

Re: Help With PInvoke and SetupDiEnumDriverInfo/SP_DRVINFO_DATA

Source:

<http://www.tech-archive.net/Archive/DotNet/microsoft.public.dotnet.languages.csharp/2007-03/msg01286.html>

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 - *Date:* 8 Mar 2007 12:07:40 -0800
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Willy,

I made that change and I still get the 1784L error. I'm wondering if the problem is not with SP_DRVINFO_DATA (cause I have written that thing every possible way I can think of), but with some other structure or DllImport I'm using further up the chain. I'm literally at my whits end on this. I have very similar code in C++ that works just fine. I'm posting a C# class that has everything I'm doing in it. I would be VERY grateful if you could take a look at it and see if you see a problem. As above, everything works fine until it gets to SetupDiEnumDriverInfo.

Thanks a ton!

---- CODE START ----

```
class GroupExample
{
    public const int CR_SUCCESS = (0x00000000);
    public const int DIGCF_PRESENT = (0x00000002);
    public const int DIGCF_ALLCLASSES = (0x00000004);

    public const int ERROR_NO_MORE_ITEMS = 259;

    public const int SPDIT_COMPATDRIVER = (0x00000002);
    public const int SPDIT_CLASSDRIVER = (0x00000001);

    [StructLayout(LayoutKind.Sequential, CharSet =
    CharSet.Unicode)]
    public struct SP_DEVINFO_DATA
    {
        public int cbSize;
        public Guid ClassGuid;
        public IntPtr DevInst;
        public int Reserved;
    }
}
```

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```
[StructLayout(LayoutKind.Sequential, CharSet =
CharSet.Unicode)]
public struct SP_DRVINSTALL_PARAMS
{
    public int cbSize;
    public int Rank;
    public int Flags;
    public int PrivateData;
    public int Reserved;
}
[StructLayout(LayoutKind.Sequential, CharSet =
CharSet.Unicode)]
public struct SP_DEVINSTALL_PARAMS
{
    public int cbSize;
    public int Flags;
    public int FlagsEx;
    public IntPtr HwndParent;
    public IntPtr InstallMsgHandler;
    public IntPtr InstallMsgHandlerContext;
    public IntPtr FileQueue;
    public ulong CallInstallReserved;
    public int Reserved;
    [MarshalAs(UnmanagedType.ByValTStr, SizeConst = 260)]
    public string DriverPath;
}

[StructLayout(LayoutKind.Sequential, CharSet =
CharSet.Unicode)]
public struct SP_DRVINFO_DATA
{
    public int cbSize;
    public int DriverType;
    public ulong Reserved;
    [MarshalAs(UnmanagedType.ByValTStr, SizeConst = 256)]
    public string Description;
    [MarshalAs(UnmanagedType.ByValTStr, SizeConst = 256)]
    public string MfgName;
    [MarshalAs(UnmanagedType.ByValTStr, SizeConst = 256)]
    public string ProviderName;
    public System.Runtime.InteropServices.ComTypes.FILETIME
    DriverDate;
    public ulong DriverVersion;
}

[DllImport("setupapi.dll", SetLastError = true, CharSet =
CharSet.Unicode)]
public static extern Boolean
SetupDiDestroyDeviceInfoList(IntPtr DeviceInfoSet);
```

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```
[DllImport("setupapi.dll", SetLastError = true, CharSet =
CharSet.Unicode)]
public static extern IntPtr SetupDiGetClassDevs(ref Guid
ClassGuid, IntPtr Enumerator,
IntPtr hwndParent, int Flags);
```

```
[DllImport("setupapi.dll", SetLastError = true, CharSet =
CharSet.Unicode)]
public static extern bool SetupDiEnumDeviceInfo(IntPtr
DeviceInfoSet, int MemberIndex,
ref SP_DEVINFO_DATA DeviceInfoData);
```

```
[DllImport("cfgmgr32.dll", SetLastError = true, CharSet =
CharSet.Unicode)]
private static extern int CM_Get_DevNode_Status(ref ulong
status, ref ulong probNum,
IntPtr devInst, int Flag);
```

```
[DllImport("setupapi.dll", SetLastError = true, CharSet =
CharSet.Unicode)]
public static extern bool
SetupDiGetDeviceRegistryProperty(IntPtr DeviceInfoSet,
ref SP_DEVINFO_DATA DeviceInfoData, int Property, ref int
PropertyRegDataType,
StringBuilder PropertyBuffer, int PropertyBufferSize, ref
int RequiredSize);
```

```
[DllImport("setupapi.dll", SetLastError = true, CharSet =
CharSet.Unicode)]
public static extern bool SetupDiGetDeviceInstallParams(IntPtr
DeviceInfoSet,
ref SP_DEVINFO_DATA DeviceInfoData, ref
SP_DEVINSTALL_PARAMS DeviceInstallParams);
```

```
[DllImport("setupapi.dll", SetLastError = true, CharSet =
CharSet.Unicode)]
private static extern bool SetupDiDestroyDriverInfoList(IntPtr
DeviceInfoSet,
ref SP_DEVINFO_DATA DeviceInfoData, int DriverType);
```

```
[DllImport("setupapi.dll", SetLastError = true, CharSet =
CharSet.Unicode)]
private static extern bool SetupDiBuildDriverInfoList(IntPtr
DeviceInfoSet,
ref SP_DEVINFO_DATA DeviceInfoData, int DriverType);
```

```
[DllImport("setupapi.dll", SetLastError = true, CharSet =
CharSet.Unicode)]
private static extern bool SetupDiEnumDriverInfo(IntPtr
DeviceInfoSet,
ref SP_DEVINFO_DATA DeviceInfoData, int DriverType, int
```

