

Driver Initialization

Firefox (*Below v.47*)^{Refer Part2-Page58} System.setProperty("webdriver.gecko.driver", "PathTo\\geckodriver.exe");

Download from <https://github.com/mozilla/geckodriver/releases> WebDriver driver = new FirefoxDriver();

Chrome^{Refer Part2-Page59} System.setProperty("Webdriver.chrome.driver", System.getProperty("user.dir")+"//BrowserDrivers//chromedriver.exe");

Download from <https://sites.google.com/a/chromium.org/chromedriver/downloads> WebDriver driver = new ChromeDriver();

Internet Explorer^{Refer Part2-Page59} System.setProperty("Webdriver.ie.driver", "PathTo//IEDriverServer.exe");

Download from The Internet Explorer Driver Server at <http://docs.seleniumhq.org/download/> WebDriver driver = new InternetExplorerDriver();

Safari Driver WebDriver driver = new SafariDriver();

Selenium Locators

Locating by ID^{Refer Part2-Page37} driver.findElement(By.id("q")).sendKeys("Selenium 3");

Locating by Name^{Refer Part2-Page37} driver.findElement(By.name("q")).sendKeys("Selenium 3");

Locating by Xpath^{Refer Part2-Page37/38} driver.findElement(By.xpath("//input[@id='q']")).sendKeys("Selenium 3");

Selenium Locators (cont)

Locating Hyperlinks by Link Text^{Refer Part2-Page38/39} driver.findElement(By.LinkText("edit this page")).Click();

Locating by DOM^{Refer Part2-Page39} dom =document.getElementById('signInForm')

Locating by CSS^{Refer Part2-Page40-43} driver.findElement(By.CssSelector("#rightbar > .menu > li:nth-of-type(2) > h4"));

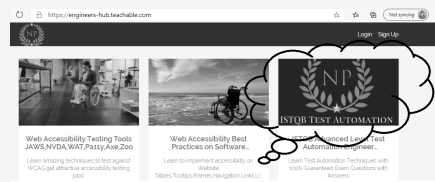
Locating by ClassName^{Refer Part2-Page37} driver.findElement(By.className("profile-header"));

Locating by TagName^{Refer Part2-Page37} driver.findElement(By.tagName("select")).Click();

Locating by LinkText^{Refer Part2-Page37-40} driver.findElement(By.linkText("NextPage")).click();

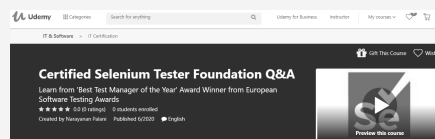
Locating by PartialLinkText^{Refer Part2-Page37-40} driver.findElement(By.partialLinkText("NextP")).click();

ISTQB Advanced Test Automation Engineering



<https://engineers-hub.teachable.com/p/istqb-advanced-level-test-automation-engineer-professional-training-with-q-a>

Selenium Q&A



<https://www.udemy.com/course/certified-selenium-tester-foundation/>

C

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Published 15th November, 2016.
Last updated 23rd October, 2020.
Page 1 of 5.

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Find element VS Find elements

driver.findElement()	When no match has found(0) throws NoSuchElementException when 1 match found returns a WebElement instance when 2+ matches found returns only the first matching web element
driver.findElements()	when no match has found (0) returns an empty list when 1 match found returns a list with one WebElement when 2+ matches found returns a list with all matching WebElements

Handle alerts: (Web-based alert pop-ups)

driver.switchTo().alert.getText()	to retrieve the alert message
driver.switchTo().alert.accept()	to accept the alert box
driver.switchTo().alert.dismiss()	to cancel the alert box
driver.switchTo().alert.sendKeys("Text")	to send data to the alert box

Page Loading Strategy

normal	ChromeOptions chromeOptions = new ChromeOptions(); chromeOptions.setPageLoadStrategy(PageLoadStrategy.NORMAL); WebDriver driver = new ChromeDriver(chromeOptions);
eager	When setting to eager, Selenium WebDriver waits until DOMContentLoaded event fire is returned. ChromeOptions chromeOptions = new ChromeOptions(); chromeOptions.setPageLoadStrategy(PageLoadStrategy.EAGER); WebDriver driver = new ChromeDriver(chromeOptions);

Page Loading Strategy (cont)

none	When set to Selenium WebDriver only waits until the initial page is downloaded. ChromeOptions chromeOptions = new ChromeOptions(); chromeOptions.setPageLoadStrategy(PageLoadStrategy.NONE); WebDriver driver = new ChromeDriver(chromeOptions);
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The document.readyState property of a document describes the loading state of the current document. By default, WebDriver will hold off on responding to a driver.get() (or) driver.navigate().to() call until the document ready state is complete

By default, when Selenium WebDriver loads a page, it follows the normal pageLoadStrategy.

