

Using VC6 with the Plugin SDK for Xplane.

Installation

The first thing to do is make sure that you have the latest service pack for VC6.

<http://msdn.microsoft.com/vstudio/downloads/updates/sp/vs6/sp6/default.aspx>

If you find that you do need to install a VC6 update, reboot your computer afterwards if directed to do so by Windows.

The next thing is to download the SDK.

<http://www.xsquawkbox.net/xpsdk/XPSDK102.zip>

Now get the examples zip files:

http://www.xsquawkbox.net/xpsdk/lib/std_examples/AdvancedSDKExamples.zip

http://www.xsquawkbox.net/xpsdk/lib/std_examples/SDKExamples.zip

http://www.xsquawkbox.net/xpsdk/lib/std_examples/WidgetLibraryExample.zip

Extract XPSDK102.zip to the C:\XPSDKSetup directory (WinZip will create this directory for you, or you can create it first manually).

This is the directory referenced in all the examples.

Now just extract the examples zip files to this directory. Your directory structure should look like this:

```
C:\XPSDKSetup
C:\XPSDKSetup\AdvancedSDKExamples
C:\XPSDKSetup\SDK
C:\XPSDKSetup\SDKExamples
C:\XPSDKSetup\WidgetLibraryExample
```

The important thing is that the SDK directory and examples directories are all at the same level, as shown above.

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Testing the Installation

Now load up VC6 and go to File > Open Workspace. Browse through to the C:\XPSDKSetup\SDKExamples\Projects\Win directory.

Here, you'll find the SDKExamples.dsw project file. It contains all the Standard Examples in one project file. Double-click on it.

Now, on the left side of your screen, you'll see a list of all the Standard Examples. You can choose any of these plugins by right-clicking on it and selecting "Set as Active Project". In this case, let's choose the HelloWorld plugin.

OK, we want to build this plugin, that is, we'll turn it into an xpl file that X-Plane understands. So, go up to the Menu Bar and select Build > Build HelloWorld.xpl. Alternatively, you can simply press F7. The plugin should now compile and link without throwing any errors.

The xpl file VC6 has just created will have been placed in the C:\XPSDKSetup\SDKExamples\Projects\Win\Debug\Plugins directory. All that remains is for you to copy it to the directory where X-Plane will look for it when X-Plane runs, for example: D:\X-Plane 8.20 RC2\Resources\plugins.

Finally, let's see if it works! Start X-Plane and you should see a translucent window with the text "Hello world" in it. Left-click with the mouse and it should change to "I'm a plugin".

Note that if you have RealPlayer installed, the xpl file may display with an icon indicating it's associated with RealPlayer (i.e. an audio file). Don't worry about this, it'll make no difference. It just happens that RealPlayer also uses files with the same extension.

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Debugging Plugins

You may want to debug a plugin.
There are two ways to achieve this.

Start Xplane and then in the VC6 Build Menu, select Start Debug/Attach to Process.
Select the Xplane process and press OK.

This is OK for most things but I prefer the second way as it allows you to debug the XPluginStart and XPluginEnable callbacks.

Right click on the HelloWorld project and select “Set As Active Project”.
Right click on the HelloWorld project and select “Settings”.
Select the Debug Tab and make sure the Category is General.

In the Executable for debug session, type in :-
D:\X-Plane 8.20 RC2\ X-Plane 820.exe

In the Working directory type in :-
D:\X-Plane 8.20 RC2\

Now select the Category drop down box and select Additional DLLs and type in :-
D:\X-Plane 8.20 RC2\Resources\plugins\HelloWorld.xpl

This will force VC6 to load this plugin.
This is required so that you can set a breakpoint in the XPluginStart callback.
Press the OK button to save these changes.

To debug the plugin do this.

Under the HelloWorld project left click on the + sign so that you see Source Files.
Do the same on Source Files so that you see the HelloWorld.c file.
Double click on the HelloWorld.c file to load it into the editor.

Locate the XPluginStart function.
Place the text cursor on the line that has the first opening curly bracket “{”.
Press the F9 key to set a break point..

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Press the F5 key to start the debug session.

This will automatically run the Xplane application, the word run will appear in the VC6 application title window, it will be in [] brackets.

After a short period this will change to [break] and a yellow right arrow symbol will appear at the breakpoint line that you set.

Pressing the F10 key will step through the code line by line.

Once you reach the end of the callback function the source will change to assembler. Just press the F5 key to allow Xplane to continue its startup.

Once you start writing more code that uses things like flight callbacks just do the same to debug them.

Put a breakpoint at the start of the function or the specific line that you want to debug.

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Starting a Project from Scratch.