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```
MemberIndex,  
ref SP_DRVINFO_DATA DriverInfoData);  
  
public void RunExample()  
{  
    Guid newG = Guid.Empty;  
    IntPtr NewDeviceInfoSet = SetupDiGetClassDevs(ref newG,  
    IntPtr.Zero, IntPtr.Zero,  
    DIGCF_ALLCLASSES);  
    SP_DEVINFO_DATA DeviceInfoData = new SP_DEVINFO_DATA();  
    DeviceInfoData.cbSize =  
    Marshal.SizeOf(typeof(SP_DEVINFO_DATA));  
    int deviceCounter = 0;  
    bool devInfoRetVal =  
    SetupDiEnumDeviceInfo(NewDeviceInfoSet, deviceCounter, ref  
    DeviceInfoData);  
    int devInfoErr = Marshal.GetLastWin32Error();  
    while (devInfoRetVal && devInfoErr != ERROR_NO_MORE_ITEMS  
    && deviceCounter < 3) // < 3 is to keep the loop short for testing  
    {  
        ulong status = 0;  
        ulong problem = 0;  
        if (CM_Get_DevNode_Status(ref status, ref problem,  
        DeviceInfoData.DevInst, 0) == CR_SUCCESS)  
        {  
            StringBuilder sbDesc = new StringBuilder("");  
            int MAX_LEN = 512;  
            int propRegDataType = 0;  
            sbDesc.Capacity = MAX_LEN;  
            int reqSize = 0;  
            SetupDiGetDeviceRegistryProperty(NewDeviceInfoSet,  
            ref DeviceInfoData,  
            (int)Setup.SPDRPCodes.SPDRP_FRIENDLYNAME, ref  
            propRegDataType, sbDesc,  
            MAX_LEN, ref reqSize);  
            if (sbDesc.ToString() == "")  
            {  
  
                SetupDiGetDeviceRegistryProperty(NewDeviceInfoSet, ref DeviceInfoData,  
                (int)Setup.SPDRPCodes.SPDRP_DEVICEDESC,  
                ref propRegDataType, sbDesc,  
                MAX_LEN, ref reqSize);  
            }  
            if (sbDesc.ToString() == "")  
            sbDesc.Append("Unknown Description");  
            StringBuilder sbHWID = new StringBuilder("");  
            sbHWID.Capacity = MAX_LEN;  
            SetupDiGetDeviceRegistryProperty(NewDeviceInfoSet,  
            ref DeviceInfoData,  
            (int)Setup.SPDRPCodes.SPDRP_HARDWAREID, ref  
            propRegDataType, sbHWID,
```

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```
MAX_LEN, ref reqSize);
ScanResults scanResult = new
ScanResults(sbHWID.ToString(), sbDesc.ToString());
Console.WriteLine("Device Detected: {0} - {1}",
sbDesc.ToString(), sbHWID.ToString());

SP_DEVINSTALL_PARAMS deviceInstallParams = new
SP_DEVINSTALL_PARAMS();
deviceInstallParams.cbSize =
Marshal.SizeOf(typeof(SP_DEVINSTALL_PARAMS));
SetupDiGetDeviceInstallParams(NewDeviceInfoSet,
ref DeviceInfoData,
ref deviceInstallParams);
deviceInstallParams.DriverPath = @"C:
\MyDriverPath";
if (!SetupDiBuildDriverInfoList(NewDeviceInfoSet,
ref DeviceInfoData, SPDIT_COMPATDRIVER))
{
int eCode = Marshal.GetLastWin32Error();
Console.WriteLine("\tError Building Driver
Info List. Code: {0}", eCode);
}
int memIndex = 0;
int drvErr = 0;
SP_DRVINFO_DATA drvData = new SP_DRVINFO_DATA();
drvData.cbSize =
Marshal.SizeOf(typeof(SP_DRVINFO_DATA));
bool enumResult =
SetupDiEnumDriverInfo(NewDeviceInfoSet, ref DeviceInfoData,
SPDIT_COMPATDRIVER,
memIndex, ref drvData);
if (!enumResult)
{
drvErr = Marshal.GetLastWin32Error();
Console.WriteLine("\tError Enumerating Driver
Info. Code: {0}", drvErr);
}
while (enumResult && drvErr !=
ERROR_NO_MORE_ITEMS)
{
memIndex++;

}
SetupDiDestroyDriverInfoList(NewDeviceInfoSet, ref
DeviceInfoData, SPDIT_COMPATDRIVER);
}
deviceCounter++;
devInfoRetVal =
SetupDiEnumDeviceInfo(NewDeviceInfoSet, deviceCounter, ref
DeviceInfoData);
devInfoErr = Marshal.GetLastWin32Error();
```

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```
}  
SetupDiDestroyDeviceInfoList(NewDeviceInfoSet);  
}  
}  
---- CODE END ----
```

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