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# Selenium 2.0 WebDriver with Visual Studio & IE – Getting Started



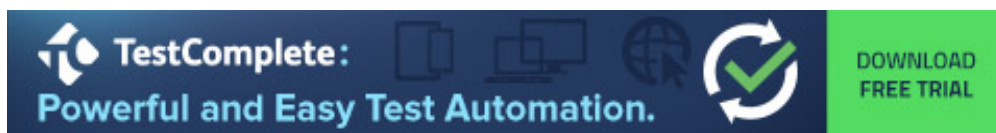
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By Joe Colantonio / July 31, 2012





## Issues Configuring Selenium WebDriver to work in Visual Studio

In this post I'll show you how to configure Selenium 2.0 WebDriver to work with Visual Studio and Internet Explorer. (For some reason, I initially had a hard time getting this configured correctly.)

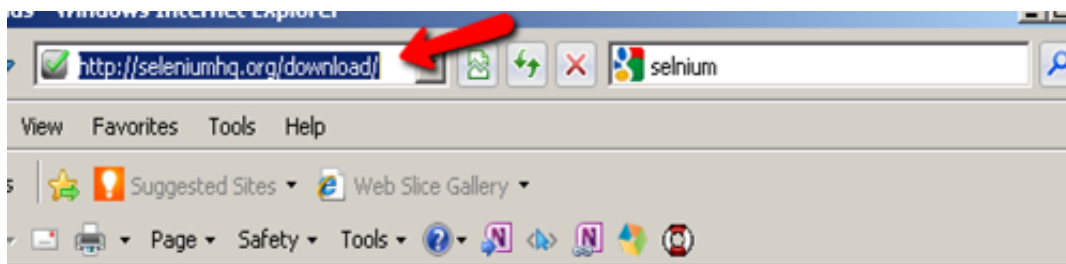
After much googling and trying different solutions from various places I finally got Selenium work. Hopefully this post will help you avoid some of the issues I ran in to.

UPDATE: When your done with this post be sure to check out my interview with Jim Evans, the guy behind the Selenium.Net bindings and the IEDriver to ask him how to make your tests more reliable against IE. Check it out [Selenium and IE – Getting Them to Work Together](#).



## Download Selenium C# Client Drivers

- The first step is to download the C# dlls from [Selenium's](http://seleniumhq.org/download/) web site.
- You'll also want to download the Internet Explorer Driver Server:



[page.](#)

### The Internet Explorer Driver Server

This is required if you want to make use of the latest and greatest features of the WebDriver InternetExplorerDriver. Please make sure that this is available on your \$PATH (or %PATH% on Windows) in order for the IE Driver to work as expected.

Download version 2.24.2 for (recommended) [32 bit Windows IE](#) or [64 bit Windows IE](#)

### Selenium Client Drivers

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

While drivers for other languages exist, these are the core ones that are supported by the main project.

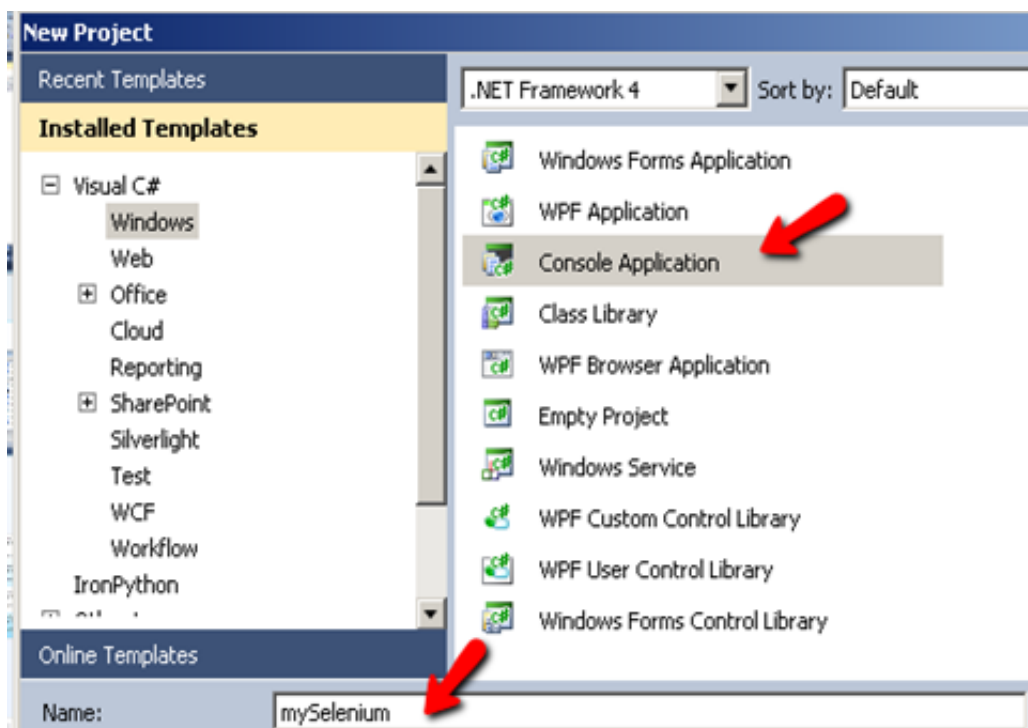
Language	Client Version	Release Date			
Java	2.25.0	2012-07-18	<a href="#">Download</a>	<a href="#">Change log</a>	<a href="#">Javadoc</a>
C#	2.24.0	2012-06-19	<a href="#">Download</a>	<a href="#">Change log</a>	<a href="#">API docs</a>

