Setting Up Visual Studio for Maya Plug-in Development

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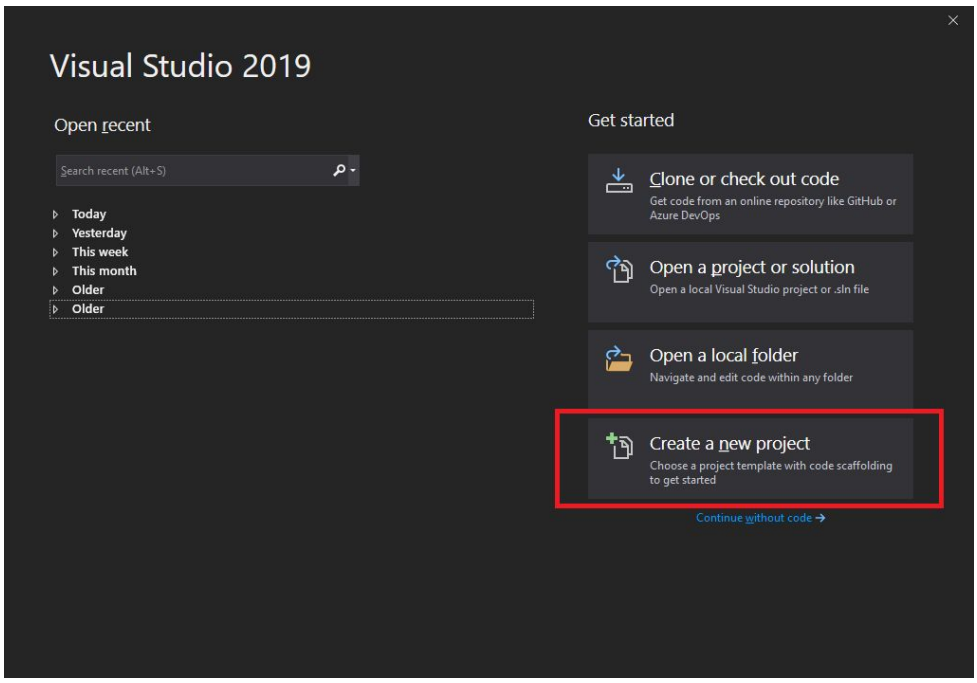
Create a New Project

