

System.Runtime.InteropServices.DllImportAttribute Class

```
[ILAsm]
.class public sealed DllImportAttribute extends System.Attribute

[C#]
public sealed class DllImportAttribute: Attribute
```

Assembly Info:

- *Name:* mscorlib
- *Public Key:* [00 00 00 00 00 00 00 00 04 00 00 00 00 00 00]
- *Version:* 2.0.x.x
- *Attributes:*
 - CLSCompliantAttribute(true)

Type Attributes:

- AttributeUsageAttribute(AttributeTargets.Method, AllowMultiple=false, Inherited=false)

Summary

Indicates that the target method of this attribute is an export from an unmanaged shared library.

Inherits From: System.Attribute

Library: RuntimeInfrastructure

Thread Safety: All public static members of this type are safe for multithreaded operations. No instance members are guaranteed to be thread safe.

Description

This attribute provides the information needed to call a method exported from an unmanaged shared library. This attribute provides the name of the shared library file, the name of the method within that library, the calling convention, and character set of the unmanaged function.

[*Note:* A shared library refers to Dynamically Linked Libraries on Windows systems, and Shared Libraries on Unix systems.]

Compilers are required to not preserve this type in metadata as a custom attribute. Instead, compilers are required to emit it directly in the file format, as described in

1 Partition II of the CLI Specification. Metadata consumers, such as the Reflection API, are
2 required to retrieve this data from the file format and return it as if it were a custom
3 attribute.

4 **Example**

5 The following example demonstrates the use of the
6 `System.Runtime.InteropServices.DllImportAttribute`.

7
8 *[Note: The non-standard `GetLocalTime` API used in this example indicates the current*
9 *local system time.]*

10
11
12
13

[C#]

```
14 using System;
15 using System.Runtime.InteropServices;
16
17 [ StructLayout( LayoutKind.Sequential ) ]
18 public class SystemTime {
19     public ushort year;
20     public ushort month;
21     public ushort dayOfWeek;
22     public ushort day;
23     public ushort hour;
24     public ushort minute;
25     public ushort second;
26     public ushort milliseconds;
27 }
28
29 public class LibWrap {
30     [ DllImportAttribute( "Kernel32", CharSet=CharSet.Auto,
31     CallingConvention=CallingConvention.StdCall, EntryPoint="GetLocalTime" )]
32     public static extern void GetLocalTime( SystemTime st );
33 }
34
35 public class DllImportAttributeTest {
36     public static void Main() {
37
38         SystemTime st = new SystemTime();
39
40         LibWrap.GetLocalTime( st );
41         Console.Write( "The Date and Time is: " );
42         Console.Write( "{0:00}/{1:00}/{2} at ", st.month, st.day, st.year );
43         Console.WriteLine( "{0:00}:{1:00}:{2:00}", st.hour, st.minute, st.second );
44     }
45 }
```

46 When run at the given time on the given date, the output produced was

47
48
49

```
The Date and Time is: 05/16/2001 at 11:39:17
```

50

1 DllImportAttribute(System.String)

2 Constructor

```
3 [ILAsm]  
4 public rtspecialname specialname instance void .ctor(string dllName)  
5 [C#]  
6 public DllImportAttribute(string dllName)
```

7 Summary

8 Constructs and initializes a new instance of the
9 System.Runtime.InteropServices.DllImportAttribute class.

10 Parameters

Parameter	Description
<i>dllName</i>	A System.String that specifies the name of the shared library containing the unmanaged method to import.

11 12 Description

13 If the shared library specified in *dllName* is not found, an error occurs at runtime.

14

1 DllImportAttribute.CallingConvention Field

```
2 [ILAsm]  
3 .field public valuetype System.Runtime.InteropServices.CallingConvention  
4 CallingConvention  
5 [C#]  
6 public CallingConvention CallingConvention
```

7 Summary

8 A System.Runtime.InteropServices.CallingConvention value that specifies the
9 calling convention used when passing arguments to the unmanaged implementation of a
10 method in a shared library.

11 Description

12 The default System.Runtime.InteropServices.CallingConvention value is
13 System.Runtime.InteropServices.CallingConvention.StdCall.

14

1 DllImportAttribute.CharSet Field

```
2 [ILAsm]  
3 .field public valuetype System.Runtime.InteropServices.CharSet CharSet  
4 [C#]  
5 public CharSet CharSet
```

6 Summary

7 A System.Runtime.InteropServices.CharSet value that controls function name
8 modification and indicates how the System.String arguments to the method will be
9 marshaled.

10 Description

11 This field is set to one of the System.Runtime.InteropServices.CharSet values to
12 indicate the required modifications to the name of the imported function and to the
13 System.String arguments of the function. The default value for
14 System.Runtime.InteropServices.DllImportAttribute.CharSet is
15 System.Runtime.InteropServices.CharSet.Ansi.

16
17 If System.Runtime.InteropServices.DllImportAttribute.CharSet is set to
18 System.Runtime.InteropServices.CharSet.Unicode, all string arguments are
19 converted to Unicode characters before being passed to the unmanaged implementation.
20 If the field is set to System.Runtime.InteropServices.CharSet.Ansi the string
21 characters are converted to ANSI characters. If
22 System.Runtime.InteropServices.DllImportAttribute.CharSet is set to
23 System.Runtime.InteropServices.CharSet.Auto, the System.String and function
24 name conversion is platform dependent.

25
26 The System.Runtime.InteropServices.DllImportAttribute.CharSet field might also
27 be used to determine which version of a function is imported from the specified shared
28 library by modifying the provided name of the function. The name modification is
29 platform specific, and includes additional characters to indicate the character set.

30
31 The default value of this field is System.Runtime.InteropServices.CharSet.Ansi.

32

1 DllImportAttribute.EntryPoint Field

```
2 [ILAsm]  
3 .field public string EntryPoint  
4 [C#]  
5 public string EntryPoint
```

6 Summary

7 A System.String that specifies the name of the shared library entry point.

8

1 DllImportAttribute.ExactSpelling Field

```
2 [ILAsm]  
3 .field public bool ExactSpelling
```

```
4 [C#]  
5 public bool ExactSpelling
```

6 Summary

7 A System.Boolean value indicating whether the name of the entry point in the
8 unmanaged library is modified to correspond to the
9 System.Runtime.InteropServices.CharSet value specified in the
10 System.Runtime.InteropServices.DllImportAttribute.CharSet field.

11

1 DllImportAttribute.SetLastError Field

```
2 [ILAsm]  
3 .field public bool SetLastError  
4 [C#]  
5 public bool SetLastError
```

6 Summary

7 A System.Boolean value indicating whether the callee calls the SetLastError Win32 API
8 function before returning from the attributed method..

9 Description

10 One can retrieve the error code by calling
11 System.Runtime.InteropServices.Marshal.GetLastWin32Error

12

1 DllImportAttribute.Value Property

```
2 [ILAsm]  
3 .property string Value { public hidebysig specialname instance string  
4 get_Value() }  
5 [C#]  
6 public string Value { get; }
```

7 Summary

8 Gets the name of the shared library file with the entry point.

9 Property Value

10 A `System.String` containing the name of the shared library file from which a function
11 implementation is imported.

12 Description

13 This property is read-only.

14