://gmail.com/");
        driver.manage().window().maximize();
        driver.findElement(By.id("email")).sendKeys("rajibulpalas@gmail.com"); Thread.sleep(3000);
        driver.findElement(By.id("pass")).sendKeys("P@l@s123");
        Thread.sleep(3000);
        driver.findElement(By.id("u_0_d_TJ")).click();
        String actual = driver.getTitle();
        String expected = "Facebook";
        driver.close();
        if(actual.equalsIgnoreCase(expected))
        {
            System.out.println("Test Successfull");
        }
        else
        {
            System.out.println("Test faile!!");
        }
    }
}

```

6 Discussion & Conclusion

Based on the focused objective(s) to understand about the Selenium Webdriver, the additional lab exercise made me more confident towards the fulfilment of the objectives(s).

7 Lab Task (Please implement yourself and show the output to the instructor)

1. Go to <https://www.gmail.com/> and using selenium chrome webdriver tool test whether email, password field and login button is correct or not.

8 Lab Exercise (Submit as a report)

1. Go to <https://www.youtube.com/> and using selenium gecko webdriver tool test whether 5 button button is correct or not. And search as "Green University of Bangladesh".

9 Policy

Copying from internet, classmate, seniors, or from any other source is strongly prohibited. 100% marks will be *deducted* if any such copying is detected.

10 Resources

<https://www.guru99.com/installing-selenium-webdriver.html>

<https://www.guru99.com/first-webdriver-script.html>