

 免费电子书

学习

# selenium-webdriver

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#selenium-  
webdriver

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# 1: selenium-webdriver

selenium-webdriver。

selenium-webdriver。 selenium-webdriver。

0.0.1	201683
-------	--------

## Examples

WebDriverSelenium [Selenium HQ Downloads](#)。 WebDriver/ChromeSelenium

<https://sites.google.com/a/chromium.org/chromedriver/>

chromedriver.exe。

WebDriverCSelenium HQ.dllVisual StudioNuGet。

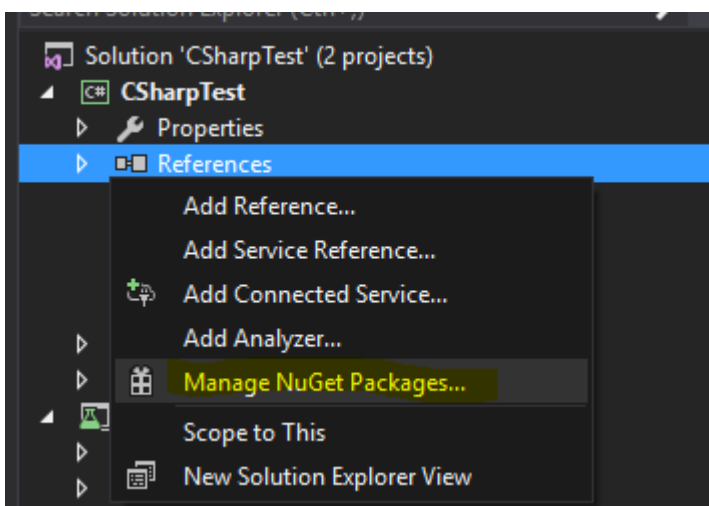
WebDriver<sub>selenium-webdriver</sub>。

---

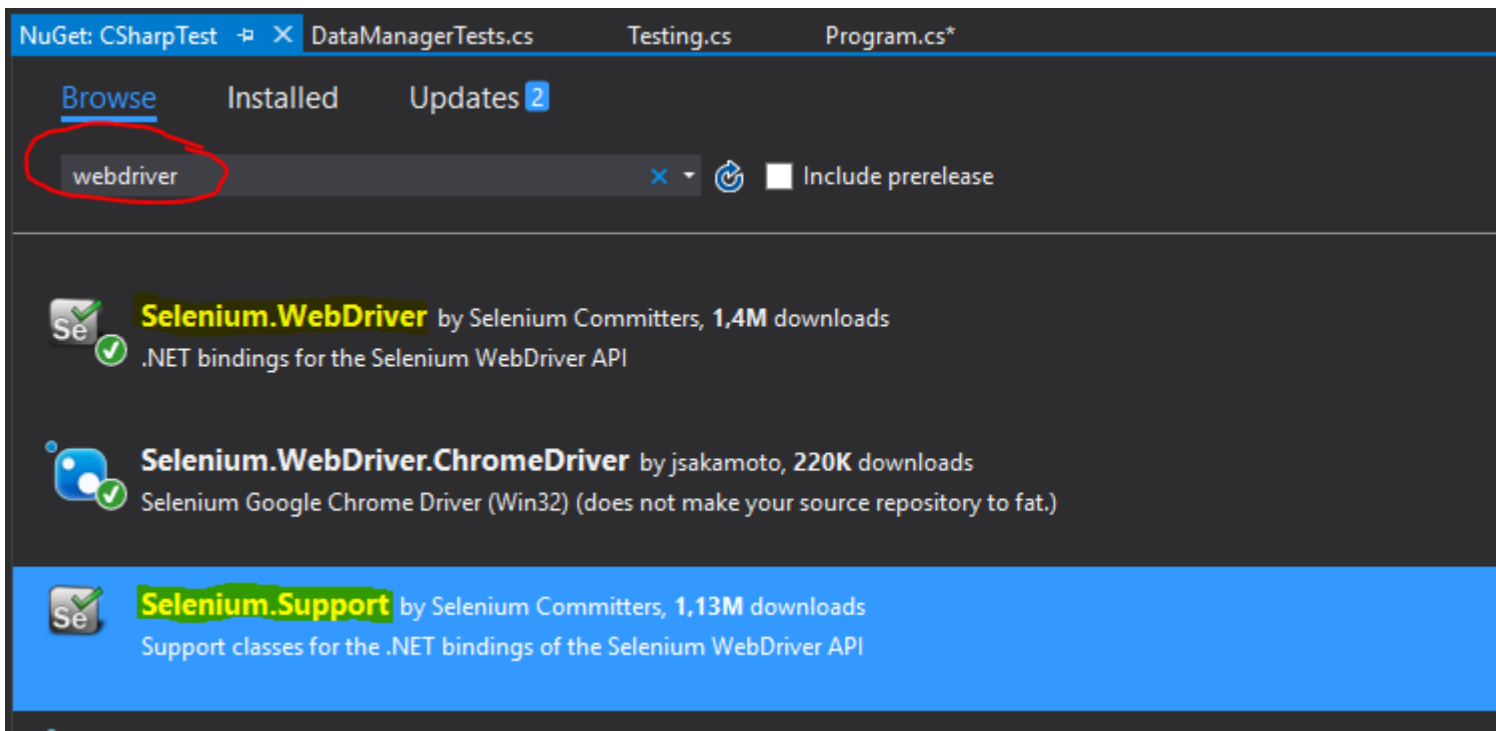
## Visual Studio [NuGet]

Selenium WebDriverNuGet。

““NuGet”



“ *webdriver* ”。



“”“ Selenium.WebDriver ””“ Selenium.Support ””“ ”。

## WebDrivers

- Selenium.WebDriver.ChromeDriver
- [PhantomJS](#)
- 

## Selenium WebDriver

**Selenium**。 Web。 Selenium Selenium WebDriver Selenium RC Selenium IDE Selenium Grid。

**WebDriver** [DOM](#)。

- [GeckoDriver](#) Mozilla Firefox
- [ChromeDriver](#)
- [SafariDriver](#) Apple Safari
- [InternetExplorerDriver](#) MS Internet Explorer
- [MicrosoftWebDriverEdgeDriver](#) MS Edge
- [OperaChromiumDriver](#) Opera
- EventFiringWebDriver
- HtmlUnitDriver
- PhantomJSDriver
- RemoteWebDriver

**Selenium WebDriver** Selenium API。 Web “Native OS Level Events” “Synthesized JavaScript”。

- <http://www.seleniumhq.org/>

- <http://www.aosabook.org/en/selenium.html>
- <https://www.w3.org/TR/webdriver/>

## Java

Selenium WebDriver Java Selenium Selenium WebDriver JAR。

Selenium webdriver Java Maven。 Maven Selenium webdriver Java。 JAR。

## Maven Selenium WebDriver

1. Windows maven <https://maven.apache.org/install.html>
2. selenium-learning
3. pom.xml
4. pom.xml

```
<?xml version="1.0" encoding="UTF-8"?>
  <project xmlns="http://maven.apache.org/POM/4.0.0"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xsi:schemaLocation="http://maven.apache.org/POM/4.0.0
http://maven.apache.org/xsd/maven-4.0.0.xsd">
    <modelVersion>4.0.0</modelVersion>
    <groupId>SeleniumLearning</groupId>
    <artifactId>SeleniumLearning</artifactId>
    <version>1.0</version>
    <dependencies>
      <dependency>
        <groupId>org.seleniumhq.selenium</groupId>
        <artifactId>selenium-learning</artifactId>
        <version>3.0.0-beta1</version>
      </dependency>
    </dependencies>
  </project>
```

- <http://docs.seleniumhq.org/download/maven.jsp>

5. ◦

```
mvn clean install
```

◦

6. Eclipse IDE Eclipse。

```
mvn eclipse:eclipse
```

7. eclipse ide

Eclipse - > File - > Import - > General - > Existing Project into Workspace - > Next - >  
Browse - > pom.xml - > Ok - > Finish

m2eclipse Maven - > Enable Dependency Management。

## Jar Selenium WebDriver

## 1. Eclipse

Eclipse -> File -> New -> Java Project -> selenium-learning -> Finish

## 2. <http://www.seleniumhq.org/download/jar>. Selenium Standalone Server Selenium Client WebDriver . JavaJar . .

### Selenium Client & WebDriver Language Bindings

In order to create scripts that interact with the Selenium Server (Selenium RC, Selenium Remote WebDriver) or create local Selenium WebDriver scripts, you need to make use of language-specific client drivers. These languages include both 1.x and 2.x style clients.

While language bindings for [other languages exist](#), these are the core ones that are supported by the main project hosted on google code.

Language	Client Version	Release Date	<a href="#">Download</a>	<a href="#">Change log</a>	<a href="#">Javadoc</a>
Java	3.0.0-beta1	2016-07-28	<a href="#">Download</a>	<a href="#">Change log</a>	<a href="#">Javadoc</a>
C#	2.53.1	2016-06-28	<a href="#">Download</a>	<a href="#">Change log</a>	<a href="#">API docs</a>
Ruby	3.0.0.beta1	2016-07-28	<a href="#">Download</a>	<a href="#">Change log</a>	<a href="#">API docs</a>
Python	2.53.6	2016-06-28	<a href="#">Download</a>	<a href="#">Change log</a>	<a href="#">API docs</a>
Javascript (Node)	2.53.3	2016-06-28	<a href="#">Download</a>	<a href="#">Change log</a>	<a href="#">API docs</a>

## Selenium Standalone Server . .

### 3. zip . jar .

### 4. eclipse1 .

```
-> Java -> -> -> jar -> lib -> -> -> -> libjar client-combined-3.0.0-beta1-nodeps.jar ->
```

## Selenium Standalone Server .

### 5. selenium .

**PS** selenium-3.0.0 betajar .

[selenium-webdriver https://riptutorial.com/zh-CN/selenium-webdriver/topic/878/selenium-webdriver](https://riptutorial.com/zh-CN/selenium-webdriver/topic/878/selenium-webdriver)

## 2: HTML

seleniumHTML。 AllureExtentReportsReportNG。

### Examples

#### ExtentReports

TestNGJavaMavenSeleniumExtentReports。

ExtentReports。 ◦

1.