- Once you've downloaded the required Selenium files, extract the zip to a local drive on your computer

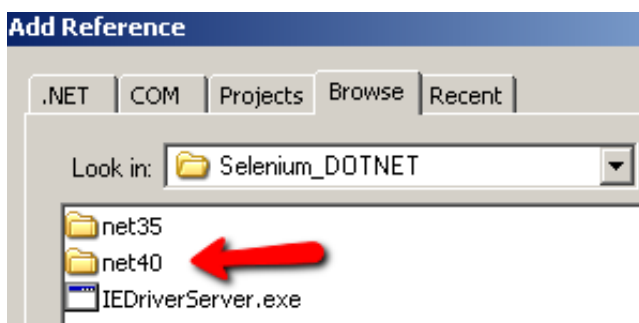
FYI – the Selenium Web Drivers work against IE 6,7,8 and 9 both 32-bit and 64-bit versions.

## Configure Visual Studio to work with Selenium

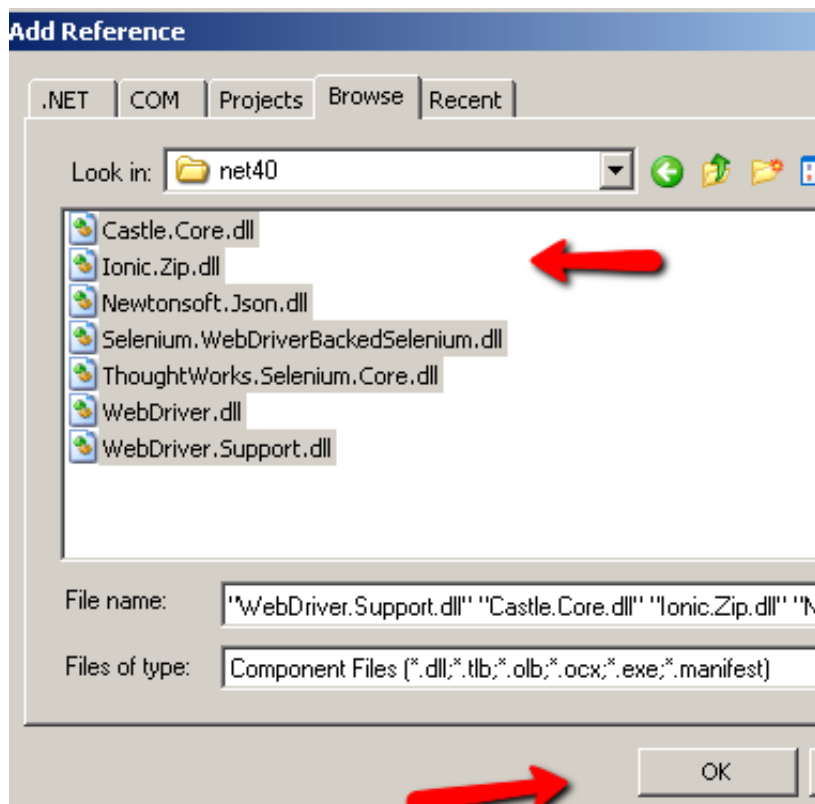
- Launch Visual Studio and start a new project
- Select 'Console Application' and name your project mySelenium



- Next select Project>Add References from the tool bar and browser the location where you extracted the Selenium dlls to. (Also be sure to select the correct version of .NET)



- Select all the dlls and click ok



## Time to Code!

Cool!! Now that we have the Selenium dlls referenced in our project it's time to test the configuration by running a quick test.

