Selenium
4
Beginners

Rex Jones II

Selenium Switch Methods

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Introduction

Slide 1 -Thumbnail

Hello everybody and Welcome To Selenium 4 Beginners.

Slide 2 – Selenium Method Categories

In this video, I will cover Number 5 Switch Methods for Selenium.

The Transcript, Presentation, and Code will be available on github at
https://github.com/RexJonesII/Selenium4Beginners and https://tinyurl.com/Selenium-Switch-Methods

Slide 3 – Selenium Method Categories

Switch Methods are the last group of Selenium Method Categories. We already covered Browser
Methods, WebElement Methods, Navigation Methods, and Wait Methods. The Switch Methods are a
group of methods that switch to alerts, windows, and frames. Selenium will not allow us to directly
interact with a WebElement inside an alert, window, or frame unless we execute a switch statement.

Slide 4 – Tutorial Plan

We are going to discuss the Type of Elements That Require Switching, Selenium Methods Used For
Switching, then Demo the Selenium Switch Methods.

Slide 5 – Tutorial Plan / Type of Elements That Require Switching

Let's start with the Type of Elements That Require Switching.

Slide 6 – Element Types Required For Switching

First, we have Frames, then Alerts, and last is Windows.

Slide 7 – Frames / Element Types Required For Switching

A frame is a tag within a frameset tag. The frame defines one window within a frameset. Let me show
you an example by using W3Schools. you see the 3 frame tags that's located inside the frameset tag.
When I click Try It For Yourself, we see 3 frames on the right side. Frame A, Frame B, and Frame C. On
the left side, we see the same 3 frame tags within a frameset tag.

Watch what happens when I change the value for src within a frame tag. I am going to change Frame B
to https://www.w3schools.com then click Run. A w3schools.com window shows up within Frame B
after entering the URL. Also, look what happens after right clicking the frame. An option named View
Frame Source shows up. Frame A and Frame C shows the same option View Frame Source. However, we
do not see View Frame Source when right clicking outside out of Frames A, B, and C.

Our demo tutorial will focus on iframes which is very similar to what we saw with frames. Iframe is short
for inline frame which is used to embed documents within a document. Try It Yourself. The iframe tag
uses an src attribute just like the frame tag. iFrame also has an option named View Frame Source when I
right click.

However, there's a difference between frame and iframe. An iframe is not located within a frameset tag and the window for an iframe cannot be resized. When I hover over the window, the icon for resizing does not show up. Let's go to frames and notice we can resize the window.

Most applications, I come across have an iframe tag because they are designed for interactive applications. Iframes is a better option for adding other websites within a window. One reason an iframe is better is because developers can keep track of less HTML documents while using iframes. With automation, whether we come across an iframe or frame, we must always switch before performing an action.

Slide 8 –Frame Example
Here's an example. The frame is the blue Log Into Application box. We must switch to the frame before entering data in the Username and Password fields. Also, before clicking the Submit button. Most of the times, it's difficult to notice a frame by looking at the web page. An exception shows up if we do not switch to the frame.

Slide 9 – Alert / Element Types Required For Switching
The next element that require switching is alerts.

Slide 10 – Alert Example
Alerts are better known as pop up boxes. It's a box that contains a message. In this example, the alert has 2 buttons. An OK and CANCEL button. We also see a title that states Pop-Up / Alert Box with some pretend data between the title and 2 buttons. There are 3 types of alerts with a purpose to: number 1 send information, number 2 get confirmation, and number 3 receive input from a user. We are forced to switch and interact with the alert when it pops up. We are not able to interact with the web page. That's why the web page is gray and disabled.

Slide 11 – Windows / Element Types Required For Switching
The last element required for switching is Windows.

Slide 12 – New Window Example
It can be a new window or tab. This example shows a new window on top of the web page. We see a title that states Switch To This New Window Then Perform An Action. All windows have an ID called a window handle. A window handle is unique and alphanumeric that allows us to switch to the window. We can perform any action after switching to the window.

Slide 13 – Tutorial Plan / Selenium Methods Used For Switching
There are different Selenium methods used for switching.

Slide 14 – Switch Method Types For Frames
Here's the methods used for switching to a frame.

frame(WebElement element) selects a frame by WebElement. WebElement is the Data Type and element is the frame element we will switch to.

frame(String nameOrId) selects a frame by its name or ID. String is the Data Type. Name and ID are the HTML attributes. We can switch by the name of the frame or id of the frame.

frame(int index) selects a frame by its index. int is the integer Data Type. All indexes start at zero.

defaultContent() select the first frame on the page or the main document if the page contains an iframe.

parentFrame() is important if the focus has changed from the parent context. By default, Selenium has focus set on the parent.