Maven pom.xml。

```
<dependency>
  <groupId>com.aventstack</groupId>
  <artifactId>extentreports</artifactId>
  <version>3.0.6</version>
</dependency>
```

2.

pom.xmlmaven surefire

```
<build>
<defaultGoal>clean test</defaultGoal>
<plugins>
  <plugin>
    <groupId>org.apache.maven.plugins</groupId>
    <artifactId>maven-compiler-plugin</artifactId>
    <version>3.6.1</version>
    <configuration>
      <source>${jdk.level}</source>
      <target>${jdk.level}</target>
    </configuration>
  </plugin>
  <plugin>
    <groupId>org.apache.maven.plugins</groupId>
    <artifactId>maven-surefire-plugin</artifactId>
    <version>2.19.1</version>
    <configuration>
      <suiteXmlFiles>
        <suiteXmlFile>testng.xml</suiteXmlFile>
      </suiteXmlFiles>
    </configuration>
  </plugin>
</plugins>
</build>
```

#### 3.ExtentReports

## test.java

```
public class TestBase {
    WebDriver driver;

    ExtentReports extent;
    ExtentTest logger;
    ExtentHtmlReporter htmlReporter;
    String htmlReportPath = "C:\\\\Screenshots/MyOwnReport.html"; //Path for the HTML report to
    be saved

    @BeforeTest
    public void setup(){
        htmlReporter = new ExtentHtmlReporter(htmlReportPath);
        extent = new ExtentReports();
        extent.attachReporter(htmlReporter);

        System.setProperty("webdriver.chrome.driver", "path/to/chromedriver.exe");
        driver = new ChromeDriver();

    }

    @Test
    public void test1(){
        driver.get("http://www.google.com/");
        logger.log(Status.INFO, "Opened site google.com");
        assertEquals(driver.getTitle(), "Google");
        logger.log(Status.PASS, "Google site loaded");
    }

    @AfterMethod
    public void getResult(ITestResult result) throws Exception {
        if (result.getStatus() == ITestResult.FAILURE)
        {
            logger.log(Status.FAIL, MarkupHelper.createLabel(result.getName() + " Test case
            FAILED due to below issues:", ExtentColor.RED));
            logger.fail(result.getThrowable());
        }
        else if (result.getStatus() == ITestResult.SUCCESS)
        {
            logger.log(Status.PASS, MarkupHelper.createLabel(result.getName() + " Test Case
            PASSED", ExtentColor.GREEN));
        }
        else if (result.getStatus() == ITestResult.SKIP)
        {
            logger.log(Status.SKIP, MarkupHelper.createLabel(result.getName() + " Test Case
            SKIPPED", ExtentColor.BLUE));
        }
    }

    @AfterTest
    public void testend() throws Exception {
        extent.flush();
    }

    @AfterClass
    public void tearDown() throws Exception {
        driver.close();
    }
}
```

---

# Maven

## jcenter

```
<repository>
  <id>jcenter</id>
  <name>bintray</name>
  <url>http://jcenter.bintray.com</url>
</repository>
```

## pom.xml

```
<dependency>
  <groupId>org.aspectj</groupId>
  <artifactId>aspectjweaver</artifactId>
  <version>${aspectj.version}</version>
</dependency>
<dependency>
  <groupId>ru.yandex.qatools.allure</groupId>
  <artifactId>allure-testng-adaptor</artifactId>
  <version>1.5.4</version>
</dependency>
```

## Surefire

```
<plugin>
  <groupId> org.apache.maven.plugins</groupId>
  <artifactId>maven-surefire-plugin</artifactId>
  <version>2.20</version>
  <configuration>
    <argLine>-
javaagent:${settings.localRepository}/org/aspectj/aspectjweaver/${aspectj.version}/aspectjweaver-
${aspectj.version}.jar
    </argLine>
    <properties>
      <property>
        <name>listener</name>
        <value>ru.yandex.qatools.allure.testng.AllureTestListener</value>
      </property>
    </properties>
    <suiteXmlFiles>testng.xml</suiteXmlFiles>
    <testFailureIgnore>>false</testFailureIgnore>
  </configuration>
</plugin>
```

---

## test.java

```
public class test{
  WebDriver driver;
```



```

WebDriverWait wait;

@BeforeMethod
public void setup() {
    System.setProperty("webdriver.chrome.driver", "path to/chromedriver.exe");
    driver = new ChromeDriver();
    driver.get("https://www.google.com/");
    wait = new WebDriverWait(driver, 50);
}

@Test("Title check")
@Description("Checking the title of the loaded page.")
@Test
public void searchTest(){
    String title = driver.getTitle();
    LogUtil.log("Title Fetched: "+title);
    assertEquals(title, "Google");
    LogUtil.log("Test Passed. Expected: Google | Actual: "+title);
    System.out.println("Page Loaded");
}

@AfterMethod
public void teardown(){
    driver.close();
}
}

```

LogUtil。。

LogUtil.java

```

public final class LogUtil {

    private LogUtil() {
    }

    @Step("{0}")
    public static void log(final String message){
        //intentionally empty
    }
}

```

**@Title**""Allure Report

**@Description**""

**@Step**""

target / allure-results /xml

Allure ReportJenkinsJenkins。

Jenkinshtml。 Allure CLIJava。 Allure CLIJava 1.7+。

*Debian*

## DebianPPAdebianAllure CLI

```
$ sudo apt-add-repository ppa:yandex-qatools/allure-framework
$ sudo apt-get update
$ sudo apt-get install allure-commandline
```

## TrustyPrecise

## HomebrewAllure CLI

```
$ brew tap qatools/formulas
$ brew install allure-commandline
```

◦












## WindowsUnix

1. <https://github.com/allure-framework/allure-core/releases/latestzip>
2. allure-commandline bin
3. Windowsallure.batUnix

## /allure-report

```
$ allure generate directory-with-results/
```

## Suites

name  duration  status Filter test cases by status:     > Smoke : Test1 v Sanity : Test1  Title check

2s 061ms

HTML <https://riptutorial.com/zh-CN/selenium-webdriver/topic/10721/html>

---

## 3: Selenium e2e

Selenium Selenium Webdriver + TestNG + Maven + Jenkins。

HTML

### Examples

#### TestNG

TestNGjunit。 **testng.xml**。 CI。

---

## testng.xml

testng.xmlxml。 “testng”。

testng.xml。

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE suite SYSTEM "http://testng.org/testng-1.0.dtd">
<suite name="Smoke"> //name of the suite
  <test name="Test1"> //name of the test
    <classes>
      <class name="test.SearchTest">
        <methods>
          <include name="searchTest"/>
        </methods>
      </class>
    </classes>
  </test>
</suite>
```

#### Maven

TBD。 pom.xmltestng.xml

TBD。 Jenkinsgit / bitbucket。

Selenium e2e <https://riptutorial.com/zh-CN/selenium-webdriver/topic/10724/selenium-e2e>

---

# 4: Selenium Grid

## Examples

Selenium。

- 
- JSON
- 

**JSON**

JSON

- 
- 

。

。

**JSON**

```
{
  "capabilities": [
    {
      "browserName": "firefox",
      "acceptSslCerts": true,
      "javascriptEnabled": true,
      "takesScreenshot": false,
      "firefox_profile": "",
      "browser-version": "27",
      "platform": "WINDOWS",
      "maxInstances": 5,
      "firefox_binary": "",
      "cleanSession": true
    },
    {
      "browserName": "chrome",
      "maxInstances": 5,
      "platform": "WINDOWS",
      "webdriver.chrome.driver": "C:/Program Files (x86)/Google/Chrome/Application/chrome.exe"
    },
    {
      "browserName": "internet explorer",
      "maxInstances": 1,
      "platform": "WINDOWS",
      "webdriver.ie.driver": "C:/Program Files (x86)/Internet Explorer/iexplore.exe"
    }
  ],
  "configuration": {
    "_comment": "Configuration for Node",
    "cleanupCycle": 2000,
    "timeout": 30000,
  }
}
```

```
"proxy": "org.openqa.grid.selenium.proxy.WebDriverRemoteProxy",
"port": 5555,
"host": ip,
"register": true,
"hubPort": 4444,
"maxSessions": 5
}
}
```

o

```
java -jar selenium-server-standalone-<version>.jar -role hub
```

```
java -jar selenium-server-standalone-<version>.jar -role node -hub
http://localhost:4444/grid/register // default port is 4444
```

<https://github.com/SeleniumHQ/selenium/wiki/Grid2>

**Selenium Grid** <https://riptutorial.com/zh-CN/selenium-webdriver/topic/1359/selenium-grid>

# 5: Selenium-webdriverPythonRubyJavascript CI

CircleCI

## Examples

### CircleCISelenium PythonUnittest2

Circle.yml

```
machine:
  python:
    # Python version to use - Selenium requires python 3.0 and above
    version: pypy-3.6.0
  dependencies:
    pre:
      # Install pip packages
      - pip install selenium
      - pip install unittest
  test:
    override:
      # Bash command to run main.py
      - python main.py
```

main.py

```
import unittest2

# Load and run all tests in testsuite matching regex provided
loader = unittest2.TestLoader()
# Finds all the tests in the same directory that have a filename that ends in test.py
testcases = loader.discover('.', pattern="*test.py")
test_runner = unittest2.runner.TextTestRunner()
# Checks that all tests ran
success = test_runner.run(testcases).wasSuccessful()
```

example\_test.py

```
class example_test(unittest.TestCase):
    def test_something(self):
        # Make a new webdriver instance
        self.driver = webdriver.Chrome()
        # Goes to www.google.com
        self.driver.get("https://www.google.com")
```

[Selenium-webdriverPythonRubyJavascriptCI https://riptutorial.com/zh-CN/selenium-webdriver/topic/10091/selenium-webdriverpython-rubyjavascriptci](https://riptutorial.com/zh-CN/selenium-webdriver/topic/10091/selenium-webdriverpython-rubyjavascriptci)

# 6: Selenium-WebDriver

webdriver. ◦

## Examples

Python

Selenium

### ElementNotInteractableExceptionDOM

- **ElementNotSelectableException**. ◦
  -
- **ElementNotVisibleExceptionDOM**. ◦
- **ErrorResponseException**. firefox. ◦
- **ImeActivationFailedExceptionIME**. ◦
- **ImeNotAvailableExceptionIME**. IMEIME. ◦
- **InvalidArgumentException**. ◦
- **InvalidCookieDomainExceptionURLcookie**. ◦
- **InvalidElementException**. ◦
  - ElementNotInteractableException
  - ElementNotSelectableException
  - ElementNotVisibleException
- **InvalidSelectorExceptionWebElement**. xpathxpathWebElements“count// input”. ◦
- **InvalidSwitchToTargetException**. ◦
- **MoveTargetOutOfBoundsExceptionActionsChains move**. ◦
- **NoAlertPresentException**. Alert. ◦
- **NoSuchAttributeExceptionelement**. ◦ ◦ ◦ IE8.innerTextFirefox .textContent
- **NoSuchElementException**. ◦
  - find\_by...
  - selenium.webdriver.support.wait.WebDriverWait.
- **NoSuchFrameException**. ◦
- **NoSuchWindowException**. ◦

```
print driver.window_handles
```
- **RemoteDriverServerException**
- **StaleElementReferenceException**“”. DOM. StaleElementReferenceException ◦ ◦
  - ◦ ◦ javascript.
  - iframe.
- **TimeoutException**. ◦
- **UnableToSetCookieExceptioncookie**. ◦
- **UnexpectedAlertPresentException**. webdriver. ◦



- **UnexpectedTagNameExceptionWeb**。
- **WebDriverExceptionwebdriver**。 **webdriverWebDriverExceptionInvalidStateException**。

**Selenium-WebDriver** <https://riptutorial.com/zh-CN/selenium-webdriver/topic/10546/selenium-webdriver>

# 7: Selenium

Selenium Grid。 Web。 CGroovyJavaPerlPHPPythonRuby。 WindowsLinuxOS Xweb。

Apache 2.0Web。

- jarjar
- java -jar <jar-file-full-name>.jar --<your parameters if any>

	hubnode
	hubnode。
	nodeURL
browserName	nodefirefoxchromeInternet Explorer
MAXINSTANCES	。 55。
nodeConfig	Json。
hubConfig	Json。

## Examples

### Selenium GridJava