At the top of your project code after the last 'using' namespace add the following Selenium namespaces:

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

Add the following code in your static void main section:

```
///Make sure to add the path to where you extracting the  
IEDriverServer.exe:
```

```
IWebDriver driver = new InternetExplorerDriver(@"C:\Download\IEDriverServer");
driver.Navigate().GoToUrl("http://www.joecolantonio.com/HpSupport.html");
```

Your code should look like this:

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

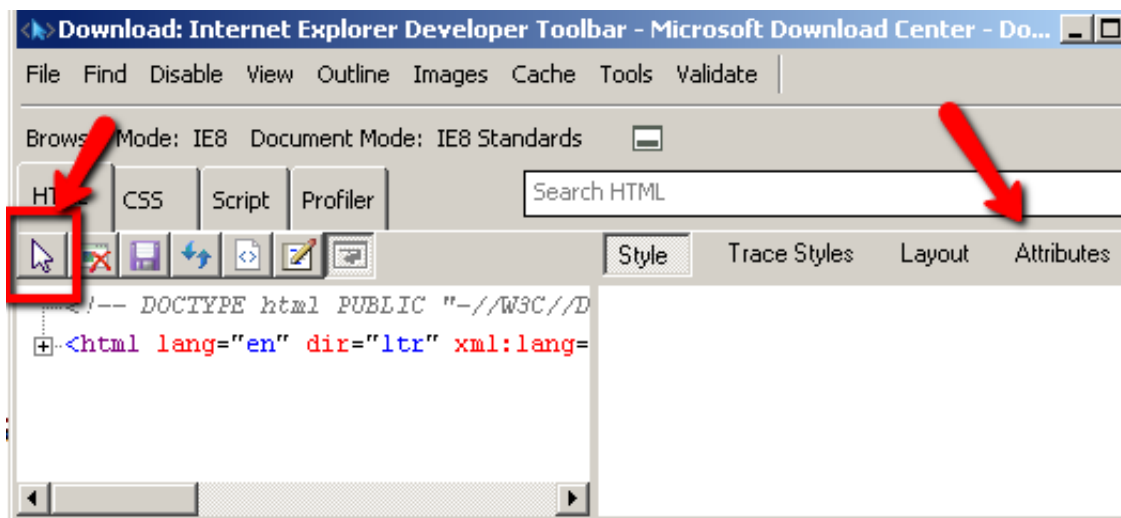
namespace mySelenium
{
    class Program
    {
        static void Main(string[] args)
        {
            IWebDriver driver = new InternetExplorerDriver(@"C:\Download\IEDriverServer");
            driver.Navigate().GoToUrl("http://www.joecolantonio.com");
        }
    }
}
```

Run the test. joecolantonio.com should appear.

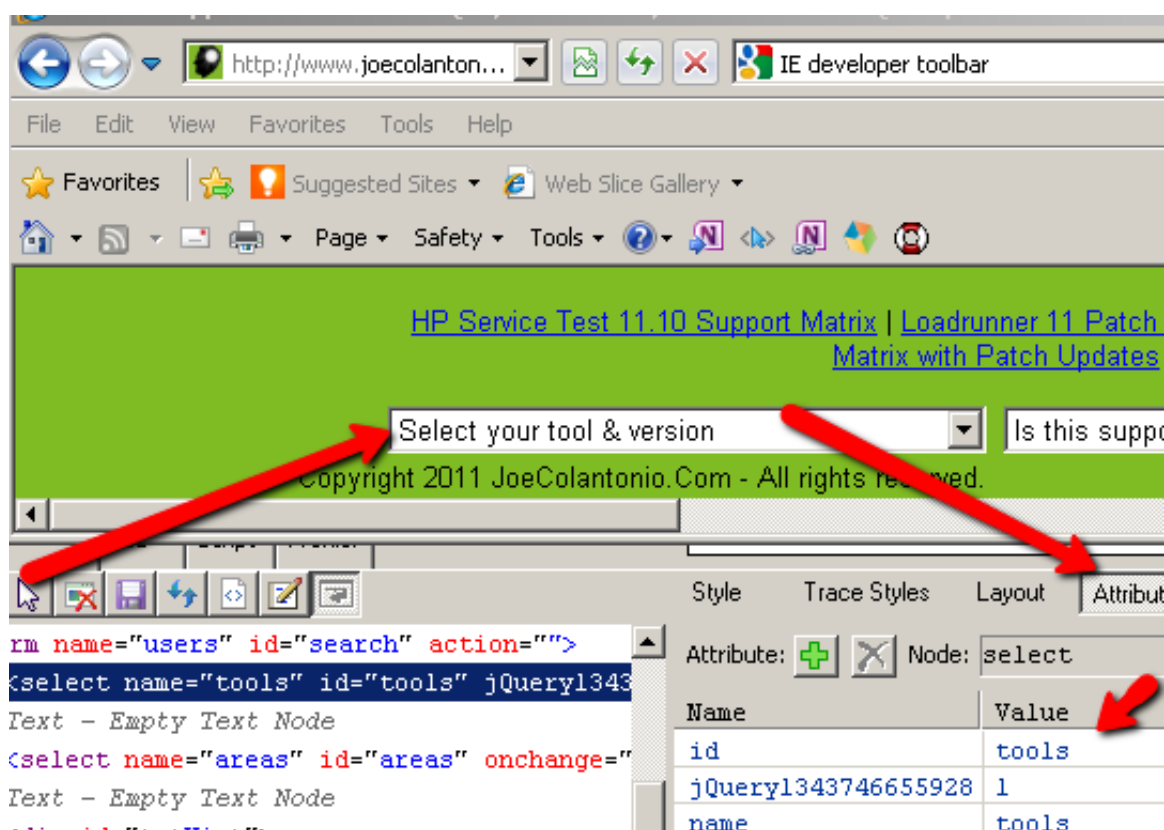
## IE Developer Toolbar

If you are going to be scripting against IE you'll want to install the [Internet Explorer Developer Toolbar](#). (Those familiar with QTP are aware that this is similar QTP's spy tool)

Using the IE Dev's Arrow feature allows you to spy on an element's attributes. You can then use those attributes in your Selenium code to help identify fields in you web application.



For example if we want to navigate to [www.joecolantonio.com/HpSupport.html](http://www.joecolantonio.com/HpSupport.html) and select a value from the 'Select your tool & Version' we would point the IE Dev arrow to the field to see its attributes:



Now that we know what the Id is, we can use that information to have Selenium interact with it. For example:

```
myField = new driver.FindElement(By.Id("tools"));
myField.SendKeys("QTP10");
```

Run the test. It should start IE , navigate to <http://www.joecolantonio/HPSupport.Html> and select QTP10 from the dropdown. Select your tool & version.

## WTF's to look out for

If you are getting the following error:

*"InvalidOperationException was unhandled – unexpected error launching Internet Explorer. Protected Mode settings are not the same for all zones."*

*Enable Protected Mode must be set to the same value (enabled or disabled) for all zones"*

**InvalidOperationException was unhandled**

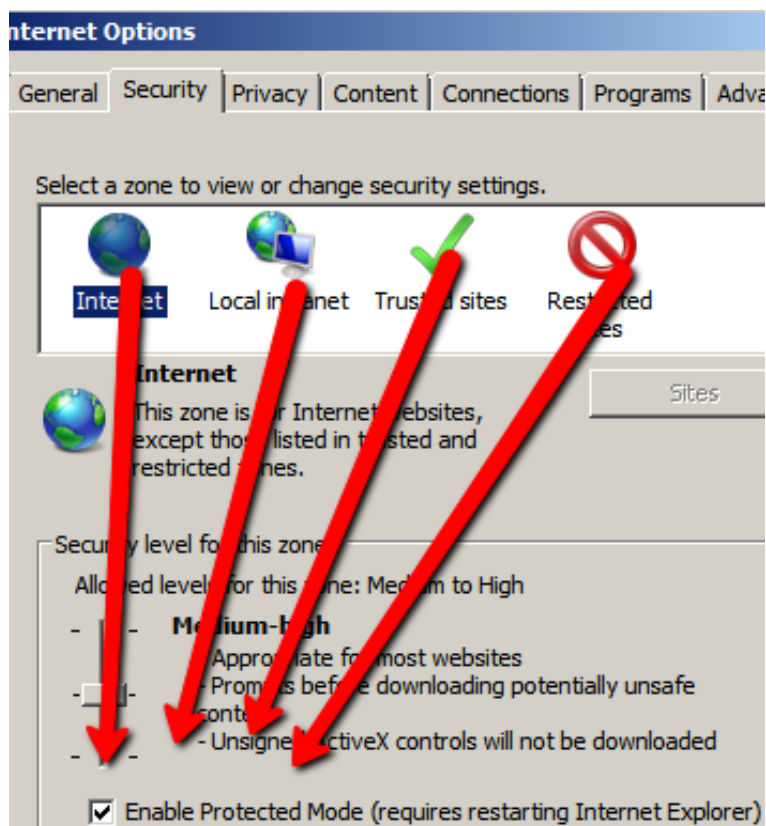
Unexpected error launching Internet Explorer. Protected Mode settings are not the same for all zones. Enable Protected Mode must be set to the same value (enabled or disabled) for all zones. (NoSuchDriver)

**Troubleshooting tips:**

[Get general help for this exception.](#)

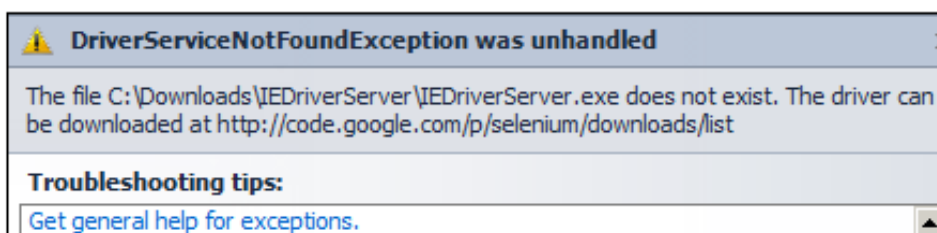
In IE tools>Internet Options>Security tab, make sure all your zones are set to the same value:





If you are getting the following error:

*"DriverServiceNotFoundException was unhandled: The file ... \IEDriverServer.exe does not exist. The driver can be downloaded at"*



Make sure that you downloaded the [IEDriverServer.exe](#) and also that you have the correct path specified in your code