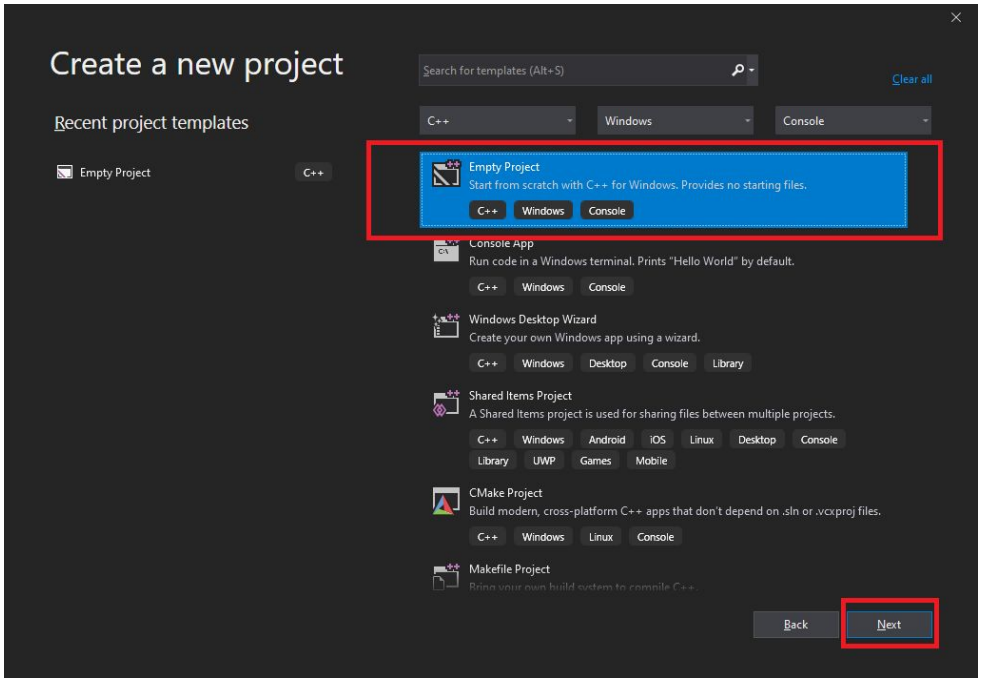
1) Launch Visual Studio

2) Click **Create a new project**



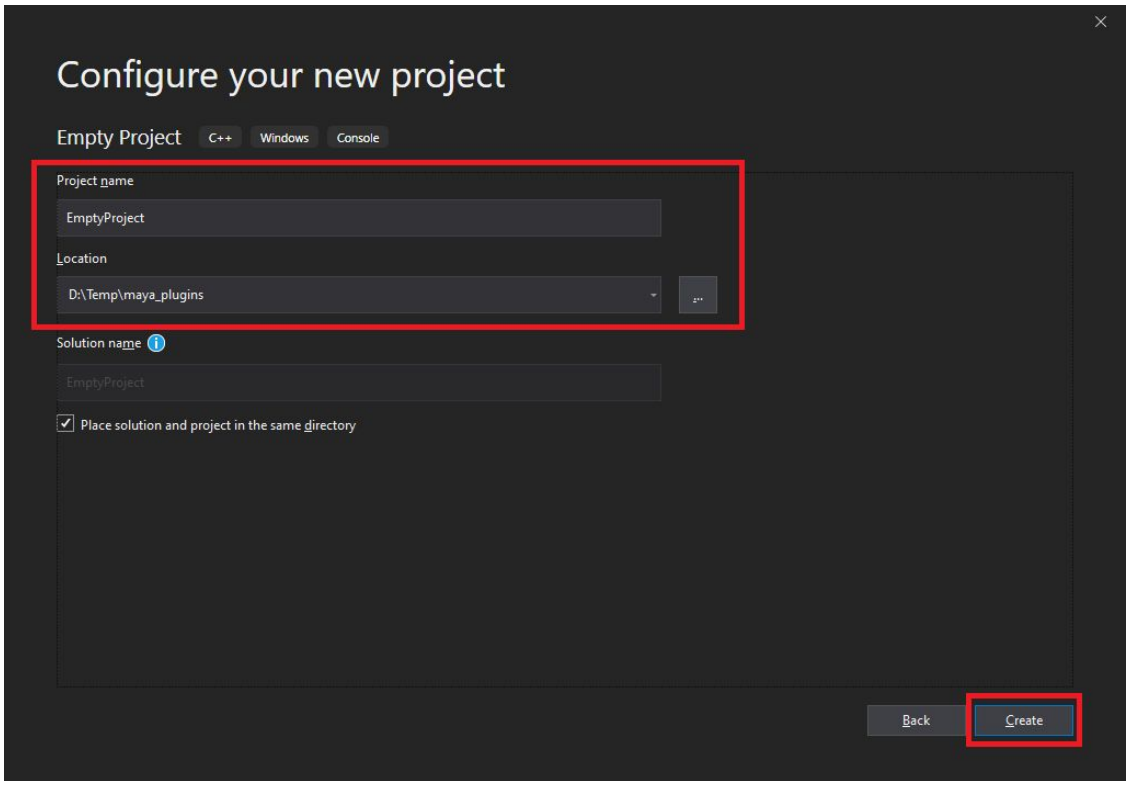
3) Select the **Empty Project** template

