

---

## Frames

---

What is Frame or iFrame?

- An iFrame (Inline Frame) is an HTML document embedded inside the current HTML document on a website.
- <Frame> or <iFrame> HTML tag will be used to insert one html page in another html page.
- iFrame HTML element is used to insert content from another source, such as an advertisement, into a Web page.

Note: A Web designer can change an iFrame content without making them reload the complete website. A website can have multiple frames on a single page. And a frame can also have inner frames (Frame inside a Frame).

- iFrame is defined by an <iFrame></iFrame> tag in HTML. With this tag you can identify an iFrame while inspecting the HTML tree.
- In order to embed (include) a web page inside another web page developer uses 'iFrame' or 'Frame' html tag.
- But, if an element is inside the frame then web driver cannot find the element.
- I.e. web driver can't perform an action on web element automatically when object or web element are inside the frame.
- In order to work with frame web elements we should switch the driver control to the frame before performing an action.

There are three overloaded methods available to switch the driver control to frame.

```
driver.switchTo().frame();
```

Frame method is overloaded it takes one argument of type

1. Int
2. String (ID/Name)
3. Web Element (Address)

```
driver.switchTo().frame(0);
driver.switchTo().frame("WebElement");
driver.switchTo().frame("ID/Name");
```

In order to give the control back to the main page, i.e. Change the control from frame or to exit from the frame we use the following methods.

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

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

Default content method is used to switch to main page directly.

Parent frame method is used to switch to its immediate parent page.

### Q. How to find the frame in a web page?

A. Inspect any element, in the search field, type “//Frame” or “//IFrame”. If any frame is present, it will show the number of frames present in the web page.

A. In order to find the object or web element is present inside the frame. Inspect the element. Move the cursor in the upside direction. We can find the tag “<frame>” or “<iFrame>”. If required element is present within that frame, than that was the frame where our element is present.

- Once after identifying the frame, we need to switch into the frame using the above mentioned methods. Then we can access the web elements present inside the frame.

Write a script to switch to FRAME using the **name** of the frame?

- If you take a look at the HTML code of Frame tag you may find the **Name attribute**. If a frame tag contains the name or id than we can use these two attribute values directly to switch the control to frame.

0

```
package frames;

import java.util.concurrent.TimeUnit;
import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.chrome.ChromeDriver;

public class Switch_using_name {
    public static void main(String[] args) throws InterruptedException {
        System.setProperty("webdriver.chrome.driver", "D:/Softwares/Drivers/chromedriver.exe");
        WebDriver driver = new ChromeDriver();
        driver.manage().window().maximize();
        driver.get("https://docs.seleniumhq.org/");
        driver.manage().timeouts().implicitlyWait(30, TimeUnit.SECONDS);

        WebElement downloadLink = driver.findElement(By.xpath("//a[@title='Get Selenium']"));
        downloadLink.click();
        WebElement javaDocLink = driver.findElement(By.xpath("//td[text()='Java']/../a[text()='Javadoc']"));
        javaDocLink.click();

        // Switching to the frame using the Name
        driver.switchTo().frame("classFrame");
        WebElement Tree = driver.findElement(By.xpath("//a[text()='Tree']"));
        Tree.click();

        driver.close();
    }
}
```

## Write a script to switch to FRAME using the **INDEX** of the frame?

- Index of a Frame is the position at which it occurs in the HTML page. In the sample page we have three Frames, index of Frame starts from 0. So there are three Frames on the page with index 0, 1 and 2.

```
package frames;

import java.util.concurrent.TimeUnit;
import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.chrome.ChromeDriver;

public class Switch_using_Index {
    public static void main(String[] args) throws InterruptedException {
        System.setProperty("webdriver.chrome.driver", "D:/Softwares/Drivers/chromedriver.exe");
        WebDriver driver = new ChromeDriver();
        driver.manage().window().maximize();
        driver.get("https://docs.seleniumhq.org/");
        driver.manage().timeouts().implicitlyWait(30, TimeUnit.SECONDS);

        WebElement downloadLink = driver.findElement(By.xpath("//a[@title='Get Selenium']"));
        downloadLink.click();
        WebElement javaDocLink = driver.findElement(By.xpath("//td[text()='Java']/../a[text()='Javadoc']"));
        javaDocLink.click();

        // Switching to the frame using the Index
        driver.switchTo().frame(2);
        WebElement Tree = driver.findElement(By.xpath("//a[text()='Tree']")[1]);
        Tree.click();

        driver.close();
    }
}
```