Cookies

addCookie(arg)	driver.manage().addCookie(new Cookie("foo", "bar"));
getCookies()	driver.manage().getCookies(); // to get all cookies
getCookieNamed()	driver.manage().getCookieNamed("foo");
deleteCookieNamed()	driver.manage().deleteCookieNamed("foo");
deleteCookie()	Cookie cookie1 = new Cookie("test2", "cookie2"); driver.manage().addCookie(cookie1); driver.manage().deleteCookie(cookie1); // deleting cookie object
deleteAllCookies()	driver.manage().deleteAllCookies(); // deletes all cookies

Take screenshot

Capture the screenshot and store `getScreenshotAs`

`getScreenshotAs` — used to Capture the screenshot and store it in the specified location. This method throws `WebDriverException`. `copy()` method from the File Handler class is used to store the screenshot in a destination folder.

Code Example:

```
TakesScreenshot screenShot =(TakesScreenshot)driver;
FileHandler.copy(screenShot.getScreenshotAs(OutputType.FILE),
new File("path/to/destination/folder/screenshot.png"));
```



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Last updated 23rd October, 2020.

Page 2 of 5.

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Execute Javascript

Executes an asynchronous piece of JavaScript	<code>executeAsyncScript()</code>
Executes JavaScript	<code>executeScript()</code>

Code Example:

```
if (driver instanceof JavascriptExecutor) {
((JavascriptExecutor)driver).executeScript("alert('hello world');");
}
```

Annotations

TestNG	<code>@BeforeSuite @AfterSuite @BeforeTest @AfterTest @BeforeGroups @AfterGroups @BeforeClass @AfterClass @BeforeMethod @AfterMethod</code>
JUnit	<code>@After @AfterClass @Before @BeforeClass @Ignore @Test</code>

Selenium Exceptions

'Server Exception : sessionId should not be null' ^{Refer Part2-Page160}	Replace Chrome Driver with Latest Version
ERROR: No sessionId provided ^{Refer Part2-Page160}	Use Jenkins
UnreachableBrowserException ^{Refer Part2-Page160}	Registry Key Changes Recommended
Illegal state exception using Selenium 3 ^{Refer Part2-Page161}	Get latest Firefox Gecko Driver

Keyboard and Mouse events

keyboard events	<code>keyDown(); keyUp(); sendKeys()</code>
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Keyboard and Mouse events (cont)

Mouse events	<code>clickAndHold(); contextClick()</code> // — performs the mouse right-click action; <code>doubleClick(); dragAndDrop(source, target); dragAndDropBy(source, xOffset, yOffset); moveByOffset(xOffset, yOffset); moveByElement(); release()</code>
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Code Example:

```
Actions builder = new Actions(driver);
Action actions = builder
.moveToElement("login-textbox")
.click()
.keyDown("login-textbox", Keys.SHIFT)
.sendKeys("login-textbox", "hello")
.keyUp("login-textbox", Keys.SHIFT)
.doubleClick("login-textbox")
.contextClick()
.build();

actions.perform();
```

Element validation

<code>isEnabled()</code>	determines if an element is enabled or not, returns a boolean.
<code>isSelected()</code>	determines if an element is selected or not, returns a boolean.
<code>isDisplayed()</code>	determines if an element is displayed or not, returns a boolean.

Handle multiple windows and tabs

<code>getWindowHandle()</code>	used to retrieve the handle of the current page (a unique identifier)
<code>getWindowHandles()</code>	used to retrieve a set of handles of the all the pages available
<code>driver.switchTo().window("windowName/handle")</code>	switch to a window
<code>driver.close()</code>	closes the current browser window
<code>driver.quit();</code>	This method Closes all windows opened by the WebDriver.