4) Click the **Next** button



5) Set the **Project name** and **Location**

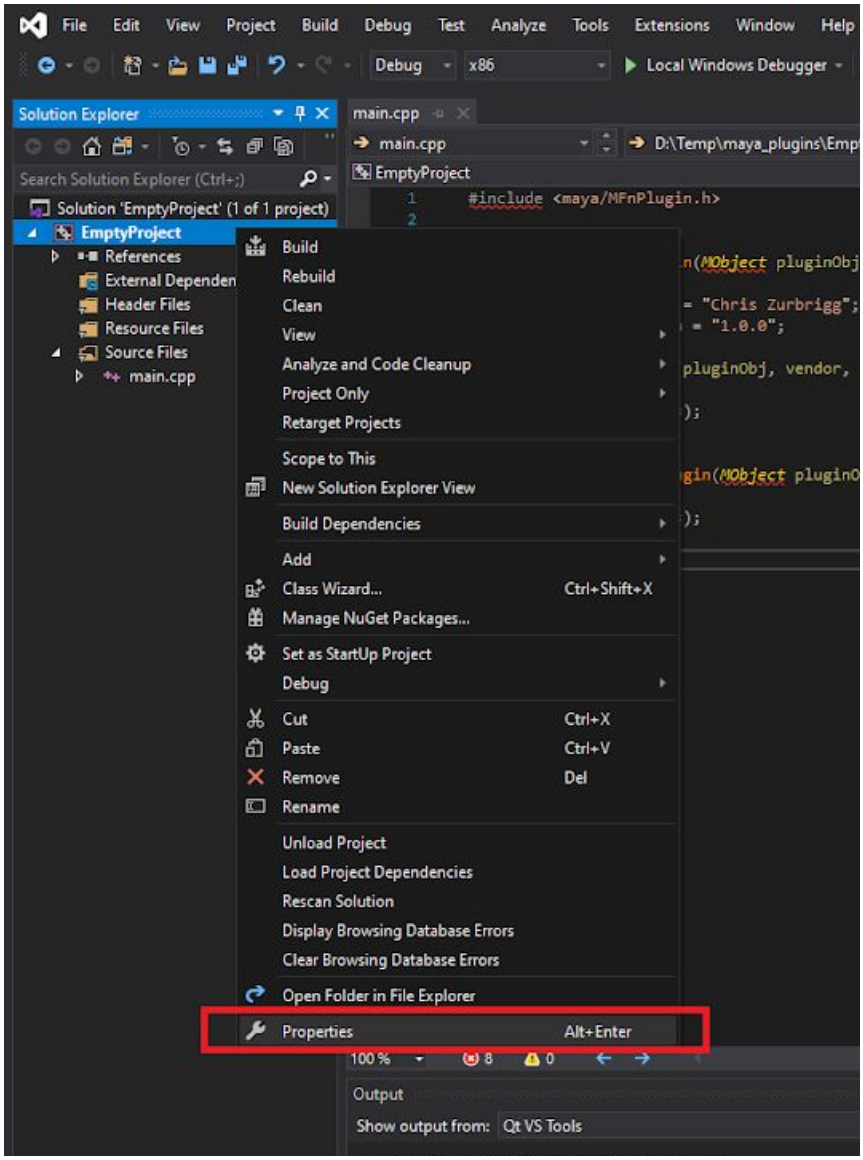
6) Click the **Create** button



After clicking the create button Visual Studio will generate the new project files and launch the IDE. However, before a Maya plugin can be built a number of changes to the project's default configuration need to be made.