```
String hubUrl = "http://localhost:4444/wd/hub"
DesiredCapabilities capability = DesiredCapabilities.firefox(); //or which browser you want
RemoteWebDriver driver = new RemoteWebDriver(hubUrl, capability);
```

### Selenium Grid

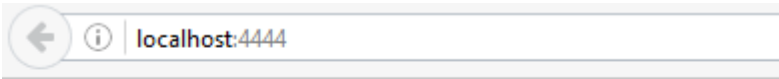
selenium。 [Grid 2](#)

- [-jar](#)

selenium。

1. Selenium-server-standalone-jar
2. Selenium-server-standalone-jar
3.
  1. java -jar selenium-server-standalone-<Version>.jar -role hub
  2. Jsonjava -jar selenium-server-standalone-<Version>.jar -role hub -hubConfig hubConfig.json
- 4.

[http:// localhost4444 /](http://localhost4444/)



You are using grid 2.52.0

Find help on the official selenium wiki : [more help here](#)

default monitoring page : [console](#)

console - > View config

- -jar
- Webdrivers
  - [Chrome](#)
  - [FireFox](#)
  - [Microsoft Edge](#)
  - 
  - 
  - [Microsoft Edge Windows 10](#)

## Hub

1. Selenium-server-standalone-jar
- 2.
- 3.
4. seleniumjar
5.
  1. `java -jar selenium-server-standalone-<VERSION NUMBER>.jar -role node`
  2. `Jsonjava -jar selenium-server-standalone-<Version>.jar -role node -nodeConfig nodeConfig.json`
6. [http:// localhost4444 / grid / console](http://localhost4444/grid/console)

## JsonConfiguragtion

```
java -jar selenium-server-standalone-<version>.jar -role hub -hubConfig hubConfig.json
```

```
{
  "_comment" : "Configuration for Hub - hubConfig.json",
  "host": ip,
  "maxSessions": 5,
  "port": 4444,
  "cleanupCycle": 5000,
  "timeout": 300000,
  "newSessionWaitTimeout": -1,
  "servlets": [],
  "prioritizer": null,
  "capabilityMatcher": "org.openqa.grid.internal.utils.DefaultCapabilityMatcher",
  "throwOnCapabilityNotPresent": true,
  "nodePolling": 180000,
  "platform": "WINDOWS"
}
```

```
java -jar selenium-server-standalone-<version>.jar -role node -nodeConfig nodeConfig.json
```

```

{
  "capabilities":
  [
    {
      "browserName": "opera",
      "platform": "WINDOWS",
      "maxInstances": 5,
      "seleniumProtocol": "WebDriver",
      "webdriver.opera.driver": "C:/Selenium/drivers/operadriver.exe",
      "binary": "C:/Program Files/Opera/44.0.2510.1159/opera.exe"
    },
    {
      "browserName": "chrome",
      "platform": "WINDOWS",
      "maxInstances": 5,
      "seleniumProtocol": "WebDriver",
      "webdriver.chrome.driver": "C:/Selenium/drivers/chromedriver.exe",
      "binary": "C:/Program Files/Google/Chrome/Application/chrome.exe"
    },
    {
      "browserName": "firefox",
      "platform": "WINDOWS",
      "maxInstances": 5,
      "seleniumProtocol": "WebDriver",
      "webdriver.gecko.driver": "C:/Selenium/drivers/geckodriver.exe",
      "binary": "C:/Program Files/Mozilla Firefox/firefox.exe"
    }
  ],
  "proxy": "org.openqa.grid.selenium.proxy.DefaultRemoteProxy",
  "maxSession": 5,
  "port": 5555,
  "register": true,
  "registerCycle": 5000,
  "hub": "http://localhost:4444",
  "nodeStatusCheckTimeout": 5000,
  "nodePolling": 5000,
  "role": "node",
  "unregisterIfStillDownAfter": 60000,
  "downPollingLimit": 2,
  "debug": false,
  "servlets" : [],
  "withoutServlets": [],
  "custom": {}
}

```

Selenium <https://riptutorial.com/zh-CN/selenium-webdriver/topic/2504/selenium>

# 8: Web

## Examples

### C

```
interactionWebElement.Clear();
```

```
interactionWebElement.SendKeys("Text");
```

◦

```
string valueinTextBox = interactionWebElement.GetAttribute("value");
```

◦

```
string textOfElement = interactionWebElement.Text;
```

```
interactionWebElement.Click();
```

```
interactionWebElement.Submit();
```

```
bool isDisplayed=interactionWebElement.Displayed;
```

```
bool isEnabled = interactionWebElement.Enabled;
```

```
bool isSelected=interactionWebElement.Selected;
```

### interactionWebElement

```
IWebElement childElement = interactionWebElement.FindElement(By.Id("childElementId"));
```

### interactionWebElement

```
Ilist<IWebElement> childElements =  
interactionWebElement.FindElements(By.TagName("childElementsTagName"));
```

### Java

#### Web:( -

```
interactionWebElement.clear();
```

```
interactionWebElement.sendKeys("Text");
interactionWebElement.sendKeys(Keys.CONTROL + "c"); // copy to clipboard.
```

```
interactionWebElement.getAttribute("value");
interactionWebElement.getAttribute("style");
```

```
String elementsText = interactionWebElement.getText();
```

```
Select dropDown = new Select(webElement);
dropDown.selectByValue(value);
```

```
interactionWebElement.click();
interactionWebElement.submit(); //for forms
interactionWebElement.isDisplayed();
interactionWebElement.isEnabled(); // for exampale - is clickable.
interactionWebElement.isSelected(); // for radio buttons.
```

---

org.openqa.selenium.interactions.Actions

```
Action dragAndDrop = builder.clickAndHold(someElement)
    .moveToElement(otherElement)
    .release(otherElement)
    .build();

dragAndDrop.perform();
```

```
Action selectMultiple = builder.keyDown(Keys.CONTROL)
    .click(someElement)
    .click(someOtherElement)
    .keyUp(Keys.CONTROL);

dragAndDrop.perform();
```

```
builder.doubleClick(webElement).perform();
builder.moveToElement(webElement).perform(); //hovering
```

o

---

## Javascript

```
// Scroll to view element:
((JavascriptExecutor) driver).executeJavaScript("arguments[0].scrollIntoView(true);",
webElement);
```

Web <https://riptutorial.com/zh-CN/selenium-webdriver/topic/4280/web>

---

# 9:

## Examples

---

### C

```
driver.Manage().Window.Maximize();
```

◦

```
driver.Manage().Window.Position = new System.Drawing.Point(1, 1);
```

◦ Pointxy;◦

```
System.Drawing.Point windowPosition = driver.Manage().Window.Position;
```

```
driver.Manage().Window.Size = new System.Drawing.Size(100, 200);  
System.Drawing.Size windowSize = driver.Manage().Window.Size;
```

### URL

### URL

```
string url = driver.Url;
```

### URL

```
driver.Url = "http://stackoverflow.com/";
```

```
string handle = driver.CurrentWindowHandle;
```

```
IList<String> handles = driver.WindowHandles;
```

---

```
driver.maximize_window()
```

```
driver.get_window_position() # returns {'y', 'x'} coordinates
```

```
driver.set_window_position(x, y) # pass 'x' and 'y' coordinates as arguments
```

```
driver.get_window_size() # returns {'width', 'height'} values
```

```
driver.set_window_size(width, height) # pass 'width' and 'height' values as arguments
```

```
driver.title
```

```
driver.current_url
```

```
driver.current_window_handle
```

```
driver.window_handles
```

◦ ◦ ◦

```
browser.getAllWindowHandles().then(function (handles) {  
    browser.driver.switchTo().window(handles[1]);  
    browser.driver.close();  
    browser.driver.switchTo().window(handles[0]);  
});
```

## JAVA Selenium

```
Set<String> handlesSet = driver.getWindowHandles();  
List<String> handlesList = new ArrayList<String>(handlesSet);  
driver.switchTo().window(handlesList.get(1));  
driver.close();  
driver.switchTo().window(handlesList.get(0));
```

- 
- 1.
  - 2.
  - 3.
  - 4.
  - 5.

```
# Open "Google" page in parent window  
driver.get("https://google.com")  
  
driver.title # 'Google'  
  
# Get parent window  
parent_window = driver.current_window_handle  
  
# Open "Bing" page in child window  
driver.execute_script("window.open('https://bing.com')")  
  
# Get list of all windows currently opened (parent + child)  
all_windows = driver.window_handles  
  
# Get child window  
child_window = [window for window in all_windows if window != parent_window][0]  
  
# Switch to child window  
driver.switch_to.window(child_window)
```



```
driver.title # 'Bing'  
  
# Close child window  
driver.close()  
  
# Switch back to parent window  
driver.switch_to.window(parent_window)  
  
driver.title # 'Google'
```

<https://riptutorial.com/zh-CN/selenium-webdriver/topic/5181/>

---

# 10: Selenium WebDriver Java

Selenium webdriver Web Web Web Selenium IDE webdriver Java.Net PHP Python Perl Ruby

## Examples

### Java Selenium WebDriver URL

```
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.firefox.FirefoxDriver;

class test_webdriver{
    public static void main(String[] args) {
        WebDriver driver = new FirefoxDriver();
        driver.get("http://stackoverflow.com/");
        driver.close();
    }
}
```

to

to

```
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.firefox.FirefoxDriver;
class navigateWithTo{
    public static void main(String[] args) {
        WebDriver driver = new FirefoxDriver();
        driver.navigate().to("http://www.example.com");
        driver.close();
    }
}
```

[Selenium WebDriver Java https://riptutorial.com/zh-CN/selenium-webdriver/topic/9158/selenium-webdriverjava](https://riptutorial.com/zh-CN/selenium-webdriver/topic/9158/selenium-webdriverjava)

---

# 11: Selenium

## Examples

[WebDriverException](#) [Selenium-WebDriver](#) [Selenium-WebDriver](#)

```
from selenium.common.exceptions import WebDriverException as WDE
```

```
try:
    element = driver.find_element_by_id('ID')
except WDE:
    print("Not able to find element")
```

```
from selenium.common.exceptions import ElementNotVisibleException
from selenium.common.exceptions import NoAlertPresentException
...
```

```
from selenium.common.exceptions import UnexpectedAlertPresentException

try:
    driver.find_element_by_tag_name('a').click()
except UnexpectedAlertPresentException as e:
    print(e.__dict__["msg"])
```

[Selenium](#) <https://riptutorial.com/zh-CN/selenium-webdriver/topic/9548/selenium>

# 12:

- **Java**
  - driver.switchTo() frameString name;
  - driver.switchTo() frameString id;
  - driver.switchTo() frameint index;
  - driver.switchTo() frameWebElement frameElement;
  - driver.switchToDefaultContent();
- **C**
  - driver.SwitchTo() Frameint frameIndex;
  - driver.SwitchTo() FrameIWebElement frameElement;
  - driver.SwitchTo() Framestring frameName;
  - driver.SwitchToDefaultContent();
  - driver.switch\_to\_frameNameOrId
  - driver.switch\_to.frameNameOrId
  - driver.switch\_to\_frame
  - driver.switch\_to.frame
  - driver.switch\_to\_frameframeElement
  - driver.switch\_to.frameframeElement
  - driver.switch\_to\_default\_content
  - driver.switch\_to.default\_content
- **JavaScript**
  - driver.switchTo() nameOrId
  - driver.switchTo()
  - driver.switchTo() defaultContent

nameOrId	ID
frameElement	WebElement

## Examples

### Java

#### htmlhtmliframe

```
<iframe src="../../../images/eightball.gif" name="imgboxName" id="imgboxId">
  <p>iframes example</p>
  <a href="../../../images/redball.gif" target="imgbox">Red Ball</a>
</iframe><br />
```

...iframewebiframe

**ID** iframeID.