## Write a script to switch to FRAME using the **WEB ELEMENT OBJECT** of the frame?

- We can switch to a Frame by simply passing the Frame Web Element to the **driver.switch\_to\_frame** command. First find the Frame element using any of the locator strategies and then passing it to **switch\_to** command.

```
package frames;

import java.util.concurrent.TimeUnit;
import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.chrome.ChromeDriver;

public class Switch_using_webelement {
    public static void main(String[] args) throws InterruptedException {
        System.setProperty("webdriver.chrome.driver", "D:/Softwares/Drivers/chromedriver.exe");
        WebDriver driver = new ChromeDriver();
        driver.manage().window().maximize();
        driver.get("https://docs.seleniumhq.org/");
        driver.manage().timeouts().implicitlyWait(30, TimeUnit.SECONDS);

        WebElement downloadLink = driver.findElement(By.xpath("//a[@title='Get Selenium']"));
        downloadLink.click();
        WebElement javaDocLink = driver.findElement(By.xpath("//td[text()='Java']/../a[text()='Javadoc']"));
        javaDocLink.click();

        WebElement frameEle = driver.findElement(By.xpath("//frame[contains(@title,'Package, class')]"));
        // Switching to the frame using the Web element
        driver.switchTo().frame(frameEle);
        WebElement Tree = driver.findElement(By.xpath("//a[text()='Tree']")[1]);
        Tree.click();

        driver.close();
    }
}
```

## Switching back to Main page from Frame

- There is one very important command that will help us to get back to the main page. Main page is the page in which all the FRAMES are embedded. Once you are done with all the task in a particular iFrame you can switch back to the main page using the below statement.

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

- The above statement switch the control from FRAME to main page

## Write a script to switch the control to main page?

```
package frames;

import java.util.concurrent.TimeUnit;
import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.chrome.ChromeDriver;

public class Deafult_Content {
    public static void main(String[] args) throws InterruptedException {
        System.setProperty("webdriver.chrome.driver", "D:/Softwares/Drivers/chromedriver.exe");
        WebDriver driver = new ChromeDriver();
        driver.manage().window().maximize();
        driver.get("https://docs.seleniumhq.org/");
        driver.manage().timeouts().implicitlyWait(30, TimeUnit.SECONDS);

        WebElement downloadLink = driver.findElement(By.xpath("//a[@title='Get Selenium']"));
        downloadLink.click();
        WebElement javaDocLink = driver.findElement(By.xpath("//td[text()='Java']/../a[text()='Javadoc']"));
        javaDocLink.click();

        // Switching to Frame
        driver.switchTo().frame(2);
        WebElement Tree = driver.findElement(By.xpath("//a[text()='Tree'][1]"));
        Tree.click();
        // Switching back to main page
        driver.switchTo().defaultContent();

        driver.close();
    }
}
```

Activate Window

## Write a script to find the total number of FRAMES in the web page?

```
package frames;

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.chrome.ChromeDriver;

public class Count_number_of_frames {
    public static void main(String[] args) throws InterruptedException {
        System.setProperty("webdriver.chrome.driver", "D:/Softwares/Drivers/chromedriver.exe");
        WebDriver driver = new ChromeDriver();
        driver.manage().window().maximize();
        driver.get("https://docs.seleniumhq.org/");
        driver.manage().timeouts().implicitlyWait(30, TimeUnit.SECONDS);

        WebElement downloadLink = driver.findElement(By.xpath("//a[@title='Get Selenium']"));
        downloadLink.click();
        WebElement javaDocLink = driver.findElement(By.xpath("//td[text()='Java']/../a[text()='Javadoc']"));
        javaDocLink.click();

        List all_frames = driver.findElements(By.xpath("//frame"));
        int count = all_frames.size();
        System.out.println("Total number of frames present in the page is: "+count);

        driver.close();
    }
}
```

