**https://stackoverflow.com/questions/3506796/pinvokestackimbalance-how-can-i-fix-this-or-turn-it-off**

I just switched to vs2010 from vs2008. Exact same solution, except now every single call to a C++ dll yields a 'pinvokestackimbalance' exception.

This exception does not get fired in 2008. I have complete access to the C++ dll and to the calling application. There does not appear to be any problem with the pinvoke, but this problem is making debugging other problems impossible; the IDE is stopping constantly to tell me about these things.

For instance, here's the C# signature:

[DllImport("ImageOperations.dll")]

static extern void FasterFunction(

[MarshalAs(UnmanagedType.LPArray)]ushort[] inImage, //IntPtr inImage,

[MarshalAs(UnmanagedType.LPArray)]byte[] outImage, //IntPtr outImage,

int inTotalSize, int inWindow, int inLevel);

Here's what it looks like on the C++ side:

#ifdef OPERATIONS\_EXPORTS

#define OPERATIONS\_API \_\_declspec(dllexport)

#else

#define OPERATIONS\_API \_\_declspec(dllimport)

#endif

extern "C" {

OPERATIONS\_API void \_\_cdecl FasterFunction(unsigned short\* inArray,

unsigned char\* outRemappedImage,

int inTotalSize,

int inWindow, int inLevel);

}

What's different between vs2010 and vs2008 that would cause these exceptions to get thrown? Should I be adding a different set of parameters to the DllImport directive?

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**125k**25484422

asked Aug 17 '10 at 20:45

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5 Answers

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First, understand that the code is wrong (and always has been). The "pInvokeStackImbalance" is not an exception per se, but a managed debugging assistant. It was off by default in VS2008, but a lot of people did not turn it on, so it's on by default in VS2010. The MDA does not run in Release mode, so it won't trigger if you build for release.

In your case, the calling convention is incorrect. DllImport defaults to CallingConvention.WinApi, which is identical to CallingConvention.StdCall for x86 desktop code. It should be CallingConvention.Cdecl.

This can be done by editing the line [DllImport("ImageOperations.dll")] to be:

[DllImport("ImageOperations.dll", CallingConvention = CallingConvention.Cdecl)]

For more information, see [this MSDN reference](https://msdn.microsoft.com/en-us/library/system.runtime.interopservices.callingconvention(v=vs.110).aspx)

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**102**8

answered Aug 17 '10 at 21:04

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[Stephen Cleary](https://stackoverflow.com/users/263693/stephen-cleary)

**267k**45448563

* Thanks! The exceptions have definitely stopped firing. Maybe this will solve some of the long-term stability problems we were having as well. – [mmr](https://stackoverflow.com/users/21981/mmr" \o "8,631 reputation) [Aug 17 '10 at 21:14](https://stackoverflow.com/questions/3506796/pinvokestackimbalance-how-can-i-fix-this-or-turn-it-off#comment3665289_3506938)
* 3

Quite possibly. This particular type of stack imbalance is actually somewhat common; it doesn't cause any errors right away but will slowly consume the thread's stack. Eventually, "bad things" will happen. The CLR is *usually* able to raise a StackOverflowException, but using, catch, and finally blocks really complicate things when the stack is full. For this reason, starting in .NET 2.0, a StackOverflowExceptionwill just terminate the process. – [Stephen Cleary](https://stackoverflow.com/users/263693/stephen-cleary) [Aug 17 '10 at 21:18](https://stackoverflow.com/questions/3506796/pinvokestackimbalance-how-can-i-fix-this-or-turn-it-off#comment3665331_3506938)

* More information on interop calling conventions [here](http://msdn.microsoft.com/en-us/library/system.runtime.interopservices.callingconvention.aspx). – [Drew Noakes](https://stackoverflow.com/users/24874/drew-noakes) [Nov 27 '11 at 11:47](https://stackoverflow.com/questions/3506796/pinvokestackimbalance-how-can-i-fix-this-or-turn-it-off#comment10203263_3506938)
* Excellent, this pointed me in the right direction after trying to update some projects to .Net 4.0. After changing the calling convention in the C# source to Cdecl, I then had to make a change to our \*.h and \*.c files to use '\_\_cdecl`. – [IAbstract](https://stackoverflow.com/users/210709/iabstract" \o "14,860 reputation) [Jul 7 '12 at 17:50](https://stackoverflow.com/questions/3506796/pinvokestackimbalance-how-can-i-fix-this-or-turn-it-off#comment14993142_3506938)
* Thank you! This response saved the day. In my case, the issue arose from referencing a Visual C++ 8.0 (Visual Studio 2008) DLL in a Visual Studio 2010 project. – [Schrockwell](https://stackoverflow.com/users/100170/schrockwell" \o "533 reputation) [Feb 8 '13 at 18:06](https://stackoverflow.com/questions/3506796/pinvokestackimbalance-how-can-i-fix-this-or-turn-it-off#comment20690730_3506938)

[**https://docs.microsoft.com/en-us/dotnet/api/system.runtime.interopservices.callingconvention?redirectedfrom=MSDN&view=netframework-4.7.2**](https://docs.microsoft.com/en-us/dotnet/api/system.runtime.interopservices.callingconvention?redirectedfrom=MSDN&view=netframework-4.7.2)

**https://docs.microsoft.com/en-us/dotnet/api/system.runtime.interopservices.marshalasattribute?view=netframework-4.7.2**

using System;

using System.Text;

using System.Runtime.InteropServices;

class Program

{

//Applied to a parameter.

public void M1([MarshalAs(UnmanagedType.LPWStr)]String msg) {}

//Applied to a field within a class.

class MsgText {

[MarshalAs(UnmanagedType.LPWStr)]

public String msg = "Hello World";

}

//Applied to a return value.

[return: MarshalAs(UnmanagedType.LPWStr)]

public String GetMessage()

{

return "Hello World";

}

static void Main(string[] args)

{ }

}

decimal \_money;

public decimal Money

{

[return: MarshalAs(UnmanagedType.Currency)]

get { return this.\_money; }

[param: MarshalAs(UnmanagedType.Currency)]

set { this.\_money = value; }

}

[**https://docs.microsoft.com/en-us/dotnet/framework/interop/marshaling-data-with-platform-invoke**](https://docs.microsoft.com/en-us/dotnet/framework/interop/marshaling-data-with-platform-invoke)

# Marshaling Data with Platform Invoke