```
driver.switchTo().frame("imgboxId"); //imgboxId - Id of the frame
```

**iframe**.

```
driver.switchTo().frame("imgboxName"); //imgboxName - Name of the frame
```

**iframeidiframe**.

```
driver.switchTo().frame(0); //0 - Index of the frame
```

**012**.

**webelement** WebElement.

```
driver.switchTo().frame(frameElement); //frameElement - webelement that is the frame
```

Red Ball

```
driver.switchTo().frame("imgboxId");  
driver.findElement(By.linkText("Red Ball")).Click();
```

## Java

◦ ◦

```
driver.switchTo().defaultContent();
```

## C

**1.**

**1.** ID.

```
driver.SwitchTo().Frame(1);
```

**2.**

```
driver.SwitchTo().Frame("Name_Of_Frame");
```

## 3.IWebElement

IDweb

```
driver.SwitchTo().Frame(driver.FindElement(By.Id("ID_OF_FRAME")));
driver.SwitchTo().Frame(driver.FindElement(By.CssSelector("iframe[title='Title_of_Frame']")));
```

```
new WebDriverWait(driver, TimeSpan.FromSeconds(10))
    .Until(ExpectedConditions.ElementIsVisible(By.Id("Id_Of_Frame")));
```

```
driver.SwitchTo().DefaultContent()
```

## C

- ◦
- **webDriver.SwitchToDefaultContent;**
- 
- ◦ **2Frame\_SonFrame\_Daughter** ◦ ◦

### 1.

```
driver.switchTo().frame("Frame_Son");
driver.switchTo().frame("Frame_Daughter");
```

### 2. ◦ ◦

```
driver.switchTo().defaultContent();
driver.switchTo().frame("Frame_Parent");
```

### 3. ◦ ◦

```
driver.switchTo().defaultContent();
driver.switchTo().frame("Frame_Parent");
driver.switchTo().frame("Frame_Daughter");
```

- **NoSuchFrameException** ◦

◦ ◦

```
try{
    new WebDriverWait(driver, 300).ignoring(StaleElementReferenceException.class).
        ignoring(WebDriverException.class).
until(ExpectedConditions.visibilityOf((driver.findElement(By.id("cpmInteractionDivFrame"))));}
catch{
```

//300}

<https://riptutorial.com/zh-CN/selenium-webdriver/topic/4589/>

---

# 13:

Actions/◦ ◦ .Build() .Perform() ◦ ◦ ◦

- dragAndDropWebElementWebElement
- dragAndDropByWebElement sourceint xOffsetint yOffset
- 

	◦
	◦
X	x◦
Y	y◦

Selenium WebDriverActions◦ Actions◦

## Examples

---

### C

```
using OpenQA.Selenium;
using OpenQA.Selenium.Firefox;
using OpenQA.Selenium.Interactions;

namespace WebDriverActions
{
    class WebDriverTest
    {
        static void Main()
        {
            IWebDriver driver = new FirefoxDriver();

            driver.Navigate().GoToUrl("");
            IWebElement source = driver.FindElement(By.CssSelector(""));
            IWebElement target = driver.FindElement(By.CssSelector(""));
            Actions action = new Actions(driver);
            action.DragAndDrop(source, target).Perform();
        }
    }
}
```

IWebElement source IWebElement target ◦

# Java

## webelement.

◦

```
import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.firefox.FirefoxDriver;
import org.openqa.selenium.interactions.Actions;

/**
 * Drag and Drop test using source and target webelement
 */
public class DragAndDropClass {
    public static void main(String[] args) {
        WebDriver driver = new FirefoxDriver();
        driver.get("");
        WebElement source = driver.findElement(By.cssSelector(""));
        WebElement target = driver.findElement(By.cssSelector(""));
        Actions action = new Actions(driver);
        action.build();
        action.dragAndDrop(source, target).perform();
    }
}
```

◦

## xy.

```
WebElement source = driver.findElement(By.cssSelector(""));
Actions action = new Actions(driver);
action.build()
action.dragAndDropBy(source, x, y).perform(); // x and y are integers value
```

---

## C

◦ ◦

## Action “Admin”

```
Actions mouseHover = new Actions(driver);
mouseHover.MoveToElement(driver.FindElement(By.LinkText("Admin"))).Perform();
```

- mouseHover
- driver
- mouseHoverActions driver

◦



```
Actions mouseHover = new Actions(driver);  
mouseHover.MoveToElement(driver.FindElement(By.LinkText("Admin"))).Perform();  
  
Assert.IsTrue(driver.FindElement(By.LinkText("Edit Record")).Displayed);  
Assert.IsTrue(driver.FindElement(By.LinkText("Delete Record")).Displayed);
```

<https://riptutorial.com/zh-CN/selenium-webdriver/topic/4849/-->

# 14:

## Examples

### JUnit

#### JUnitTestWatcher

```
public class TestRules extends TestWatcher {  
  
    @Override  
    protected void failed(Throwable e, Description description) {  
        // This will be called whenever a test fails.  
    }  
}
```

```
public class testClass{  
  
    @Rule  
    public TestRules testRules = new TestRules();  
  
    @Test  
    public void doTestSomething() throws Exception{  
        // If the test fails for any reason, it will be caught be testrules.  
    }  
}
```

### EventFiringWebDriver

#### EventFiringWebDriver ◦ WebDriverEventListener method onException

```
EventFiringWebDriver driver = new EventFiringWebDriver(new FirefoxDriver());  
WebDriverEventListener listener = new AbstractWebDriverEventListener() {  
    @Override  
    public void onException(Throwable t, WebDriver driver) {  
        // Take action  
    }  
};  
driver.register(listener);
```

<https://riptutorial.com/zh-CN/selenium-webdriver/topic/8226/>

# 15: Java @FindBy

- CLASS\_NAME @FindByclassName =“classname”
- CSS @FindBycss =“css”
- ID @FindByid =“id”
- ID\_OR\_NAME @FindByhow = How.ID\_OR\_NAME=“idOrName”
- LINK\_TEXT @FindBylinkText =“text”
- @FindBy=“”
- PARTIAL\_LINK\_TEXT @FindBypartialLinkText =“text”
- TAG\_NAME @FindBytagName =“tagname”
- XPATH @FindByxpath =“xpath”

```
@FindBy(id = "id")
```

```
@FindBy(how = How.ID, using = "id")
```

ID. ID\_OR\_NAME

```
@FindBy(how = How.ID_OR_NAME, using = "idOrName")
```

```
PageFactory.initElements() @FindBy
```

## Examples

Page .

```
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.firefox.FirefoxDriver;
import org.openqa.selenium.support.FindBy;
import org.openqa.selenium.support.PageFactory;

public class LoginPage {

    @FindBy(id="loginInput") //method used to find WebElement, in that case Id
    WebElement loginTextbox;

    @FindBy(id="passwordInput")
    WebElement passwordTextBox;

    //xpath example:
    @FindBy(xpath="//form[@id='loginForm']/button(contains(., 'Login'))")
    WebElement loginButton;

    public void login(String username, String password){
        // login method prepared according to Page Object Pattern
        loginTextbox.sendKeys(username);
    }
}
```

```
passwordTextBox.sendKeys(password);
loginButton.click();
// because WebElements were declared with @FindBy, we can use them without
// driver.find() method
}
}
```

```
class Tests{
    public static void main(String[] args) {
        WebDriver driver = new FirefoxDriver();
        LoginPage loginPage = new LoginPage();

        //PageFactory is used to find elements with @FindBy specified
        PageFactory.initElements(driver, loginPage);
        loginPage.login("user", "pass");
    }
}
```

@FindByWebElements - ◦

Java@FindBy <https://riptutorial.com/zh-CN/selenium-webdriver/topic/6777/java-findby>

## 16:

seleniumFrameseprate。 WebSeleniumswithTo。

### Examples

```
<iframe "id="iframe_Login1">
    <iframe "id="iframe_Login2">
        <iframe "id="iframe_Login3">
            </iframe>
        </iframe>
    </iframe>
</iframe>
```

seleniumswithToframe。

◦ driver.switchToiframe\_Login1; ◦ driver.switchToiframe\_Login2; ◦ driver.switchToiframe\_Login3;

parentFramedefaultContest;

parentFrame。 ◦

```
driver.switchTo().parentFrame();
```

defaultContentiframe。

```
driver.switchTo().defaultContent();
```

<https://riptutorial.com/zh-CN/selenium-webdriver/topic/9803/>

# 17: Javascript

- object ExecuteAsyncScript string scriptparams object [] args;
- object ExecuteScript string scriptparams object [] args;

## Examples

### C

IWebDriver JavaScript IWebDriver IJavaScriptExecutor

```
IWebDriver driver;  
IJavaScriptExecutor jsDriver = driver as IJavaScriptExecutor;
```

IJavaScriptExecutor Javascript

```
jsDriver.ExecuteScript("alert('running javascript');");
```

python Javascript execute\_script("javascript script here") ◦ execute\_script webdriver javascript ◦

```
from selenium import webdriver  
driver = webdriver.Chrome()  
driver.execute_script("alert('running javascript');")
```

### Java

Java Javascript Javascript webdriver ◦ executeScript() executeScript() JavascriptExecutor  
((JavascriptExecutor) driver) ◦ driver.executeScript() Javascript ◦

```
WebDriver driver = new ChromeDriver();  
JavascriptExecutor JavascriptExecutor = ((JavascriptExecutor) driver);  
JavascriptExecutor.executeScript("alert('running javascript');");
```

```
require "selenium-webdriver"  
  
driver = Selenium::WebDriver.for :chrome  
driver.execute_script("alert('running javascript');")
```

Javascript <https://riptutorial.com/zh-CN/selenium-webdriver/topic/6986/javascript>

# 18: Selenium Webdriver

seleniumCGroovyJavaPerlPHPPythonRubyWeb。

- > Google Page - >

## Examples

### C

```
using OpenQA.Selenium;
using OpenQA.Selenium.Chrome;

namespace BasicWebdriver
{
    class WebDriverTest
    {
        static void Main()
        {
            using (var driver = new ChromeDriver())
            {
                driver.Navigate().GoToUrl("http://www.google.com");
            }
        }
    }
}
```

“Google。

```
using (var driver = new ChromeDriver())
```

IWebDriver WebDriver。 ChromeDriver。 using IWebDriver IDisposable driver.Quit();。

[NuGet WebDriver](#)“chromedriver.exe”。

```
driver.Navigate().GoToUrl("http://www.google.com");
```

```
driver.Url = "http://www.google.com";
```

。 URL。

Back() Forward() Refresh()。

using。

```
from selenium import webdriver
```

```

from selenium.webdriver.common.keys import Keys

def set_up_driver():
    path_to_chrome_driver = 'chromedriver'
    return webdriver.Chrome(executable_path=path_to_chrome_driver)

def get_google():
    driver = set_up_driver()
    driver.get('http://www.google.com')
    tear_down(driver)

def tear_down(driver):
    driver.quit()

if '__main__' == __name__:
    get_google()

```

“Google.