Activate Windows

### Note:

- Now that we know what a Frame is and how we can switch between Frames, let's learn how to interact with elements inside an iFrame. Once we have switched to a particular Frame everything else after that can be done using regular WebDriver command.
- Whenever you try to switch to the frame. If the frame is not available or not loaded, we get the below exception.

```
.NoSuchFrameException: Message: no such frame
  at org.openqa.selenium.remote.RemoteWebDriver.switchToFrame(RemoteWebDriver.java:133)
```

### What is NoSuchFrameException?

- Whenever switchTo ().Frame () method fails to locate the frame in a HTML page. We get a NoSuchFrameException.

**IMPORTANT:** Whenever the frame page get refresh, control will automatically go back to the main page.

### Write a script to switch to the frame using explicit wait?

```

import java.util.concurrent.TimeUnit;
import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.chrome.ChromeDriver;
import org.openqa.selenium.support.ui.ExpectedConditions;
import org.openqa.selenium.support.ui.WebDriverWait;

public class SwitchToFrame_explicit_wait {
    public static void main(String[] args) throws InterruptedException {
        System.setProperty("webdriver.chrome.driver", "D:/Softwares/Drivers/chromedriver.exe");
        WebDriver driver = new ChromeDriver();
        driver.manage().window().maximize();
        driver.get("https://docs.seleniumhq.org/");
        driver.manage().timeouts().implicitlyWait(30, TimeUnit.SECONDS);

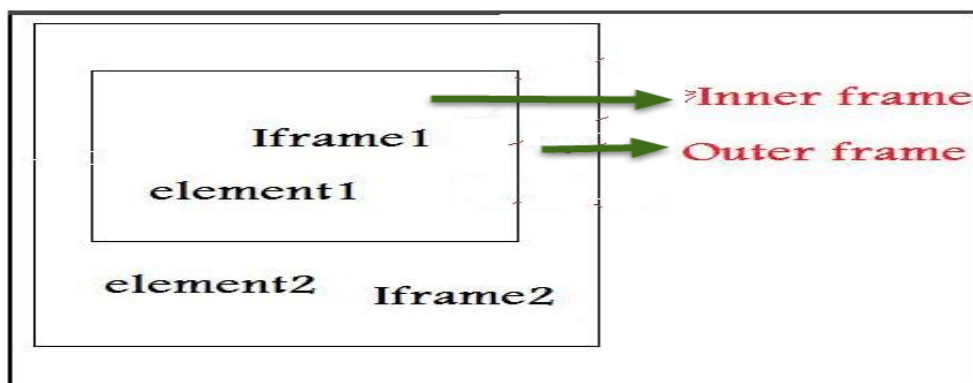
        WebElement downloadLink = driver.findElement(By.xpath("//a[@title='Get Selenium']"));
        downloadLink.click();
        WebElement javaDocLink = driver.findElement(By.xpath("//td[text()='Java']/../a[text()='Javadoc']"));
        javaDocLink.click();
        WebDriverWait wait = new WebDriverWait(driver, 30);
        wait.until(ExpectedConditions.frameToBeAvailableAndSwitchToIt(2));

        WebElement Tree = driver.findElement(By.xpath("(//a[text()='Tree'])[1]"));
        Tree.click();
        driver.switchTo().parentFrame();
        driver.close();
    }
}

```

### Nested Frames (Frames inside Frames):

Let's assume that there are two frames one inside other like shown in below image.



Just assume, we are in the inner frame, now I want to switch the control to outer frame, no need to switch to the main page.

Selenium provides another function called

```

}
driver.switch_to.parent_frame()
}

```

To switch focus to its parent. If the focus is in the outer frame, that time focus remains the same.