

# Sessions, Parallel run and Dependency in Selenium

To understand how to run scripts in parallel. Let's first understand –

## Why do we need Session Handling?

During test execution, the Selenium WebDriver has to interact with the browser all the time to execute given commands. At the time of execution, it is also possible that, before current execution completes, someone else starts execution of another script ,in the same machine and in the same type of browser.



**New Session for each browser**

## Selenium Ti

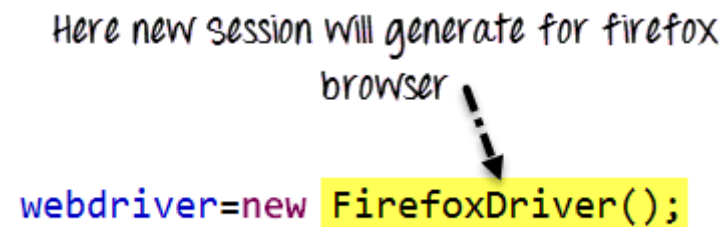
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In such situation, we need a mechanism by which our two different executions should not overlap with each other. This can be achieved using Session Handling in Selenium.

## How to achieve Session Handling in Selenium WebDriver?

If you check the source code of Selenium WebDriver, you will find a variable named as 'sessionId'. Whenever we create a new instance of WebDriver object, a new 'sessionId' will be generated and attached with that particular Firefox/Chrome/IE Driver ().

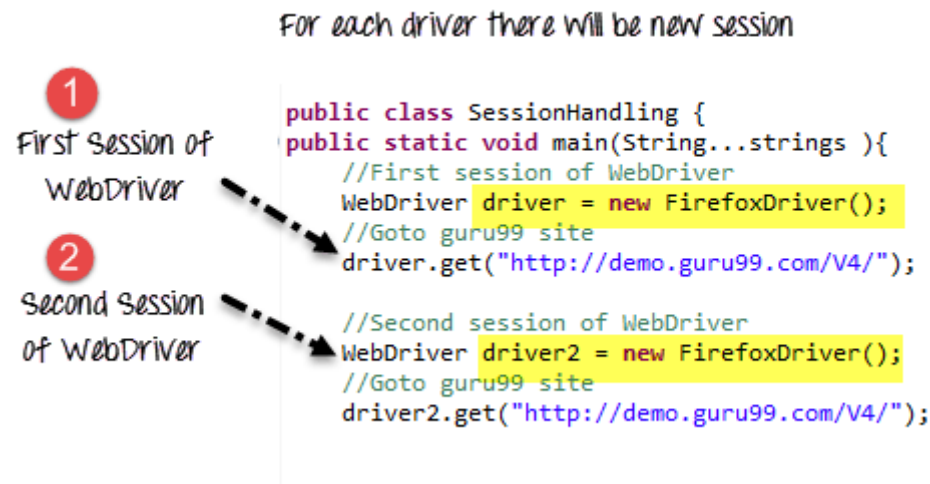
Here new session will generate for firefox  
browser



```
webdriver=new FirefoxDriver();
```

So anything we do after this will execute only in that particular Firefox browser session.

For each driver there will be new session



```
public class SessionHandling {  
    public static void main(String...strings ){  
        //First session of WebDriver  
        WebDriver driver = new FirefoxDriver();  
        //Goto guru99 site  
        driver.get("http://demo.guru99.com/V4/");  
  
        //Second session of WebDriver  
        WebDriver driver2 = new FirefoxDriver();  
        //Goto guru99 site  
        driver2.get("http://demo.guru99.com/V4/");  
    }  
}
```

As this is an in-built functionality, there is no explicit need to assign the session id

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**Code Example:** Here two different sessions will be generate for two different WebDriver.

```
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.firefox.FirefoxDriver;
public class SessionHandling {
    public static void main(String...strings ){
        //First session of WebDriver
        WebDriver driver = new FirefoxDriver();
        //Goto guru99 site
        driver.get("http://demo.guru99.com/V4/");

        //Second session of WebDriver
        WebDriver driver2 = new FirefoxDriver();
        //Goto guru99 site
        driver2.get("http://demo.guru99.com/V4/");
    }
}
```

## Run Scripts in Parallel

There are situations where you want to run multiple tests at the same time.