```
IWebDriver driver = new InternetExplorerDriver(@"C:\YourPath\IEDriverServer"); //
```

## Good Luck, and happy Selenium scripting!



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Name \*

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Comment

POST COMMENT

### 78 COMMENTS



**Hardik Bhatt** - November 27, 2012

Thanks a million mate. wasnt able to find any tutorial small and precise to get it working for chrome. this IE implementation did the job for me. thanks again mate. cheers.

Repl



**Joe Colantonio** - November 27, 2012

Hardik Bhatt » Awesome – glad it helped!

Repl



**Anurag Jain** - December 19, 2012

This tutorial helps a lot and make me able to start scripting sucessfully.

Repl



**Joe Colantonio** - December 20, 2012

Anurag Jain » Awesome – that's what I like to hear!

Repl



**Engy** - January 17, 2013

hi joe thanks for the tutorial .actually i need your help ,i'm using selenium webdriver with visual studio c# chrome driver ,i added the selenium references and installed the chrome driver but i cannot add it as reference.

Repl



**Joe Colantonio** - January 18, 2013

Engy » Hi are you getting an error message? I just verified that it worked for me. Did you verify that in your project>references that you have all the selenium dlls added? Also make sure that you added the name space namespace OpenQA.Selenium.Chrome. For the chrome driver you need to either have the path to it in your machines PATH environment variable or add it as an argument when you instantiate the Chrome Driver:

```
IWebDriver driver = new  
ChromeDriver(@"C:\pathToTheDriver\chromedriver\");
```

Repl



**Luay Zakaria** - January 24, 2013

Awesome tutorial.. thx m8  
this got me up and running in no time.. would've taken me hours otherwise!

Repl



**Joe Colantonio** - January 25, 2013

Cool – glad it helped. Let me know of any other Selenium issues you would like to see post on. Cheers~Joe

Repl



**jay** - February 26, 2013

I was new to Selenium but this tutorial made me hit the ground running in 15

minutes!~

Good job Joe!

thanks

Jay

Repl



**Joe Colantonio** - February 27, 2013

jay » Cool – thanks Jay! Glad it helped you.

Repl



**Saravanan Babhu** - February 27, 2013

Awesome tutorial. Super like

Is it the same step I have to follow for safari browser in windows 7 machine.

Repl



**Joe Colantonio** - February 27, 2013

Saravanan Babhu » Thanks Saravanan – I have not tried against Safari yet.

Repl



**Khairil Anuar** - March 14, 2013

Thanks so much Joe. Simple and it's work.. Awesome!!

Now I can start the scripting with IE.

Thanks again.. :)

Repl



**Joe Colantonio** - March 14, 2013

Khairil Anuar » Thanks for the positive feedback – I really appreciate it! Glad it helped!

Repl



**Diptangshu Santra** - March 24, 2013

Hi Joe. Thanks for this page.

I am a QTP prof. I m completely new to Selenium. I am good with C#, but not that much with Java.

I find, that most of Selenium frameworks, like TestNG and ReportNG, are aligned to Java. But could not find as such for C#.

People say, NUnit and MBUnit aren't that handy. Also, no reporting framework is available.

Do I need to learn Java all from scratch, or there are ways in C#? Please suggest.

Thanks in advance !

Repl



**Joe Colantonio** - May 3, 2013

Diptangshu Santra » Not sure what detail you need but we use nNunit without any issue. What do you need to do that nUnit is not handling? thanks~joe

Repl



**Diptangshu Santra** - March 24, 2013

Hi Joe, in addition to my last post, I would like to know something. Might be a stupid question. Why do we need to integrate Selenium codes with unit testing frameworks ?? In QTP, we do not use 1.

I understand, NUnit/JUnit uses assert functions. Is this the only use? I went through TestNG documentation, but couldn't grab much. Can you please elaborate?

Repl



**Dilshan** - April 2, 2013

Thanks for the info Joe. Worked like a charm.

Repl



**shakkeer** - April 3, 2013

Thanks a lot simple and perfect

Repl



**Joe Colantonio** - April 4, 2013

shakkeer » Excellent!

Repl



**sana** - April 8, 2013

please help me its not working as i have done all you guided ...

issue is that when i am running the code iside visual studio it give an error that  
“visual studio can not start dbugging because the debug target is missing. please  
buid the project and retry, or set the outpput path and assembly name properties  
appropriately to point on correct location for target assembly” how to fix it??

Repl



**Joe Colantonio** - April 9, 2013

sana » This is usually solved by changing the startup object in your project. This  
Microsoft thread has some suggestions for how to fix this error:

<http://social.msdn.microsoft.com/Forums/en-US/vsdebug/thread/1a89d2df-0c57-4bb2-8c1a-b619e6cbb065/>

Repl



**rony** - April 18, 2013

Great sample.



Is there a way to record on IE using Selenium? ( the way you do on Firefox)

Thank you.

Repl



**Joe Colantonio** - April 18, 2013

rony » Thanks Roy – Selenium IDE is a Firefox only plugin. Currently there is not something similar that can be used in IE.

Repl



**rony** - June 10, 2013

Hi,

I got over it. Record with selenium ide, export to c#, and change the driver to IE.

Now, reports sucks. I use c# and visual studio.

Any suggestions on how to nicely report?

Repl



**Dan** - April 21, 2013

Much appreciated :)

Repl



**kenny** - April 25, 2013

Great info, as usual!

I did something a little different, where I was creating it as a Test Project and going from there. I'm stuck on trying to write out my results to a notepad file though, but that's another topic I suppose :-)

Repl



**sobi** - May 8, 2013

Good starter tutorial, for people like me. Is there more tutorials on web testing using C#?

Thanks

Repl



**Joe Colantonio** - May 8, 2013

sobi » Thanks! I will try to post more on web testing using C#. Does anyone else recommend any other resources?

Repl



**CSharpCode** - May 14, 2013

Great guide for beginners

How about handling the IE DriverServer.exe based on the IE bit information(32 or 64).

any ideas are most welcome.

Reply



**Sriram** - May 27, 2013

Great work Joe with OpenSource! As it says OpenSource one mind set is to have Java in place, but i have to say you have given confidence to all microsoft dev's :)  
— I also feel lil more tuts on C # with web testing would help us.

Appreciate all your help.

Reply



**Joe Colantonio** - May 27, 2013

Sriram » Thanks Sriram!

Reply



**yasir** - May 30, 2013

hi joe

i am facing a problem in webdriver 2.0 + iedriver + c# that when i navigate to a url from try block it works fine but when i am trying same url to navigate after returning from catch block it takes very long time as long as 5 mins . navigation performs in background and all my lines below that navigation line executes in

same time, please give me advice what to do. i had started using iedriver by seeing this post please help me