```

if '__main__' == __name__:
    get_google()

```

get\_google() ◦

```

def get_google():
    driver = set_up_driver()

```

get\_google() set\_up\_driver() driver

```

def set_up_driver():
    path_to_chrome_driver = 'chromedriver'
    return webdriver.Chrome(executable_path=path_to_chrome_driver)

```

chromedriver.exe ◦ get\_google() **Google**

```

driver.get('http://www.google.com')

```

tear\_down()

```

tear_down(driver)

```

tear\_down()

```

driver.quit()

```

◦

## Java

3.

1. Chrome
- 2.



### 3.

```
import org.openqa.selenium;
import org.openqa.selenium.chrome;

public class WebDriverTest {
    public static void main(String args[]) {
        System.setProperty("webdriver.chrome.driver", "C:\\path\\to\\chromedriver.exe");
        WebDriver driver = new ChromeDriver();

        driver.get("http://www.google.com");
        driver.quit();
    }
}
```

“Google.

```
System.setProperty("webdriver.chrome.driver", "C:\\path\\to\\chromedriver.exe");
WebDriver driver = new ChromeDriver();
```

ChromeDriver chromedriver.exe ChromeDriver()/

```
driver.get("http://www.google.com");
```

[http //www.google.com](http://www.google.com) ◦ Java WebDriver API WebDriver.get() navigate() driver.navigate.back()

```
driver.quit();
```

```
driver.close();
```

quit() ◦

## Java -

## FB

```
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.firefox.FirefoxDriver;
import org.testng.annotations.BeforeClass;
import org.testng.annotations.Test;

public class FaceBookLoginTest {
    private static WebDriver driver;
    HomePage homePage;
    LoginPage loginPage;
    @BeforeClass
    public void openFBPage(){
        driver = new FirefoxDriver();
        driver.get("https://www.facebook.com/");
    }
}
```

```

        loginPage = new LoginPage(driver);
    }
    @Test
    public void loginToFB(){
        loginPage.enterUserName("username");
        loginPage.enterPassword("password");
        homePage = loginPage.clickLogin();
        System.out.println(homePage.getUserName());
    }
}

```

```

import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.support.FindBy;

public class LoginPage {

    WebDriver driver;
    public LoginPage(WebDriver driver){
        this.driver = driver;
    }
    @FindBy(id="email")
    private WebElement loginTextBox;

    @FindBy(id="pass")
    private WebElement passwordTextBox;

    @FindBy(xpath = "//*[@data-testid='royal_login_button']")
    private WebElement loginBtn;

    public void enterUserName(String userName){
        if(loginTextBox.isDisplayed()) {
            loginTextBox.clear();
            loginTextBox.sendKeys(userName);
        }
        else{
            System.out.println("Element is not loaded");
        }
    }
    public void enterPassword(String password){
        if(passwordTextBox.isDisplayed()) {
            passwordTextBox.clear();
            passwordTextBox.sendKeys(password);
        }
        else{
            System.out.println("Element is not loaded");
        }
    }
    public HomePage clickLogin(){
        if(loginBtn.isDisplayed()) {
            loginBtn.click();
        }
        return new HomePage(driver);
    }
}

```

```

import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;

```

```
import org.openqa.selenium.support.FindBy;

public class HomePage {

    WebDriver driver;
    public HomePage(WebDriver driver){
        this.driver = driver;
    }

    @FindBy(xpath="//a[@data-testid='blue_bar_profile_link']/span")
    private WebElement userName;

    public String getUsername(){
        if(userName.isDisplayed()) {
            return userName.getText();
        }
        else {
            return "Username is not present";
        }
    }
}
```

**Selenium Webdriver** <https://riptutorial.com/zh-CN/selenium-webdriver/topic/3990/selenium-webdriver>

# 19:

## Examples

### JavaSelenium

#### SeleniumJava

3.

1. "";
2. var popuResult = confirm"";
3. var person = prompt"stackoverflow"/";

o

1. accept
2. dismiss
3. getText
4. sendKeys

```
Alert simpleAlert = driver.switchTo().alert();
String alertText = simpleAlert.getText();
System.out.println("Alert text is " + alertText);
simpleAlert.accept();
```

```
Alert confirmationAlert = driver.switchTo().alert();
String alertText = confirmationAlert.getText();
System.out.println("Alert text is " + alertText);
confirmationAlert.dismiss();
```

```
Alert promptAlert = driver.switchTo().alert();
String alertText = promptAlert .getText();
System.out.println("Alert text is " + alertText);
//Send some text to the alert
promptAlert .sendKeys("Accepting the alert");
Thread.sleep(4000); //This sleep is not necessary, just for demonstration
promptAlert .accept();
```

o

#### try-catch

```
try{
    // Your logic here.
} catch (UnhandledAlertException e){
```

```
Alert alert = driver.switchTo().alert();
alert.accept();
}
// Continue.
```

## C

### SeleniumC

```
IAAlert alert = driver.SwitchTo().Alert();
// Prints text and closes alert
System.out.println(alert.Text);
alert.Accept();
or
alert.Dismiss();
```

o

### try-catch

```
try{
    // Your logic here.
} catch(UnhandledAlertException e){
    var alert = driver.SwitchTo().Alert();
    alert.Accept();
}
// Continue.
```

Python

1.

```
alert = driver.switch_to_alert()
```

2. *switch\_to*

```
alert = driver.switch_to.alert
```

3. *ExplicitWait*

```
from selenium.webdriver.common.by import By
from selenium.webdriver.support.ui import WebDriverWait
from selenium.webdriver.support import expected_conditions as EC

alert = WebDriverWait(driver, TIMEOUT_IN_SECONDS).until(EC.alert_is_present())
```

4. *Alert*

```
from selenium.webdriver.common.alert import Alert

alert = Alert(driver)
```

JavaScript prompt()

```
alert.send_keys('Some text to send')
```

\*

```
alert.accept()
```

```
alert.dismiss()
```

```
alert.text
```

\* *PS* `alert.dismiss()` *JavaScript* `alert()` `alert.confirm()`

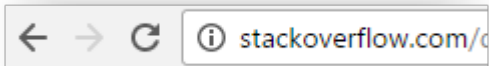
<https://riptutorial.com/zh-CN/selenium-webdriver/topic/6048/>

## 20:

- **C**
- void Back
- void Forward
- void GotToUrlstring url
- void Refresh
- 
- driver.back
- driver.forward
- driver.get "URL"
- driver.refresh
- **Java**
- driver.navigate;
- ◦ driver.navigate;
- driver.navigate "URL".
- ◦ driver.navigate;

## Examples

[C]



Navigate()

```
IWebDriver driver
INavigation navigation = driver.Navigate();
```

Web

```
//like pressing the back button
navigation.Back();
//like pressing the forward button on a browser
navigation.Forward();
//navigate to a new url in the current window
navigation.GoToUrl("www.stackoverflow.com");
//Like pressing the reload button
navigation.Refresh();
```

[Java]

```
driver.navigate().to("http://www.example.com");
```

```
driver.navigate().back();
```

```
driver.navigate().forward();
```

```
driver.navigate().refresh();
```

## WebDriver

### WebDriverWeb。

- 
- **WebElements**
- 

### getStringWebfindElementByWebElements。。

```
void get(java.lang.String url)
```

### 。 HTTP GET。。

```
//Initialising driver
WebDriver driver = new FirefoxDriver();

//setting timeout for page load
driver.manage().timeouts().pageLoadTimeout(20, TimeUnit.SECONDS);

//Call Url in get method
driver.get("https://www.google.com");
//or
driver.get("https://seleniumhq.org");
```

## getCurrentUrl

```
java.lang.String getCurrentUrl()
```

### URL。 URL。

```
//Getting current url loaded in browser & comparing with expected url
String pageURL = driver.getCurrentUrl();
Assert.assertEquals(pageURL, "https://www.google.com");
```

## getTitle

```
java.lang.String getTitle()
```

### null。

```
//Getting current page title loaded in browser & comparing with expected title
String pageTitle = driver.getTitle();
Assert.assertEquals(pageTitle, "Google");

getPageSource
```



```
java.lang.String getPageSource()
```

- **Javascript**

```
//get the current page source  
String pageSource = driver.getPageSource();
```

```
void close()
```

◦ ◦

```
//Close the current window  
driver.close();
```

```
void quit()
```

◦ ◦

```
//Quit the current driver session / close all windows associated with driver  
driver.quit();
```

## Selenium 2.0

<https://riptutorial.com/zh-CN/selenium-webdriver/topic/7272/>

## 21:

- `src = TakesScreenshot.getScreenshotAs(OutputType.FILE);`
- `FileUtils.copyFile(src, new File("D:\screenshot.png"));`

## Examples

### JAVA

```
public class Sample
{
    public static void main (String[] args)
    {
        *//Initialize Browser*
        System.setProperty("webdriver.gecko.driver", "**E:\\path\\to\\geckodriver.exe**");
        WebDriver driver = new FirefoxDriver();
        driver.manage().window().maximize();
        driver.get("https://www.google.com/");

        //Take Screensnshot
        File src = ((TakesScreenshot)driver).getScreenshotAs(OutputType.FILE);
        try {
            //Save Screenshot in destination file
            FileUtils.copyFile(src, new File("D:\\screenshot.png"));
        } catch (IOException e) {
            e.printStackTrace();
        }
    }
}
```

```
File src = ((TakesScreenshot)driver).getScreenshotAs(OutputType.FILE);
```

```
FileUtils.copyFile(src, new File("D:\\screenshot.png"));
```

<https://riptutorial.com/zh-CN/selenium-webdriver/topic/10094/>

# 22:

## Examples

### PhantomJS [C]

PhantomJS JavaScript

#### PhantomJS

```
using OpenQA.Selenium;
using OpenQA.Selenium.PhantomJS;
```

```
var driver = new PhantomJSDriver();
```

#### PhantomJSDriver WebDriver

```
using (var driver = new PhantomJSDriver())
{
    driver.Navigate().GoToUrl("http://stackoverflow.com/");

    var questions = driver.FindElements(By.ClassName("question-hyperlink"));

    foreach (var question in questions)
    {
        // This will display every question header on StackOverflow homepage.
        Console.WriteLine(question.Text);
    }
}
```

◦ **UI** PhantomJS ◦ PhantomJSOptions PhantomJSDriverService ◦

```
// Options are used for setting "browser capabilities", such as setting a User-Agent
// property as shown below:
var options = new PhantomJSOptions();
options.AddAdditionalCapability("phantomjs.page.settings.userAgent",
"Mozilla/5.0 (Windows NT 6.1; Win64; x64; rv:25.0) Gecko/20100101 Firefox/25.0");

// Services are used for setting up the WebDriver to your likings, such as
// hiding the console window and restricting image loading as shown below:
var service = PhantomJSDriverService.CreateDefaultService();
service.HideCommandPromptWindow = true;
service.LoadImages = false;