Slide 15 – Switch Method Types For Alerts/Pop-Ups

Next, is the methods for Alerts. Imagine a pop-up box that has 2 buttons like one of our previous slides. The accept method accepts the alert by clicking the OK button and the dismiss method clicks the Cancel button. If you want to get information from the pop-up box, use the getText method while the sendKeys method types data into the pop-up box.

Slide 16 – Switch Method Types For Windows

Last, we have 3 methods for switching to a window. The alphanumeric window handle is assigned to each window. The getWindowHandle method gets the window handle of the current window and getWindowHandles gets the window handle of all current windows. The switchTo().window() method switches focus between the windows.

Slide 17 – Demo Selenium Switch Methods

Now, let's dive into our demo of Selenium Switch Methods.

Demo

frame()

Let's walkthrough our Application Under Test https://paytm.com/ . First, we load the application then click the Log In/Sign Up hyperlink. Next, we click the link at the bottom "Login/Signup with mobile number and password". Finally, we enter our number or email. This Test Script will Fail and throw an exception if we do not switch to a frame but which step requires a switch. We are going to switch after clicking the Log In/Sign Up hyperlink.

Let's go to Eclipse and create our Automation Test Script. We setup our Test with System.setProperty on Chrome using driver = new ChromeDriver(); then maximize the window driver.manage().window().maximize;

The Test method is switchToFrames. Now load the AUT. driver.get, https://paytm.com . Add a dynamic Wait statement. This here is an Explicit Wait Statement for 5 seconds. Why add a wait statement?

We are going wait until 24x7 Help shows up. I am going to reload the page and you will see how we wait until 24x7 Help and these other elements show up. Finish the wait statement. You can watch video number 22 to see the benefits of an Explicit Wait. Now we click the Log In/Sign Up hyperlink.

driver.findElement By xpath dot click. The xpath value will contain text for Log In/Sign Up then wait for this dialog to load. We are going to wait for the bottom hyperlink because that's the link we will click.

This is a customized xpath value for Log In/Sign Up. I will create a video explaining how to create customized xpath values. We add the wait statement then click the hyperlink at the bottom.

Last, we enter the phone number or email. driver.findElement By id dot sendKeys Get the value for id Inspect the element. We see the value for id is input_0 send (123) 456-7890.

Let's Run.

Nothing happens after clicking the Log In/Sign Up hyperlink. Our test failed.

Let's go back to our AUT and see why it failed. Right click and we see View Frame Source. That means this dialog is a frame or an iframe. It is like the example from our Introduction when looking at frames in W3 Schools. Notice the difference when I right click outside the iframe. We do not see View Frame Source. That lets us know we must switch before performing a command.

Go back to Eclipse and switch to frame. driver.switchTo. The description states "Sends future commands to a different frame or window". In this intellisense, we see different methods for switching to a frame or window. We are going to switch to a frame.

Here's the frame methods, we reviewed in our introduction. frame(index) selects a frame by it's zero based index. frame(String) selects a frame by its name or ID. frame(WebElement) selects a frame using it's element. Select frame.

Now, let's inspect an element within the iframe dialog. We are going to inspect the bottom link. The blue highlighted part is the link but let's scroll up to the iframe tag. This iframe tag has an src attribute that contains login. CTRL + F to find the value. Let's write our customized xpath value.

2 forward slashes

Iframe

Opening and Closing brackets

contains

Opening and Closing parenthesis

At symbol

src which is the attribute name

comma

2 single quotes

login is written inside the single quotes

The yellow highlight indicates we have located the iframe.

Copy the value

Now, let's switch to the iframe. driver dot findElement By xpath then paste the value.

Let's Run.

We see phone number (123) 456-7890.

switchToFrames Passed.

frame (WebElement)

Another way of writing the same Test Script is to declare a WebElement. I am going to Copy and Paste this code. Write WebElement, name the object reference login, next we find the iframe and assign it to login.

Since we already found iFrame, the last step is to switch to the iframe but this time we will use the object reference login.

This is just another way of writing the same statement for frame (WebElement). The previous way used 1 line to find and switch to an iframe. This way uses 2 lines to find iframe then switch to iframe. Let's change the phone number to an email so when it runs We see a different value. ABC@Email.com.

Both methods switchToFrames and switchToFrames_WebElement Passed using frame(WebElement). That's how switch to a frame using WebElement. Thank You and Next, I will show you how to switch to a frame using frame (String).

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