In such cases one can use "parallel" attribute

As the thread count is three, three  
WebDriver instances can run parallel in  
three different browsers

Test cases can run  
parallel

```
<!DOCTYPE suite SYSTEM "http://testng.org/testng-1.0.dtd">
<suite name="TestSuite" thread-count="3" parallel="methods" >
    <test name="testGuru">
```

The parallel attribute of suite tag can accept four values:

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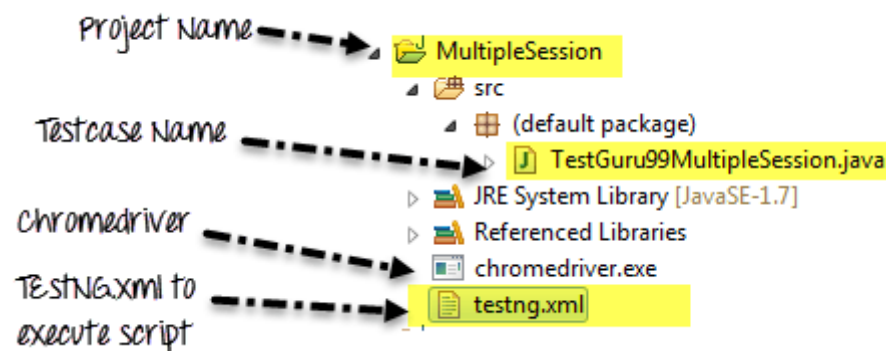
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tests	All the test cases inside <test> tag of <a href="#">Testing</a> xml file will run parallel.
classes	All the test cases inside a <a href="#">Java</a> class will run parallel
methods	All the methods with @Test annotation will execute parallel.
instances	Test cases in same instance will execute parallel but two methods of two different instances will run in different thread.

The attribute *thread-count* allows you to specify how many threads should be allocated for this execution.

Complete Example: In this Example three test cases will run parallel and fill login data in <http://demo.guru99.com>

Complete project will looks like:



TestGuru99MultipleSession.java

```
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;
import org.testng.annotations.Test;
public class TestGuru99MultipleSession {
```

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```
@Test
public void executSessionOne(){
    //First session of WebDriver
    System.setProperty("webdriver.chrome.driver","chromedriver.exe");
    WebDriver driver = new ChromeDriver();
    //Goto guru99 site
    driver.get("http://demo.guru99.com/V4/");
    //find user name text box and fill it
    driver.findElement(By.name("uid")).sendKeys("Driver 1");

}
```

```
@Test
public void executeSessionTwo(){
    //Second session of WebDriver
    System.setProperty("webdriver.chrome.driver","chromedriver.exe");
    WebDriver driver = new ChromeDriver();
    //Goto guru99 site
    driver.get("http://demo.guru99.com/V4/");
    //find user name text box and fill it
    driver.findElement(By.name("uid")).sendKeys("Driver 2");

}
```

```
@Test
public void executSessionThree(){
    //Third session of WebDriver
    System.setProperty("webdriver.chrome.driver","chromedriver.exe");
    WebDriver driver = new ChromeDriver();
    //Goto guru99 site
    driver.get("http://demo.guru99.com/V4/");
    //find user name text box and fill it
    driver.findElement(By.name("uid")).sendKeys("Driver 3");

}
```

```
}  
}
```

## TestNG.XML

```
<?xml version="1.0" encoding="UTF-8"?>  
<!DOCTYPE suite SYSTEM "http://testng.org/testng-1.0.dtd">  
<suite name="TestSuite" thread-count="3" parallel="methods" >  
  <test name="testGuru">  
    <classes>  
      <class name="TestGuru99MultipleSession">  
      </class>  
    </classes>  
  </test>  
</suite>
```

## Test Case order and Dependency

You can set order and dependency of test case execution.

Suppose you have two test cases , 'testGuru99TC1' and 'testGuru99TC2' and you want to execute test case 'testGuru99TC2' before 'testGuru99TC1'. In that case we will use 'dependsOnMethods' attribute to make dependency and order of execution.

```
<?xml version="1.0" encoding="UTF-8"?>  
<!DOCTYPE suite SYSTEM "http://testng.org/testng-1.0.dtd">  
<suite name="TestSuite" thread-count="3" parallel="methods" >  
  <test name="testGuru">  
    <classes>  
      <class name="TestGuru99MultipleSession">  
        <include value="testGuru99TC1" dependsOnMethods=" testGuru99TC2"/>  
        <include value="testGuru99TC2"/>  
      </class>
```

```
</classes>
</test>
</suite>
```

## Summary

- A new sessionID is created for a new instance of WebDriver.
- One session will bind with one particular browser.
- Using attribute thread and parallel, you run your scripts in parallel.
- You can use attribute dependency to set the order to test execution

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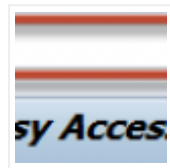
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