Switch Frames

Mentioning the frame index number, the Driver will switch to that specific frame	driver.switchTo.frame(int frameNumber)
Mentioning the frame element or ID, the Driver will switch to that specific frame	driver.switchTo.frame-(string frameNameOrID)
Mentioning the frame web element, the Driver will switch to that specific frame	driver.switchTo.frame-(WebElement frameElement)
Switching back to the main window	driver.switchTo().defaultContent()

Materials

Selenium Certification	https://isqi.org/en/54-certified-selenium--tester-foundation.html
Selenium Certification Q&A	https://engineers-hub.teachable.com/
Part1-Software Automation Testing Secrets Revealed	https://www.amazon.com/Software-Automation-Testing-Secrets-Revealed/dp/1-729432506/
Part2-Software Automation Testing Secrets Revealed	https://www.amazon.com/gp/product/17-29432379/
Part3-Software Automation Testing Secrets Revealed	https://www.amazon.com/Advanced-Selenium-Web-Accessibility-Testing/dp/19-49449432/
Udemy Course-Selenium	https://engineers-hub.teachable.com/
Udemy Course-ISTQB Test Automation Engineering	https://engineers-hub.teachable.com/

Materials (cont)

Useful Commands (Credits: Madhan K)	https://medium.com/@madhankumaravelu93/selenium-cheat-sheet-a-comprehensive-list-of-selenium-commands-fa4c5c9d11ab
Useful Commands (Credits: Bijan Patel)	https://qascript.com/selenium-webdriver-commands-cheat-sheet/

Get methods in Selenium

getTitle()	used to retrieve the current title of the webpage
getCurrentUrl()	used to retrieve the current URL of the webpage
getPageSource()	used to retrieve the current page source of the webpage
getText()	used to retrieve the text of the specified web element
getAttribute()	used to retrieve the value specified in the attribute

Navigation

Refresh Page	driver.navigate().refresh()
Navigate forwards in the browser history	driver.navigate().forward()
Navigate backward in the browser history	driver.navigate().back()

Desired Capabilities-Chrome

```
DesiredCapabilities caps = new DesiredCapabilities(); caps.setCapability("browserName", "chrome"); caps.setCapability("browserVersion", "80.0"); caps.setCapability("platformName", "win10"); WebDriver driver = new ChromeDriver(caps); // Pass the capabilities as an argument to the driver object
```



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Published 15th November, 2016.

Last updated 23rd October, 2020.

Page 4 of 5.

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Desired Capabilities-Firefox

```
DesiredCapabilities caps = new DesiredCapabilities(); caps.setCapability("browserName", "firefox"); caps.setCapability("browserVersion", "81.0"); caps.setCapability("platformName", "win10");
WebDriver driver = new FirefoxDriver(caps); // Pass the capabilities as an argument to the driver object
```

Practice Scripts

Launch driver.get("www.webdriverinselenium.com");

Webpage^{Refer}
Part2-Page60

Click Button^{Refer} driver.findElement(By.id("submit")).click();
Part2-Page60

Store Text^{Refer} String txtDropdown = driver.findElement(By.ID-
Part2-Page60 ("select")).getText();

Enter Text^{Refer} driver.findElement(By.xpath("//input[@name='F-
Part2-Page61 irstName034']")).sendKeys("NarayananPalani");

Handle Alert Alertpopup = driver.switchTo().alert();
Alert^{Refer Part2--}
Page62

(Mouse)Click^{Re} driver.findElement(By.xpath("//input[@value='O-
Part2-Page62 BJECT NAME']")).click();

Compare Assert.assertTrue(chkbox12.isSelected());
Text^{Refer Part2--}
Page64

Disable a driver.getElementsByName('<ObjectID>')[0].set-
Field^{Refer Part2--} Attribute('disabled', "");
Page64

Enable a driver.getElementsByName('<ObjectID>')[0].remove-
Field^{Refer Part2--} Attribute('disabled');
Page64

Screenshot^{Refer} File snapshot = ((TakesScreenshot)driver).getS-
Part2-Page64creenshotAs(OutputType.FILE);

Practice Scripts (cont)

```
FileUtils.copyFile(snapshot, new File("C:\\screenshot.jpg"));
```

Print the Title String pagetitle = driver.getTitle();
of the
Page^{Refer}
Part2-Page68

```
System.out.print(pagetitle);
```

Implicit driver.manage().timeouts().implicitlyWait(10,
Wait^{Refer} TimeUnit.SECONDS);
Part2-Page69

Explicit WebDriverWait wait = new WebDriverWait(driver,
Wait^{Refer} 20);
Part2-Page70

```
wait.until(ExpectedConditions.textToBePresentInElementLocated(By.xpath("//div[@id='<Object ID>']"), "Enter Your Personal Details"));
```

Fluent Wait wait = new FluentWait(driver)
Wait^{Refer}
Part2-Page70

```
.withTimeout(20, SECONDS)
```

Sleep^{Refer} Thread.Sleep(10);
Part2-Page70



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Published 15th November, 2016.

Last updated 23rd October, 2020.

Page 5 of 5.

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