```

class testclass
{
private readonly IWebDriver generalCourse;
public testclass(IWebDriver driver)
{
weddriverobj= driver;
}
public bool foryourrefrence()
{

bool condition = true;
int cnt = 0;
while (condition)
{
try
{
if (cnt > 0)
{

weddriverobj.Navigate().GoToUrl("http://www.google.com");//replacing google
with my test site
weddriverobj.Manage().Timeouts().ImplicitlyWait(TimeSpan.FromSeconds(10));

}
if (cnt == 0)
{

//clicking on another link for genrating error

```

```
weddriverobj.FindElement(By.XPath(Object.doc_link)).Click();  
}
```

//because another link is clicked this element will not be found

```
weddriverobj.FindElementOnPage(By.XPath(Object.gereralcourse_link));  
weddriverobj.FindElement(By.XPath(Object.gereralcourse_link)).Click();
```

```
condition = false;
```

```
}
```

```
catch (Exception ex)
```

```
{
```

```
if (cnt > 3)//tries 3 times for handling error
```

```
{
```

```
return false;
```

```
}
```

```
condition = true;//untill condition is true we will try
```

```
cnt++;
```

```
}
```

```
}
```

```
return true;
```

```
}
```

```
}
```

Repl



**yasir** - May 30, 2013

private readonly IWebDriver generalCourse; is actually  
private readonly IWebDriver weddriverobj;

Repl



**Mike Jurovski** - May 31, 2013

Thanks for helping Joe. So clear with the video and the summary notes.

Mike

Repl



**gary k** - August 6, 2013

Hey Joe,

Thanks for the tutorial and it's perfect to get me started (longtime QTP vet but new to selenium.) One question/problem though; when I add the lines:

```
myField = new driver.FindElement(By.Id("tools"));  
myField.SendKeys("QTP10");
```

I get two runtime errors when running.

Error 4 The type or namespace name 'driver' could not be found (are you missing a using directive or an assembly reference?)

Error The name 'myField' does not exist in the current context

Any Idea what I could be doing wrong?

Repl



**Joe Colantonio** - September 2, 2013

Sorry for my late response – did you resolve this? It sounds like the C# binding where not imported as reference in Visual Studio

Repl



**Nolan** - September 10, 2013

Hey, Thanks much for this post, it was very helpful in setting me up for using selenium with C#. Really made things clear!

The lines :