// The same code as in the example above:
using (var driver = new PhantomJSDriver(service, options))
{
    driver.Navigate().GoToUrl("http://stackoverflow.com/");

    var questions = driver.FindElements(By.ClassName("question-hyperlink"));

    foreach (var question in questions)
```

```

    {
        // This will display every question header on StackOverflow homepage.
        Console.WriteLine(question.Text);
    }
}

```

PhantomJSDriverService **F12**◦

## SimpleBrowser [C]

SimpleBrowser JavaScriptWebDriver◦

PhantomJS◦

### SimpleBrowser.WebDriver

```

using OpenQA.Selenium;
using SimpleBrowser.WebDriver;

```

```

using (var driver = new SimpleBrowserDriver())
{
    driver.Navigate().GoToUrl("http://stackoverflow.com/");

    var questions = driver.FindElements(By.ClassName("question-hyperlink"));

    foreach (var question in questions)
    {
        // This will display every question header on StackOverflow homepage.
        Console.WriteLine(question.Text);
    }
}

```

## Java

### HTMLUnitDriver

HTMLUnitDriver HTMLUnitWebdriver GUI-less◦ HTMLAPI◦ JavaScriptAJAX◦ ◦

---

HTMLUnitDriver <http://stackoverflow.com/>◦

---

```

import java.util.List;
import java.util.concurrent.TimeUnit;
import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.htmlunit.HtmlUnitDriver;

class testHeadlessDriver{
    private void getQuestions() {
        WebDriver driver = new HtmlUnitDriver();
        driver.get("http://stackoverflow.com/");
    }
}

```

```
        driver.manage().timeouts().implicitlyWait(60, TimeUnit.SECONDS);
        List<WebElement> questions = driver.findElements(By.className("question-
hyperlink"));
        questions.forEach((question) -> {
            System.out.println(question.getText());
        });
        driver.close();
    }
}
```

---

Mozilla FirefoxIEGUI。

<https://riptutorial.com/zh-CN/selenium-webdriver/topic/3931/>

## 23:

- int ms
- keyPressint keycode
- keyReleaseint keycode
- mouseMoveint xint y
- mousePressint
- mouseReleaseint
- mouseWheelint wheelAmt

	AVK_A ◦ <a href="https://docs.oracle.com/javase/7/docs/api/java/awt/event/KeyEvent.html">https://docs.oracle.com/javase/7/docs/api/java/awt/event/KeyEvent.html</a>
XY	
	;
wheelAmt	//

Selenium WebDriver Robot API ◦ seleniumRobotF1 ◦

## Examples

### Robot API JAVA Keypress

```
import java.awt.AWTException;
import java.awt.Robot;
import java.awt.event.KeyEvent;

public class KeyBoardExample {
    public static void main(String[] args) {
        try {
            Robot robot = new Robot();
            robot.delay(3000);
            robot.keyPress(KeyEvent.VK_Q); //VK_Q for Q
        } catch (AWTException e) {
            e.printStackTrace();
        }
    }
}
```

## Selenium

Web ◦ ENTER Selenium WebDriver

```
import java.awt.AWTException;
import java.awt.Robot;
import java.awt.event.KeyEvent;
```

```

import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.firefox.FirefoxDriver;
import org.testng.annotations.Test;

public class LoginTest {

    @Test
    public void testEnterKey() throws InterruptedException
    {
        WebDriver driver=new FirefoxDriver();
        Robot robot=null;
        driver.get("test-url");
        driver.manage().window().maximize();
        driver.findElement(By.xpath("xpath-expression")).click();
        driver.findElement(By.xpath("xpath-expression")).sendKeys("username");
        driver.findElement(By.xpath("xpath-expression")).sendKeys("password");
        try {
            robot=new Robot();
        } catch (AWTException e) {
            e.printStackTrace();
        }
        //Keyboard Activity Using Robot Class
        robot.keyPress(KeyEvent.VK_ENTER);
    }
}

```

## Robot APIJAVA

```

import java.awt.Robot;

public class MouseClass {
    public static void main(String[] args) throws Exception {
        Robot robot = new Robot();

        // SET THE MOUSE X Y POSITION
        robot.mouseMove(300, 550);
    }
}

```

/

```

import java.awt.Robot;
import java.awt.event.InputEvent;

public class MouseEvent {
    public static void main(String[] args) throws Exception {
        Robot robot = new Robot();

        // LEFT CLICK
        robot.mousePress(InputEvent.BUTTON1_MASK);
        robot.mouseRelease(InputEvent.BUTTON1_MASK);

        // RIGHT CLICK
        robot.mousePress(InputEvent.BUTTON3_MASK);
        robot.mouseRelease(InputEvent.BUTTON3_MASK);
    }
}

```

```
import java.awt.Robot;
import java.awt.event.InputEvent;

public class MouseClass {
    public static void main(String[] args) throws Exception {
        Robot robot = new Robot();

        // MIDDLE WHEEL CLICK
        robot.mousePress(InputEvent.BUTTON3_DOWN_MASK);
        robot.mouseRelease(InputEvent.BUTTON3_DOWN_MASK);

        // SCROLL THE MOUSE WHEEL
        robot.mouseWheel(-100);
    }
}
```

<https://riptutorial.com/zh-CN/selenium-webdriver/topic/4877/>



# 24: Web

- ByChainedparams By [] bys

By Selenium SeleniumWeb

1. ID
- 2.
3. CSS xpath
4. XPATH - CSS XPATH Axis div::parent

DOM Python

```
from selenium import webdriver
import time

browser = webdriver.Firefox()
browser.get("https://app.website.com")

reports_element = browser.find_element_by_xpath("//button[contains(text(), 'Reports')]")

# Element not found! Try giving time for the browser to download all DOM elements:
time.sleep(10)

reports_element = browser.find_element_by_xpath("//button[contains(text(), 'Reports')]")
# This returns correct value!
```

## Examples

### WebDriver

WebElements

By selenium

By ..

1. ID
- 2.
3. TagName
- 4.
- 5.
- 6.
7. CSS Selector
8. XPath
9. JavaScript

```
<form name="loginForm">
Login Username: <input id="username" name="login" type="text" />
Password: <input id="password" name="password" type="password" />
<input name="login" type="submit" value="Login" />
```

id id

```
driver.findElement(By.id(username));

driver.findElement(By.id(password));
```

selenium7

## ID

ID

```
<div id="coolestWidgetEvah">...</div>
```

```
Java      - WebElement element = driver.findElement(By.id("coolestWidgetEvah"));
C#        - IWebElement element = driver.FindElement(By.Id("coolestWidgetEvah"));
Python    - element = driver.find_element_by_id("coolestWidgetEvah")
Ruby      - element = driver.find_element(:id, "coolestWidgetEvah")
JavaScript/Protractor - var elm = element(by.id("coolestWidgetEvah"));
```

```
<div class="cheese"><span>Cheddar</span></div>
```

```
Java      - WebElement element = driver.findElement(By.className("cheese"));
C#        - IWebElement element = driver.FindElement(By.ClassName("cheese"));
Python    - element = driver.find_element_by_class_name("cheese")
Ruby      - cheeses = driver.find_elements(:class, "cheese")
JavaScript/Protractor - var elm = element(by.className("cheese"));
```

```
<iframe src="..."></iframe>
```

```
Java      - WebElement element = driver.findElement(By.tagName("iframe"));
C#        - IWebElement element = driver.FindElement(By.TagName("iframe"));
Python    - element = driver.find_element_by_tag_name("iframe")
Ruby      - frame = driver.find_element(:tag_name, "iframe")
JavaScript/Protractor - var elm = element(by.tagName("iframe"));
```

```
<input name="cheese" type="text"/>
```

```
Java      - WebElement element = driver.findElement(By.name("cheese"));
C#        - IWebElement element = driver.FindElement(By.Name("cheese"));
Python    - element = driver.find_element_by_name("cheese")
Ruby      - cheese = driver.find_element(:name, "cheese")
JavaScript/Protractor - var elm = element(by.name("cheese"));
```

```
<a href="http://www.google.com/search?q=cheese">cheese</a>>
```

```
Java      - WebElement element = driver.findElement(By.linkText("cheese"));
C#        - IWebElement element = driver.FindElement(By.LinkText("cheese"));
Python    - element = driver.find_element_by_link_text("cheese")
Ruby      - cheese = driver.find_element(:link, "cheese")
JavaScript/Protractor - var elm = element(by.linkText("cheese"));
```

---

```
<a href="http://www.google.com/search?q=cheese">search for cheese</a>>
```

```
Java      - WebElement element = driver.findElement(By.partialLinkText("cheese"));
C#        - IWebElement element = driver.FindElement(By.PartialLinkText("cheese"));
Python    - element = driver.find_element_by_partial_link_text("cheese")
Ruby      - cheese = driver.find_element(:partial_link_text, "cheese")
JavaScript/Protractor - var elm = element(by.partialLinkText("cheese"));
```

---

## CSS

### CSS

```
<div id="food" class="dairy">milk</span>
```

```
Java      - WebElement element = driver.findElement(By.cssSelector("#food.dairy")); // # is
used to indicate id and . is used for classname.
C#        - IWebElement element = driver.FindElement(By.CssSelector("#food.dairy"));
Python    - element = driver.find_element_by_css_selector("#food.dairy")
Ruby      - cheese = driver.find_element(:css, "#food span.dairy.aged")
JavaScript/Protractor - var elm = element(by.css("#food.dairy"));
```

CSS [http //www.w3schools.com/cssref/css\\_selectors.asp](http://www.w3schools.com/cssref/css_selectors.asp)

---

## XPath

### XPath

```
<input type="text" name="example" />
```

```
Java      - WebElement element = driver.findElement(By.xpath("//input"));
C#        - IWebElement element = driver.FindElement(By.XPath("//input"));
Python    - element = driver.find_element_by_xpath("//input")
Ruby      - inputs = driver.find_elements(:xpath, "//input")
JavaScript/Protractor - var elm = element(by.xpath("//input"));
```

XPath [http //www.w3schools.com/xsl/xpath\\_intro.asp](http://www.w3schools.com/xsl/xpath_intro.asp)

---

## JavaScript

javascriptDOMWebElement。

## jQuery

```
Java      - WebElement element = (WebElement)
           ((JavascriptExecutor)driver).executeScript("return $('cheese')[0]");

C#        - IWebElement element = (IWebElement)
           ((IJavaScriptExecutor)driver).ExecuteScript("return $('cheese')[0]");

Python    - element = driver.execute_script("return $('cheese')[0]");
Ruby      - element = driver.execute_script("return $('cheese')[0]");
JavaScript/Protractor -
```

[WebDriverJavaScriptSimpleBrowser](#) ◦

## [C]

◦ `OpenQA.Selenium.Support.PageObjects.ByChained`

```
element = driver.FindElement(new ByChained(By.TagName("input"), By.ClassName("class"));
```

`ByANDBy`

`driver.Navigate().GoToUrl(url);` ◦ ◦

◦ `""` ◦

---

[Wait](#) ◦

## C

