

WebDriver

- Architecture of WebDriver:
- There 3 parts here
 - Language Bindings
 - Browser Driver exe files
 - Browsers
- We can write program using any selenium supported language
- The program contacts browser driver exe file
- That exe file is created by the same browser vendor
- the browser driver exe knows how to instruct browser to perform operations
- The equivalent operation will be performed on browser based on program what we have written.

Java Language Bindings

- In JLB webdriver is an interface which has all operations list
- There are browser driver classes for each browser which implements webdriver interface.
- ChromeDriver class, FireFoxDriver class, InternetEplorerDriver class...etc
- To do operations on chrome browser we can use chromedriver class and chrome driver exe file.
- Like that we can use the driver exe files and browser driver classes to automate different browsers
- We always write code using webdriver interface.
- instead of writing ChromeDriver variable = new ChromeDriver(); we write WebDriver variable = new ChromeDriver();

This will help us to execute program on different browsers by just changing chromedriver to some other browser driver class

Configure WebDriver with Project

- We need to have 3 things
 - Java Language Bindings
 - Browser Driver Exe files
 - Browsers
- Download and Configure Java Language Bindings
 - Goto <http://www.seleniumhq.org/download/>
 - Under Selenium Client & WebDriver Language Bindings
 - Click on download parallel to java
 - It will download a zip file
 - Extract them to a safe folder
 - Add All jars from all folders to project build path
 - Right click on project -> build path -> configure build path-> libraries tab
 - click on add external jars -> browse the path -> Add all jar from all folder
- Download Browser Drivers
 - goto <http://www.seleniumhq.org/download/>
 - under Third Party Browser Drivers NOT DEVELOPED by seleniumhq

- For FF:
 - click on version number parallel to Mozilla GeckoDriver
 - click on zip file depends on bit version
 - geckodriver-v0.18.0-win64.zip
- For chrome:
 - click on version number parallel to chrome driver
 - click on zip file based on OS
 - chromedriver_win32.zip
- For IE
 - Under Internet Explorer Driver Server
 - Click on bit version link
- Downloading Edge Driver
 - Click on Microsoft Edge Driver under third party language bindings
 - Under downloads section click release link based on edge version installed in your machine
 - To find edge version goto edge settings -> in bottom find about edge
 - Click on the same build version link to download edge driver
- extract the zip files and copy browser driver exe files to a single folder

Chrome Driver Program

```
public static void main(String[] args) {  
  
    //specify browser driver  
    System.setProperty("webdriver.chrome.driver",  
"F:\\SeleniumSoftware\\BrowserDrivers\\chromedriver.exe");  
  
    //open new chrome window  
    ChromeDriver driver = new ChromeDriver();  
  
    //open URL  
    driver.get("http://google.com");  
  
    //get title of opened page  
    String pageTitle = driver.getTitle();  
    System.out.println("Opened Page title is " + pageTitle);  
  
    //close the browser  
    driver.quit();  
  
}
```

Firefox Driver Program

```
public static void main(String[] args) {  
  
    //specify browser driver
```

```
System.setProperty("webdriver.gecko.driver",
"F:\\SeleniumSoftware\\BrowserDrivers\\geckodriver.exe");

//open new firefox window
FirefoxDriver driver = new FirefoxDriver();

//open URL
driver.get("http://google.com");

//get title of opened page
String pageTitle = driver.getTitle();
System.out.println("Opened Page title is " + pageTitle);

//close the browser
driver.quit();

}
```

IE Demo Program

```
public static void main(String[] args) {

    //specify browser driver
    System.setProperty("webdriver.ie.driver",
"F:\\SeleniumSoftware\\BrowserDrivers\\iedriverserver.exe");

    //open new firefox window
    InternetExplorerDriver driver = new InternetExplorerDriver();

    //open URL
    driver.get("http://google.com");

    //get title of opened page
    String pageTitle = driver.getTitle();
    System.out.println("Opened Page title is " + pageTitle);

    //close the browser
    driver.quit();

}
```

Note: All browsers should have zoom level at 100% to execute selenium programs. For IE the protected mode settings must be same for all zones. To change protected mode settings

- Open Internet Explorer
- Tools -> Internet Options -> Security tab
- Select one by one zone and make sure that the protected mode checkbox is either on or off for all security zones. This setting should be same for all zones.

Edge Demo Program

```
public static void main(String[] args) {  
  
    //specify browser driver  
    System.setProperty("webdriver.edge.driver",  
"F:\\SeleniumSoftware\\BrowserDrivers\\MicrosoftWebDriver.exe");  
  
    //open new firefox window  
    EdgeDriver driver = new EdgeDriver();  
  
    //open URL  
    driver.get("http://google.com");  
  
    //get title of opened page  
    String pageTitle = driver.getTitle();  
    System.out.println("Opened Page title is " + pageTitle);  
  
    //close the browser  
    driver.quit();  
  
}
```

WebDriver Demo Program

```
public static void main(String[] args) {  
  
    //specify browser driver  
    System.setProperty("webdriver.gecko.driver",  
"F:\\SeleniumSoftware\\BrowserDrivers\\geckodriver.exe");  
  
    //open new firefox window  
    WebDriver driver = new FirefoxDriver();  
  
    //open URL  
    driver.get("http://google.com");  
  
    //get title of opened page  
    String pageTitle = driver.getTitle();  
    System.out.println("Opened Page title is " + pageTitle);  
  
    //close the browser  
    driver.quit();  
  
}
```

WebDriver Realtime Usage for opening any browser by calling a method with browser name

```
public static void main(String[] args) {
```

```

        WebDriver driver = getDriver("firefox");

        // open URL
        driver.get("http://google.com");

        // get title of opened page
        String pageTitle = driver.getTitle();
        System.out.println("Opened Page title is " + pageTitle);

        // close the browser
        driver.quit();
    }

    public static WebDriver getDriver(String brName) {

        WebDriver driver;

        switch (brName) {
            case "chrome":

                // specify browser driver
                System.setProperty("webdriver.chrome.driver",
                    "F:\\SeleniumSoftware\\BrowserDrivers\\chromedriver.exe");

                // open new chrome window
                driver = new ChromeDriver();
                break;
            case "firefox":
                // specify browser driver
                System.setProperty("webdriver.gecko.driver",
                    "F:\\SeleniumSoftware\\BrowserDrivers\\geckodriver.exe");

                // open new chrome window
                driver = new FirefoxDriver();
                break;
            case "ie":
                // specify browser driver
                System.setProperty("webdriver.ie.driver",
                    "F:\\SeleniumSoftware\\BrowserDrivers\\iedriverserver.exe");

                // open new chrome window
                driver = new InternetExplorerDriver();
                break;
            case "edge":
                // specify browser driver
                System.setProperty("webdriver.edge.driver",
                    "F:\\SeleniumSoftware\\BrowserDrivers\\MicrosoftWebDriver.exe");

                // open new chrome window

```

```
        driver = new EdgeDriver();  
        break;  
    default:  
        System.out.println("No valid browser");  
        driver = null;  
        break;  
    }  
    return driver;  
}
```