```
myField = new driver.FindElement(By.Id("tools"));  
myField.SendKeys("QTP10");
```

I have entered as

```
IWebElement myField = driver.FindElement(By.Id("tools"));  
myField.SendKeys("QTP10");
```

That's the code listed in the video, which works, but the code listed on the site is different.

Either way, thank you for the post!

Repl



**SK** - September 6, 2013

Awesome – Many thanks !

Repl



**Randhir** - September 10, 2013

Excellent to start – Thanks a ton

Repl



**Joe Colantonio** - September 10, 2013

Awesome – glad it helped you!

Repl



**Dave Whalen** - October 30, 2013

First of all – I'm a tester with some development experience, not a developer. My questions may seem a bit basic...bear with me.

I finally got this to work once I created a console application and not a Web application – duh. I have a couple of questions:

1. I can use `driver.close()` to close the web session, however it appears the console is still open. Is there a similar way to close it?



2. I'll need to also support testing in Firefox and Chrome. There is a Chrome driver available, however I believe the FF driver is included with Web Driver. I haven't tried it yet. I'm assuming the process is the same for Chrome? What about Firefox?

Thanks!

Dave

Repl



**Joe Colantonio** - October 31, 2013

Hi Dave,

The Firefox driver is built to web driver you do not need to do anything special to use Firefox with selenium. For Chrome it is a separate .exe, like IE ,that needs to be setup on your machine. You can get the chrome driver at:

<http://code.google.com/p/chromedriver/>.

Repl



**Jules** - November 12, 2013

Thanks Joe, big help! I was able to immediately get VS 2012 working on Server 2012 with the Firefox driver.

Repl



## GrumpyTester - December 10, 2013

Hi Joe,

I stumbled over your excellent tutorial on Selenium on trying to get Selenium to work with Silverlight. Are you able to shed light on how this can be achieved? I have scoured the interweb for ideas but info seems wither lacking or the examples do not work.

Many thanks

GrumpyTester

Repl



## Joe Colantonio - December 11, 2013

HA -love the name GrumpyTester - that would be a great name for a blog :) Silverlight can be tricky. I know the older version of Selenium RC had a Google silverlight project <http://code.google.com/p/silverlight-selenium/> but I don't see one for Selenium WebDriver. I know in the past for non browser application .net, wpf and silverlight application my company has successfully used the [White Framework](#) but not sure if that will help you. Sorry, I'm sure my answer has only made you grumpier.

Repl



**Maria** - January 3, 2014

Thanks a lot! your article is very helpful!

I'm sending rays of happiness to you :)

Repl



**Joe Colantonio** - January 6, 2014

Thanks Maria – I can use as many rays of happiness as possible :)

Repl



**Tomasz** - January 15, 2014

Hi, grate tip:) i have a problem in last line of code:

`driver.FindElement(By.Id("submit")).Click();` how can a click submit button to login

```
IWebDriver driver = new
```

```
InternetExplorerDriver(@"C:\IEDriverServer_Win32_2.39.0");
```

```
driver.Navigate().GoToUrl("http://localhost:4444/");
```

```
IWebElement myField = driver.FindElement(By.Id("UserName"));
```

```
myField.SendKeys("admin");
```

```
IWebElement myField1 = driver.FindElement(By.Id("Password"));
```

```
myField1.SendKeys("qwe123");
```

```
IWebElement myField3 = driver.FindElement(By.Id("submit")).Click();
```

Repl



**Joe Colantonio** - January 17, 2014

Hi - does it work if you change the last line to be:

```
var myButton = driver.FindElement(By.Id("submit"));  
myButton.Click();
```

Repl



**Leo** - February 7, 2014

Joe,

This is great but I have one problem, my test failed when checking page title. This due to the IEWebDriver displays then following when open the IE browser opens:

"This is the initial start page for the WebDriver server."

Once my target URL is used, it then fails checking page title as it captures the initial start page title.

Plus no dos prompt is shown when executing script.

I am using Windows 7 with IE 10 with the latest Selenium WebDriver as from today. Any ideas?

Repl



**Joe Colantonio** - March 1, 2014

I have not seen this – I did a quick look on stackoverflow  
(<http://stackoverflow.com/questions/20468039/selenium-webdriver-iedriver-stuck-at-this-is-the-initial-start-page-for-the>) and someone resolved a similar issue by “It is fixed by restoring to default setting in IE “

Reply



**Jai** - February 11, 2014

Hi Joe, It was a great start up tutorial. I was actually searching for C# tutorial for a long time. It helped...

Reply



**Wendy Chi** - February 24, 2014

Hi, i am from China, your solution is awesome, thank you so much!!!! :) :) Keep in touch, ok? i am the beginner for selenium 2.

Reply



**Joe Colantonio** - February 28, 2014

Thanks Wendy!!

Reply



**Dev** - March 24, 2014

Thanks I was struggling with setting IE web driver, thanks this help me to solved it.

Repl



**subha** - April 2, 2014

Good one joe! helped a lot.. thanks :)

Repl



**shahz** - May 2, 2014

Thanks for the article. it really helped me understand to run the tests in the selenium environment. well done joe!! :)

Repl



**Joe Colantonio** - May 5, 2014

Awesome – thanks!

Repl



**Mohit** - June 20, 2014

Hi Joe,

In my project we are facing an issue with silverlight object. I reached a lot but not found anything. Please help me we are using selenium with c#.

Thanks

Repl



**Joe Colantonio** - June 22, 2014

What issue are you having? Have you seen this:

<http://learnwpf.com/post/2012/06/27/Silverlight-Automated-UI-Testing-With-Selenium.aspx>

Repl



**Kiran** - August 8, 2014

Hi Joe, Thanks a lot for this quick help. I was able to run the code using bing.com. How ever I am getting timeout exception when running the code using a https site in IE. Example (<https://facebook.com>). Any idea what should be done for this?

Repl



**saumya** - August 12, 2014

Hi Joe,

Very nicely explained from scratch,thanks and keep the good work up.

Cheers

Repl



**Vaibhav** - September 11, 2014

Hi Joe,

I need your help. I want to generate reports for my test scripts.

I am using Nunit and using C# language.

Please tell me how to generate reports.

Repl



**Joe Colantonio** - September 16, 2014

If you used testNG you could use a tool like ReportNG to easily create an HTML report <http://reportng.uncommons.org/>

Repl



**arun** - November 28, 2014

Hello ...pls help me i am a beginner for c sharp/selenium...i want to extract item number, category, sub category from this link

<http://www.btx.com/products/3032CABLE%20ASSEMBLIES/3079VIDEO.aspx>  
to excel/csv file...pls help me im tankful to u

Repl



**Nilesh** - December 5, 2014

We have been using selenium web driver with C# since year, we execute our scripts on server machine (Windows server-2008 R2),



From last month, our most of the test scripts are getting failed on Firefox 26 and showing below error.

OpenQA.Selenium.WebDriverException : The HTTP request to the remote WebDriver server for URL <http://localhost:7055/hub/session/4d7a575e-085b-4254-83d3-822f41f989e2/element/%7B2046f4e9-f39f-4ac5-8193-e53b1e5b8b05%7D/click> timed out after 120 seconds. -->

System.Net.WebException : The operation has timed out

We are getting this error on login method.

Same script working fine when we debug or execute individually. Also scripts running fine on chrome browser.

Selenium: 2.44

OS: Windows Server 2008 R2

Browser: Firefox 26

Could please help/suggest us to resolve this issue.

Repl



**Jake** - December 23, 2014

Thanks for the awesome tutorial. The first time I ran it, everything worked as expected. As I started to add code to create a config file, I kept getting the "NoSuchElementException" error.

I figured that maybe I messed something up, so I scrapped the project and

followed the tutorial again. I am still getting the "NoSuchElementException" error. In VS, if I explore the driver, I can see that it has the full page source, so the data is getting to the driver, but I don't know what to do at this point. Any ideas?

Repl



**Nikunj** - February 18, 2015

Thats enormously helpful. simple and working. Kudos!!

Repl



**Neftali** - March 12, 2015

Thanks dude!!!

The open org trolls couldn't come up with something this easy to understand ever if they had Watson on their side. They need to do less coding and more documenting.

Repl



**Joe Colantonio** - March 17, 2015

Ha thanks!

Repl



**Marius** - May 13, 2015

to avoid `DriverServiceNotFoundException`, `IEDriverServer.exe` should be somewhere in path or debug folder of your project.

to avoid Protected Mode setting exception, initiate driver like this:

```
InternetExplorerOptions options = new InternetExplorerOptions();  
options.IntroduceInstabilityByIgnoringProtectedModeSettings = true;  
driver = new InternetExplorerDriver(options);
```

Repl



**Joe Colantonio** - May 13, 2015

Thanks Marius. Do you use the protected mode code approach in your tests? I thought I've seen multiple times in the different Selenium forums where Jim Evans the maintainer of the Selenium `IEDriver` does not recommend this approach.

Repl



**Manveen** - May 26, 2015

I spent about 50 mins hunting before finding this to-the-point tutorial. Information well put, very helpful.

Repl



**Joe Colantonio** - May 27, 2015

Thank Maveen – glad it helped you!

Repl



**Vincent Campos** - June 19, 2015

Thanks for the tutorial!

Repl



**Joe Colantonio** - June 23, 2015

Thanks Vincent!

Repl

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