```
using (var driver = new ChromeDriver())
{
    new Thread(() =>
    {
        driver.Navigate().GoToUrl("http://stackoverflow.com");
    }).Start();

    new WebDriverWait(driver, TimeSpan.FromSeconds(10))
        .Until(ExpectedConditions.ElementIsVisible(By.XPath("//div[@class='summary']/h3/a")));
}
```

`WebDriverTimeout` ◦ [catchWait](#) ◦

## C

```
using (var driver = new ChromeDriver())
{
    driver.Manage().Timeouts().SetPageLoadTimeout(TimeSpan.FromSeconds(5));

    try
```

```
{
    driver.Navigate().GoToUrl("http://stackoverflow.com");
}
catch (WebDriverTimeoutException)
{
    new WebDriverWait(driver, TimeSpan.FromSeconds(10))
        .Until(ExpectedConditions.ElementIsVisible
            (By.XPath("//div[@class='summary']/h3/a")));
}
}
```

◦ ◦

Web <https://riptutorial.com/zh-CN/selenium-webdriver/topic/3991/web>

# 25:

selenium

## Examples

### Python

#### 1. Actions “BROWSE TEMPLATES”

```
from selenium import webdriver
from selenium.webdriver.common.action_chains import ActionChains

driver = webdriver.Chrome()
driver.get('http://www.w3schools.com/')
target = driver.find_element_by_link_text('BROWSE TEMPLATES')
actions = ActionChains(driver)
actions.move_to_element(target)
actions.perform()
```

#### 2. “” JavaScript

```
from selenium import webdriver

driver = webdriver.Chrome()
driver.get('http://www.w3schools.com/')
target = driver.find_element_by_link_text('BROWSE TEMPLATES')
driver.execute_script('arguments[0].scrollIntoView(true);', target)
```

#### 3. “BROWSE TEMPLATES”

```
from selenium import webdriver

driver = webdriver.Chrome()
driver.get('http://www.w3schools.com/')
target = driver.find_element_by_link_text('BROWSE TEMPLATES')
target.location_once_scrolled_into_view
```

`location_once_scrolled_into_view` x y

#### 4. Keys

```
from selenium import webdriver
from selenium.webdriver.common.keys import Keys

driver = webdriver.Chrome()
driver.get('http://www.w3schools.com/')
driver.find_element_by_tag_name('body').send_keys(Keys.END) # Use send_keys(Keys.HOME) to
scroll up to the top of page
```

`send_keys(Keys.DOWN)` / `send_keys(Keys.UP)` `send_keys(Keys.PAGE_DOWN)` / `send_keys(Keys.PAGE_UP)`

## 1. // 。

。

```
public static boolean scroll_Page(WebElement webelement, int scrollPoints)
{
    try
    {
        System.out.println("----- Started - scroll_Page -----");
        driver = ExecutionSetup.getDriver();
        dragger = new Actions(driver);

        // drag downwards
        int numberOfPixelsToDragTheScrollbarDown = 10;
        for (int i = 10; i < scrollPoints; i = i + numberOfPixelsToDragTheScrollbarDown)
        {
            dragger.moveToElement(webelement).clickAndHold().moveByOffset(0,
numberOfPixelsToDragTheScrollbarDown).release(webelement).build().perform();
        }
        Thread.sleep(500);
        System.out.println("----- Ending - scroll_Page -----");
        return true;
    }
    catch (Exception e)
    {
        System.out.println("----- scroll is unsucessfully done in scroll_Page -----
-----");
        e.printStackTrace();
        return false;
    }
}
```

## 2. // 。

。

```
public static boolean scroll_Page_Up(WebElement webelement, int scrollPoints)
{
    try
    {
        System.out.println("----- Started - scroll_Page_Up -----");
        driver = ExecutionSetup.getDriver();
        dragger = new Actions(driver);
        // drag upwards
        int numberOfPixelsToDragTheScrollbarUp = -10;
        for (int i = scrollPoints; i > 10; i = i + numberOfPixelsToDragTheScrollbarUp)
        {
            dragger.moveToElement(webelement).clickAndHold().moveByOffset(0,
numberOfPixelsToDragTheScrollbarUp).release(webelement).build().perform();
        }
        System.out.println("----- Ending - scroll_Page_Up -----");
        return true;
    }
    catch (Exception e)
```

```

    {
        System.out.println("----- scroll is unsuccessfully done in scroll_Page_Up---
-----");
        e.printStackTrace();
        return false;
    }
}

```

### 3. Page Down Key。

<div></div>

```

public static boolean pageDown_New(WebElement webeScrollArea, int iLoopCount)
{
    try
    {
        System.out.println("----- Started - pageDown_New -----");
        driver = ExecutionSetup.getDriver();
        dragger = new Actions(driver);

        for (int i = 0; i <= iLoopCount; i++)
        {

dragger.moveToElement(webeScrollArea).click().sendKeys(Keys.PAGE_DOWN).build().perform();
        }
        System.out.println("----- Ending - pageDown_New -----");
        return true;
    }
    catch (Exception e)
    {
        System.out.println("----- Not able to do page down -----");
        return false;
    }
}

```

### 4. Page UP。

<div></div>

```

public static boolean pageUp_New(WebElement webeScrollArea, int iLoopCount)
{
    try
    {
        System.out.println("----- Started - pageUp_New -----");
        driver = ExecutionSetup.getDriver();
        dragger = new Actions(driver);

        for (int i = 0; i <= iLoopCount; i++)
        {

dragger.moveToElement(webeScrollArea).click().sendKeys(Keys.PAGE_UP).build().perform();
        }
        System.out.println("----- Ending - pageUp_New -----");
        return true;
    }
    catch (Exception e)

```



```

    {
        System.out.println("----- Not able to do page up -----");
        return false;
    }
}

```

## 5. ◦

<div>◦

```

public static boolean scrollDown_Keys(WebElement webeScrollArea, int iLoopCount)
{
    try
    {
        System.out.println("----- Started - scrollDown_Keys -----");
        driver = ExecutionSetup.getDriver();
        dragger = new Actions(driver);

        for (int i = 0; i <= iLoopCount; i++)
        {

dragger.moveToElement(webeScrollArea).click().sendKeys(Keys.DOWN).build().perform();
        }
        System.out.println("----- Ending - scrollDown_Keys -----");
        return true;
    }
    catch (Exception e)
    {
        System.out.println("----- Not able to do scroll down with keys-----
---");
        return false;
    }
}

```

## 6. ◦

<div>**require up**◦

```

public static boolean scrollUp_Keys(WebElement webeScrollArea, int iLoopCount)
{
    try
    {
        System.out.println("----- Started - scrollUp_Keys -----");
        driver = ExecutionSetup.getDriver();
        dragger = new Actions(driver);

        for (int i = 0; i <= iLoopCount; i++)
        {
            dragger.moveToElement(webeScrollArea).click().sendKeys(Keys.UP).build().perform();
        }
        System.out.println("----- Ending - scrollUp_Keys -----");
        return true;
    }
    catch (Exception e)
    {
        System.out.println("----- Not able to do scroll up with keys-----
---");
        return false;
    }
}

```

```
-");  
    return false;  
}  
}
```

---

## 7. //。

。。

```
public static boolean scroll_without_WebE(int scrollPoint)  
{  
    JavascriptExecutor jse;  
    try  
    {  
        System.out.println("----- Started - scroll_without_WebE -----");  
  
        driver = ExecutionSetup.getDriver();  
        jse = (JavascriptExecutor) driver;  
        jse.executeScript("window.scrollTo(0," + scrollPoint + ")", "");  
  
        System.out.println("----- Ending - scroll_without_WebE -----");  
        return true;  
    }  
    catch (Exception e)  
    {  
        System.out.println("----- scroll is unsuccessful in scroll_without_WebE ----  
-----");  
        e.printStackTrace();  
        return false;  
    }  
}
```

---

## 8. //make 。

。

```
public static boolean scroll_to_WebE(WebElement webe)  
{  
    try  
    {  
        System.out.println("----- Started - scroll_to_WebE -----");  
  
        driver = ExecutionSetup.getDriver();  
        ((JavascriptExecutor) driver).executeScript("arguments[0].scrollIntoView();", webe);  
  
        System.out.println("----- Ending - scroll_to_WebE -----");  
        return true;  
    }  
    catch (Exception e)  
    {  
        System.out.println("----- scroll is unsuccessful in scroll_to_WebE ----  
-----");  
        e.printStackTrace();  
        return false;  
    }  
}
```

◦ ◦

<https://riptutorial.com/zh-CN/selenium-webdriver/topic/9063/>

# 26:

## Examples

### Selenium WebDriver

Web. WebDriver.

- 
- 
- 
- 
- 

---

WebDriverDOM. WebDriverWebDriverweb. 0.WebDriver. ◦

#### Java

```
driver.manage().timeouts().implicitlyWait(15, TimeUnit.SECONDS);  
// You need to import the following class - import java.util.concurrent.TimeUnit;
```

#### C

```
driver.Manage().Timeouts().ImplicitlyWait(TimeSpan.FromSeconds(15));
```

WebDriverUIDOM15.

---

◦ ◦ ◦

Web. WebDriverX.

WebDriverWaitExpectedConditions. idusername10. ◦

#### Java

```
//Import these two packages:  
import org.openqa.selenium.support.ui.ExpectedConditions;  
import org.openqa.selenium.support.ui.WebDriverWait;  
  
//Declare a WebDriverWait variable. In this example, we will use myWaitVar as the name of the  
variable.  
WebDriverWait myWaitVar = new WebDriverWait(driver, 30);  
  
//Use myWaitVar with ExpectedConditions on portions where you need the explicit wait to occur.  
In this case, we will use explicit wait on the username input before we type the text tutorial
```

```
onto it.
myWaitVar.until(ExpectedConditions.visibilityOfElementLocated(By.id("username")));
driver.findElement(By.id("username")).sendKeys("tutorial");
```

ExpectedConditions。 Java。

C

```
using OpenQA.Selenium;
using OpenQA.Selenium.Support.UI;
using OpenQA.Selenium.PhantomJS;

// You can use any other WebDriver you want, such as ChromeDriver.
using (var driver = new PhantomJSDriver())
{
    driver.Navigate().GoToUrl("http://somedomain/url_that_delays_loading");

    // We aren't going to use it more than once, so no need to declare this a variable.
    new WebDriverWait(driver, TimeSpan.FromSeconds(10))
        .Until(ExpectedConditions.ElementIsVisible(By.Id("element-id")));

    // After the element is detected by the previous Wait,
    // it will display the element's text
    Console.WriteLine(driver.FindElement(By.Id("element-id")).Text);
}
```

10。 WebDriverWebDriverTimeoutException。

10。

。 。 302。 WebDriver230。 。 。

Java

```
Wait wait = new FluentWait(driver).withTimeout(30, SECONDS).pollingEvery(2,
SECONDS).ignoring(NoSuchElementException.class);

WebElement testElement = wait.until(new Function() {
    public WebElement apply(WebDriver driver) {
        return driver.findElement(By.id("testId"));
    }
});
```

NoSuchElementExceptions。 AJAX。 。

。 。

。

*By*classname xpath link text tag namecssSelector

## WebDriver

### C

```
WebDriverWait wait = new WebDriverWait(driver, TimeSpan.FromSeconds(10));  
wait.Until(ExpectedConditions.ElementIsVisible(By.Id("element-id")));
```

### Java