This example assumes that the new project will be in the following directory, Project\Example1 and the Project directory already exists.

```
XPSDKSetup
  AdvancedSDKExamples
  SDK
  SDKExamples
  WidgetLibraryExample
  Projects
    Example1
```

In VC6 select New and click on the projects tab.
Select the Win32 Dynamic-Link Library project.

In the Location text box navigate to the \XPSDKSetup\Projects directory.
In the Project name text box type in Example1.
Press the OK button.
In the next screen just accept empty project and press Finish.
Press OK on the confirmation screen.

Click on the Example1 + to see Source Files folder.
Right click and select Add Files to Folder and type in Example1.cpp as the filename.
Press OK and select Yes to add a reference to the project.
Press the + on the Source Files folder to see the Example.cpp file.
Double click on it and select yes to create a new file.

Add the source lines on the next page.

The easiest way to do this is to run two instances of VC6 and open up the SDKExamples project and just copy and past.

The DllMain function code is in the HelloWorldWin.cpp file.

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```
#include "XPLMPlugin.h"

BOOL WINAPI DllMain( HANDLE hModule,
                    DWORD  ul_reason_for_call,
                    LPVOID lpReserved
                    )
{
    switch (ul_reason_for_call)
    {
        case DLL_PROCESS_ATTACH:
        case DLL_THREAD_ATTACH:
        case DLL_THREAD_DETACH:
        case DLL_PROCESS_DETACH:
            break;
    }
    return TRUE;
}

PLUGIN_API int XPluginStart(
                                char *      outName,
                                char *      outSig,
                                char *      outDesc)
{
    strcpy(outName, "Example1");
    strcpy(outSig, "xplanesdk.tutorial.example1");
    strcpy(outDesc, "A simple tutorial.");
    return 1;
}

PLUGIN_API void      XPluginStop(void)
{
    XPLMDestroyWindow(gWindow);
}

PLUGIN_API void XPluginDisable(void)
{
}

PLUGIN_API int XPluginEnable(void)
{
    return 1;
}

PLUGIN_API void XPluginReceiveMessage(
                                XPLMPluginID inFromWho,
                                long          inMessage,
                                void *       inParam)
{
}
```

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Debug Build

You now have all the code that is required for a plugin.
The next step is to setup VC6 so that it can build the plugin.

Make sure that Win32 Debug is selected in the build drop down box.

Right click on the project and select Settings.
Select the C/C++ Tab.

Select the Code Generation Category.
Change the Use run time library to Debug Multithreaded DLL.
Change the Struct Member Alignment to 4 bytes.

Select the Precompiled Headers Category.
Check the Not using precompiled headers.

Select the Preprocessor Category.
Add the following to the end of the Preprocessor definitions.
.IBM=1, APL=0, LIN=0

In the additional include directories type in :-
..\..\SDK\CHheaders\XPLM,\SDK\CHheaders\Widgets

Select the Link tab.

In the General Category.
Change the Output file name from Debug/Example1.dll to Debug/Plugins/Example1.xpl

In the Customize Category uncheck the Use program database.

Press the OK button to save the changes.

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Now add the XPLM and XPWidget libraries to the project.

Right click on the Example1 project and select New Folder.
Type in Libraries in the name of the new folder text box and lib in the file extensions text box.

Press OK.

Right click on the libraries folder that you created above and select Add files to folder.
Navigate to the \XPSDKSetup\SDK\Libraries\Win directory, make sure the files of type drop down box is set to Library Files (.lib)
Hold down the Control key and click on each file to select it.
Press the OK button and both library files will be added to the Libraries folder.

Press F7 to do a build.

If build was successful copy the Example1.xpl from the following directory to the Xplane plugins directory.

XPSDKSetup\Projects\Example1\Debug\Plugins

Start up Xplane.

Once Xplane is running on the Plugins menu select Plugin Admin and then select Plugin Information.

If all goes well there should be an entry like this in the info pane.

(N) Example1 (Enabled)
D:\X-System 8\Resources\plugins\Example1.xpl
Signature: xplanesdk.tutorial.example1
A simple tutorial

That's it.

Follow the procedure for debugging if you want to debug this plugin.

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Release Build.

Make sure that Win32 Release is selected in the build drop down box.

To do a release build you setup the project setting in a similar way apart from these selections.

Select the C/C++ Tab.

Select the Code Generation Category.
Change the Use run time library to Multithreaded DLL.

Select the Link tab.

In the General Category.

Change the Output file name from Release/Example1.dll to
Release/Plugins/Example1.xpl

Press F7 to do a build.

If build was successful copy the Example1.xpl from the following directory to the Xplane plugins directory.

`\XPSDKSetup\Projects\Example1\Release\Plugins`