

Re: Issue with pinvoking DeviceIoControl: switching USB function driver at run time

Source:

<http://www.tech-archive.net/Archive/PocketPC/microsoft.public.pocketpc.developer/2009-06/msg00048.html>

- *From:* "Rohan_Sreeram via PocketPCJunkies.com" <u52410@uwe>
 - *Date:* Wed, 10 Jun 2009 21:12:55 GMT
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Thanks a lot Chris !

It works in C, and I could find out what the error was all about.
Looks like the string needed to exactly match the WinCE data type _TCHAR array.

All this time I was sending just a 12 byte string. ("Mass_Storage_Class") so I used Marshal.StringToBSTR() to get me a IntPtr after allocating a COM-style Unicode string.

Here's the code I tested for switching to USB function driver to "mass_storage_class" tested on WM 6.1, CF 3.5:

```
[DllImport("coredll", SetLastError = true)]
static extern IntPtr CreateFile(String lpFileName,
    UInt32 dwDesiredAccess,
    UInt32 dwShareMode,
    IntPtr lpSecurityAttributes,
    UInt32 dwCreationDisposition,
    UInt32 dwFlagsAndAttributes,
    IntPtr hTemplateFile);
```

```
[DllImport("coredll.dll", SetLastError = true, CallingConvention =
    CallingConvention.Winapi, CharSet = CharSet.Auto)]
[return: MarshalAs(UnmanagedType.Bool)]
public static extern bool CloseHandle(HANDLE hObject);
```

```
[DllImport("coredll.dll", EntryPoint = "DeviceIoControl",
    SetLastError = true)]
[return: MarshalAs(UnmanagedType.Bool)]
internal unsafe static extern bool DeviceIoControl(
    IntPtr hDevice,
    uint dwIoControlCode,
    IntPtr lpInBuffer, //byte[] lpInBuffer, // LPVOID lpInBuffer -
    any input data required for the IOCTL
    uint nInBufferSize,
```

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```
byte[] lpOutBuffer, //IntPtr lpOutBuffer,
uint nOutBufferSize,
ref uint lpBytesReturned,
IntPtr lpOverlapped);

[StructLayout(LayoutKind.Sequential, CharSet = CharSet.Auto)]
public struct UFN_CLIENT_NAME
{
[MarshalAs(UnmanagedType.ByValTStr, SizeConst = 128)]
public string szName;
}

public void SwitchToMassStorage()
{
UFN_CLIENT_NAME ClientName = new UFN_CLIENT_NAME();
uint dwBytes = 0;

ClientName.szName = "Mass_Storage_Class";

IntPtr pClientInfo = Marshal.StringToBSTR(ClientName.szName);

bool ioctl_ret;
HANDLE getUSBfnHandle = GetUfnController("UFN*");

ioctl_ret = DeviceIoControl(getUSBfnHandle,
IOCTL_UFN_CHANGE_CURRENT_CLIENT,
pClientInfo,
256,
null, // empty lpOutBuffer
0, // no nOutBufferSize
ref dwBytes,
IntPtr.Zero);

if (ioctl_ret)
{
MessageBox.Show("DeviceIoControl success !\n");
}
else
{
MessageBox.Show("DeviceIoControl failed !\n Error: " +
Marshal.GetLastWin32Error());
}
}

public IntPtr GetUfnController(string searchParamString)
{
IntPtr hUfn = IntPtr.Zero;

if (searchParamString == null)
searchParamString = "UFN*";
```

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```
IntPtr pguidBus = Marshal.StringToBSTR(searchParamString);

DEVMGR_DEVICE_INFORMATION pdi = new DEVMGR_DEVICE_INFORMATION();
pdi.dwSize = (uint)System.Runtime.InteropServices.Marshal.SizeOf
(typeof(DEVMGR_DEVICE_INFORMATION));

HANDLE hf = FindFirstDevice(0,//DeviceSearchType.
DeviceSearchByDeviceName,
pguidBus,
ref pdi);

if ((int)hf != INVALID_HANDLE_VALUE)
{
//hUfn = CreateFile(pdi.szBusName, GENERIC_READ,
FILE_SHARE_READ,
//NULL, OPEN_EXISTING, 0, NULL);
hUfn = CreateFile(pdi.szBusName,
0x80000000,//GENERIC_READ, // Open
for reading
0,//FILE_SHARE_READ, // Share for
reading
IntPtr.Zero,//NULL, // No
security
3,//OPEN_EXISTING, // Existing file
only
0,//FILE_ATTRIBUTE_NORMAL, // Normal file
IntPtr.Zero);//NULL); // No
template file

CloseHandle(hf);
}
else
{
MessageBox.Show("FindFirstDevice failed ! : "+Marshal.
GetLastWin32Error());
hUfn = (System.IntPtr)INVALID_HANDLE_VALUE;
}

return hUfn;
}
```

The DLL import may have to be changed slightly (make the byte[] lpOutbuffer to an IntPtr) if I need to use IOCTL_UFN_GET_CURRENT_CLIENT.

Thanks for all the help,
Rohan

Rohan_Sreeram wrote:

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Yes, I tried the Unicode encoding too, but it did not work.
I am sorry I thought native as using WinCE platform dev kit earlier.

I am using Visual Studio 2008 with .Net CF 3.5 for my development, so I will run a little console app, and try out this in C.

Thanks,
Rohan

If you have the tools for managed development, you have the tools for native development. testing this with a C console app is probably 10 lines of code

[quoted text clipped – 12 lines]

Thanks,
Rohan

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Message posted via PocketPCJunkies.com

<http://www.pocketpcjunkies.com/Uwe/Forums.aspx/pocketpc-prog/200906/1>

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