```
WebDriverWait wait = new WebDriverWait(driver, 10);  
wait.until(ExpectedConditions.visibilityOfElementLocated(By.id("element-id")));
```

---

◦

### C

```
WebDriverWait wait = new WebDriverWait(driver, TimeSpan.FromSeconds(10));  
wait.Until(ExpectedConditions.InvisibilityOfElementLocated(By.Id("element-id")));
```

### Java

```
WebDriverWait wait = new WebDriverWait(driver, 10);  
wait.until(ExpectedConditions.invisibilityOfElementLocated(By.id("element-id")));
```

---

### C

```
IWebElement element = driver.FindElement(By.Id("element-id"));  
  
WebDriverWait wait = new WebDriverWait(driver, TimeSpan.FromSeconds(10));  
wait.Until(ExpectedConditions.TextToBePresentInElement(element, "text"));
```

### Java

```
WebElement element = driver.findElement(By.id("element-id"));  
  
WebDriverWait wait = new WebDriverWait(driver, 10);  
wait.until(ExpectedConditions.textToBePresentInElement(element, "text"));
```

◦

◦

## WebElementWebElementWebElementBy Locator

◦

## Ajax

---

# C

```
using OpenQA.Selenium
using OpenQA.Selenium.Chrome;
using System.Threading;

namespace WebDriver Tests
{
    class WebDriverWaits
    {
        static void Main()
        {
            IWebDriver driver = new ChromeDriver(@"C:\WebDriver");

            driver.Navigate().GoToUrl("page with ajax requests");
            CheckPageIsLoaded(driver);

            // Now the page is fully loaded, you can continue with further tests.
        }

        private void CheckPageIsLoaded(IWebDriver driver)
        {
            while (true)
            {
                bool ajaxIsComplete = (bool)(driver as
IJavaScriptExecutor).ExecuteScript("return jQuery.active == 0");
                if (ajaxIsComplete)
                    return;
                Thread.Sleep(100);
            }
        }
    }
}
```

ajaxIJavaScriptExecutorJavaScript. whileajaxIsComplete == true return.

jQuery.active0ajax. ajaxjQuery.activejQuery.active == 0ajax.

Fluent wait WebDriverWait wait. .

## Java

```
Wait wait = new FluentWait<>(this.driver)
    .withTimeout(driverTimeoutSeconds, TimeUnit.SECONDS)
    .pollingEvery(500, TimeUnit.MILLISECONDS)
    .ignoring(StaleElementReferenceException.class)
    .ignoring(NoSuchElementException.class)
    .ignoring(ElementNotVisibleException.class);

WebElement foo = wait.until(ExpectedConditions.presenceOfElementLocated(By.yourBy));

// or use your own predicate:
WebElement foo = wait.until(new Function() {
    public WebElement apply(WebDriver driver) {
        return element.getText().length() > 0;
    }
})
```

```
});
```

**Explicit wait** `FluentWait<WebDriver> DEFAULT_SLEEP_TIMEOUT = 500;NotFoundException` ◦

`FluentWait` ◦ `NoSuchElementException` ◦ ◦

```
Wait<WebDriver> wait = new FluentWait<WebDriver>(driver)
    .withTimeout(30, SECONDS) //actually wait for the element to be present
    .pollingEvery(5, SECONDS) //selenium will keep looking for the element after every 5seconds
    .ignoring(NoSuchElementException.class); //while ignoring this condition
wait.until(ExpectedConditions.visibilityOf(driver.findElement(By.id("username"))));
```

<https://riptutorial.com/zh-CN/selenium-webdriver/topic/4435/>



## 27: /

- ◦ driver.manage;
- driver.manage ◦ window ◦ setSize *DimensionObject* ;
- driver.manage ◦ ◦ getSize

## Examples

### JAVA

```
//Initialize Browser
System.setProperty("webdriver.gecko.driver", "E:\\path\\to\\geckodriver.exe");
WebDriver driver = new FirefoxDriver();
driver.get("https://www.google.com/");

//Set Browser window size
driver.manage().window().maximize();
```

```
//Initialize Browser
System.setProperty("webdriver.gecko.driver", "E:\\path\\to\\geckodriver.exe");
WebDriver driver = new FirefoxDriver();
driver.get("https://www.google.com/");

//Initialize Dimension class object and set Browser window size
org.openqa.selenium.Dimension d = new org.openqa.selenium.Dimension(400, 500);
driver.manage().window().setSize(d);
```

```
//Initialize Browser
System.setProperty("webdriver.gecko.driver", "E:\\path\\to\\geckodriver.exe");
WebDriver driver = new FirefoxDriver();
driver.get("https://www.google.com/");

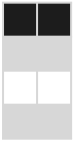
//Get Browser window size and print on console
System.out.println(driver.manage().window().getSize());
```

[/ https://riptutorial.com/zh-CN/selenium-webdriver/topic/10093/-](https://riptutorial.com/zh-CN/selenium-webdriver/topic/10093/)

---

## 28:

- **Java**
- `deselectAll`
- `deselectByIndex`int index
- `deselectByValue`java.lang.String value
- `deselectByVisibleText`java.lang.String text
- `getAllSelectedOptions`
- `getFirstSelectedOption`
- `getOptions`
- `isMultiple`
- `selectByIndex`int index
- `selectByValue`java.lang.String value
- `selectByVisibleText`java.lang.String text



Select Selenium WebDriver `select` ◦ ◦

**C** `Select` `SelectElement`

## Examples

### DropDown

#### HTML

```
<html>
<head>
<title>Select Example by Index value</title>
</head>
<body>
<select name="Travel"><option value="0" selected> Please select</option>
<option value="1">Car</option>
<option value="2">Bike</option>
<option value="3">Cycle</option>
<option value="4">Walk</option>
</select>
</body>
</html>
```

---

## JAVA

### Java

```

public class selectByIndexExample {
    WebDriver driver;
    @Test
    public void selectSamples()
    {
        driver = new FirefoxDriver();
        driver.get("URL GOES HERE");
        WebElement element=driver.findElement(By.name("Travel")); //This is the 'Select'
element locator
        Select sel=new Select(element);
        sel.selectByIndex(1); //This will select the first 'Option' from 'Select' List i.e.
Car
    }
}

```

```

public class selectByValueExample {
    WebDriver driver;
    @Test
    public void selectSamples()
    {
        driver = new FirefoxDriver();
        driver.get("URL GOES HERE");
        WebElement element=driver.findElement(By.name("Travel")); //This is the 'Select'
element locator
        Select sel=new Select(element);
        sel.selectByValue("Bike"); //This will select the 'Option' from 'Select' List which
has value as "Bike".
        //NOTE: This will be case sensitive
    }
}

```

```

public class selectByVisibilityTextExample {
    WebDriver driver;
    @Test
    public void selectSamples()
    {
        driver = new FirefoxDriver();
        driver.get("URL GOES HERE");
        WebElement element=driver.findElement(By.name("Travel")); //This is the 'Select'
element locator
        Select sel=new Select(element);
        sel.selectByVisibleText("Cycle"); //This will select the 'Option' from 'Select' List
who's visibility text is "Cycle".
        //NOTE: This will be case sensitive
    }
}

```

## C

IWebDriver

```

IWebElement element=driver.FindElement(By.name("Travel"));
SelectElement selectElement = new SelectElement(title);
selectElement.SelectByIndex(0);

```

```
IWebElement element=driver.FindElement(By.name("Travel"));
SelectElement selectElement = new SelectElement(title);
selectElement.SelectByIndex("1");
//NOTE: This will be case sensitive
```

```
IWebElement element=driver.FindElement(By.name("Travel"));
SelectElement selectElement = new SelectElement(title);
selectElement.SelectByText("Walk");
```

<https://riptutorial.com/zh-CN/selenium-webdriver/topic/6426/>

# 29:

Web ◦ By Selenium ◦ ◦ WebElement s Web ◦

◦ ◦ HTMLUI ◦

API HTML ◦ Rue of thumb ◦ ◦

1. ◦ ◦

2. ◦

3. ◦

4. ◦

```
public boolean hasDisplayedUserFullName (String userFullName) {
    return driver.findElement (By.xpath ("xpathExpressionUsingFullName")).isDisplayed();
}
```

5. iframe if frame ◦

1.

2. UI ◦ ◦

3. ◦

4.

5.

## Examples

### Java

#### Page

```
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.support.FindBy;
import org.openqa.selenium.support.PageFactory;

/**
 * Class which models the view of Sign-In page
 */
public class SignInPage {

    @FindBy(id="username")
    private usernameInput;

    @FindBy(id="password")
    private passwordInput;
```

```

    @FindBy(id="signin")
    private signInButton;

    private WebDriver driver;

    public SignInPage(WebDriver driver) {
        this.driver = driver;
    }

    /**
     * Method to perform login
     */
    public HomePage performLogin(String username, String password) {
        usernameInput.sendKeys(username);
        passwordInput.sendKeys(password);
        signInButton.click();
        return PageFactory.initElements(driver, HomePage.class);
    }
}

import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.support.FindBy;
import org.openqa.selenium.support.PageFactory;
/**
 * Class which models the view of home page
 */
public class HomePage {
    @FindBy(id="logout")
    private logoutLink;

    private WebDriver driver;

    public HomePage(WebDriver driver) {
        this.driver = driver;
    }

    /**
     * Method to log out
     */
    public SignInPage logout() {
        logoutLink.click();
        wait.ForPageToLoad();
        return PageFactory.initElements(driver, SignInPage.class);
    }
}

/**
 * Login test class
 */
public class LoginTest {
    public void testLogin() {
        SignInPage signInPage = new SignInPage(driver);
        HomePage homePage = signInPage.login(username, password);
        signInPage = homePage.logout();
    }
}

```

## ◦ Selenium ◦ C

```
using OpenQA.Selenium;
using OpenQA.Selenium.Support.PageObjects;
using OpenQA.Selenium.Support.UI;
using System;
using System.Collections.Generic;

public class WikipediaHomePage
{
    private IWebDriver driver;
    private int timeout = 10;
    private By pageLoadedElement = By.ClassName("central-featured-logo");

    [FindsBy(How = How.Id, Using = "searchInput")]
    [CacheLookup]
    private IWebElement searchInput;

    [FindsBy(How = How.CssSelector, Using = ".pure-button.pure-button-primary-progressive")]
    [CacheLookup]
    private IWebElement searchButton;

    public ResultsPage Search(string query)
    {
        searchInput.SendKeys(query);
        searchButton.Click();
    }

    public WikipediaHomePage VerifyPageLoaded()
    {
        new WebDriverWait(driver, TimeSpan.FromSeconds(timeout)).Until<bool>((drv) => return
        drv.ExpectedConditions.ElementExists(pageLoadedElement));

        return this;
    }
}
```

- CacheLookup ◦ ◦
- searchButton2IDid ◦
- ChromeFireBug ◦
- Search() ResultsPage ◦
- 
- //
- DriverDriverDriver DriverClass
- PageObjects - enterUsernameenterPasswordLoginenterUsernameenterPassword
- PageObjectselementLocators
- utilsDateUtilexcelUtils
- conf
- screenCapture
- DriverClasswait.untilExpectedConditions ◦ ◦

<https://riptutorial.com/zh-CN/selenium-webdriver/topic/4853/>

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