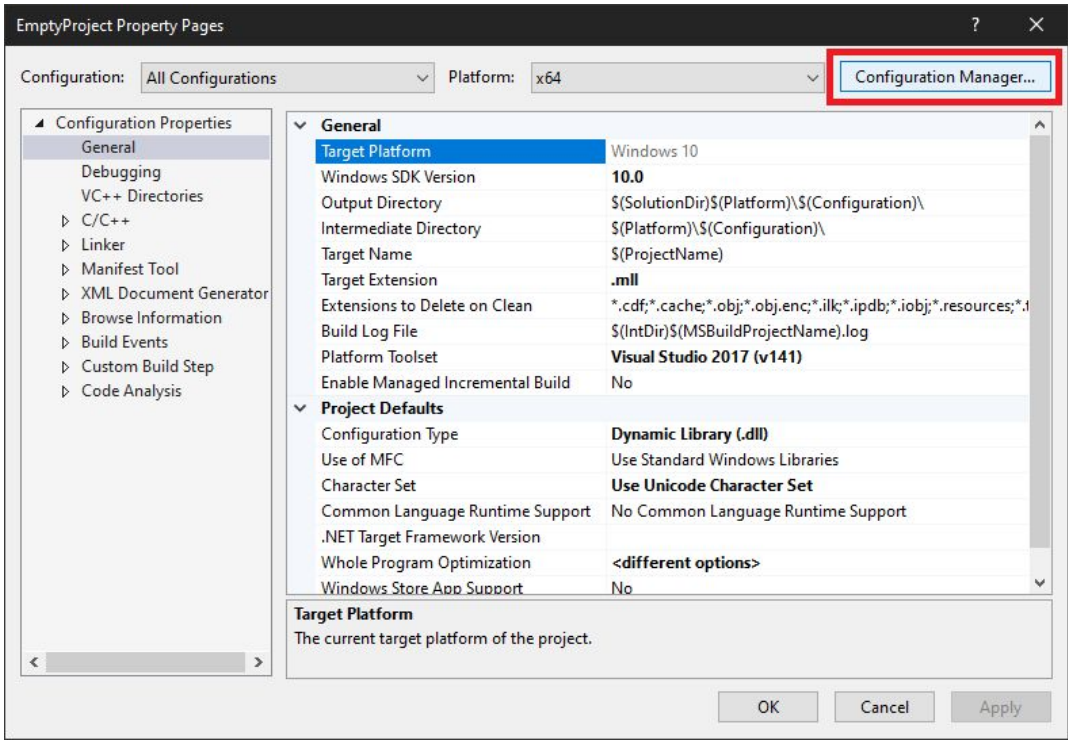
Edit the Project Properties

1) Right-click on the Project in the Solution Explorer
2) Select **Properties** from the context menu (to open the Properties Pages)

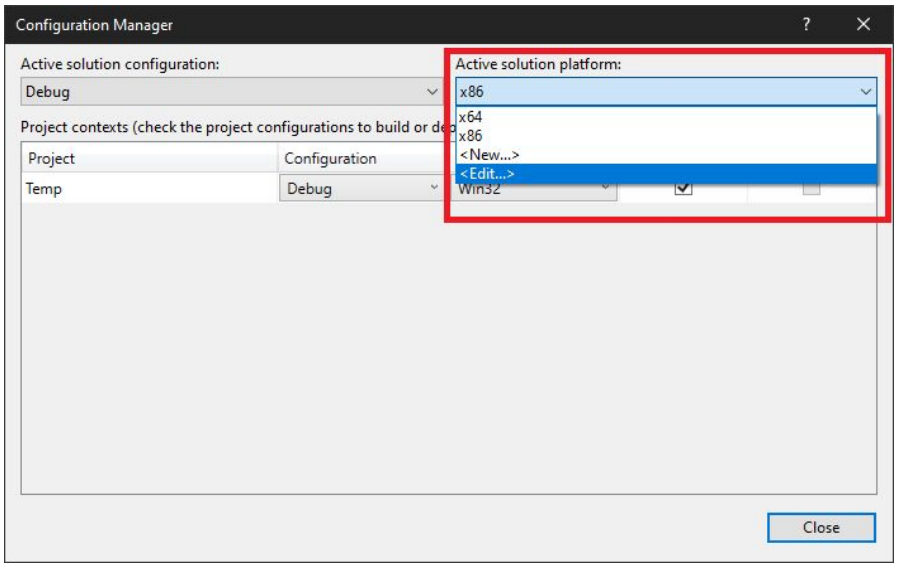


Remove x86 Builds (Maya is 64-bit)

1) Click the **Configuration Manager…** button



2) From the **Active solution platform** dropdown select **<Edit…>**

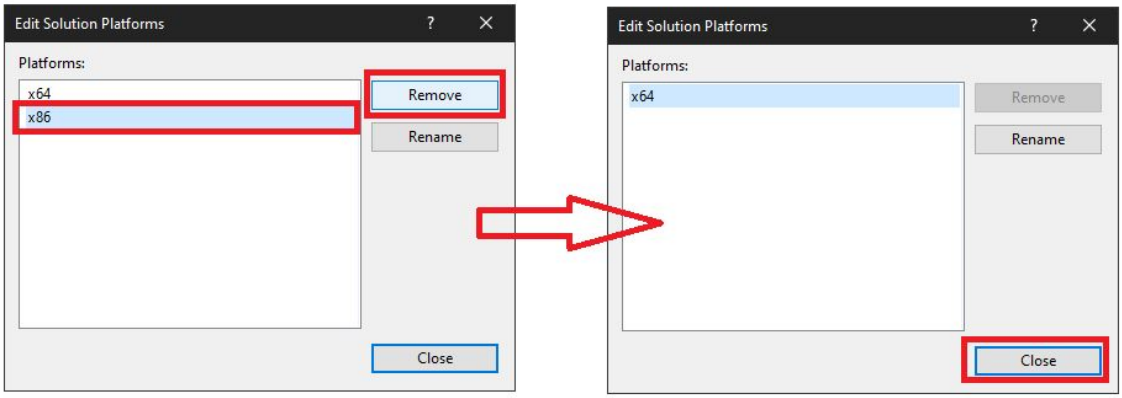


3) Select **x86**

4) Click the **Remove** button

5) Confirm removal of x86 platform

5) Close the dialog



All Configurations

*** Change the Configuration drop-down to **All Configurations**. Platform should be **x64** ***

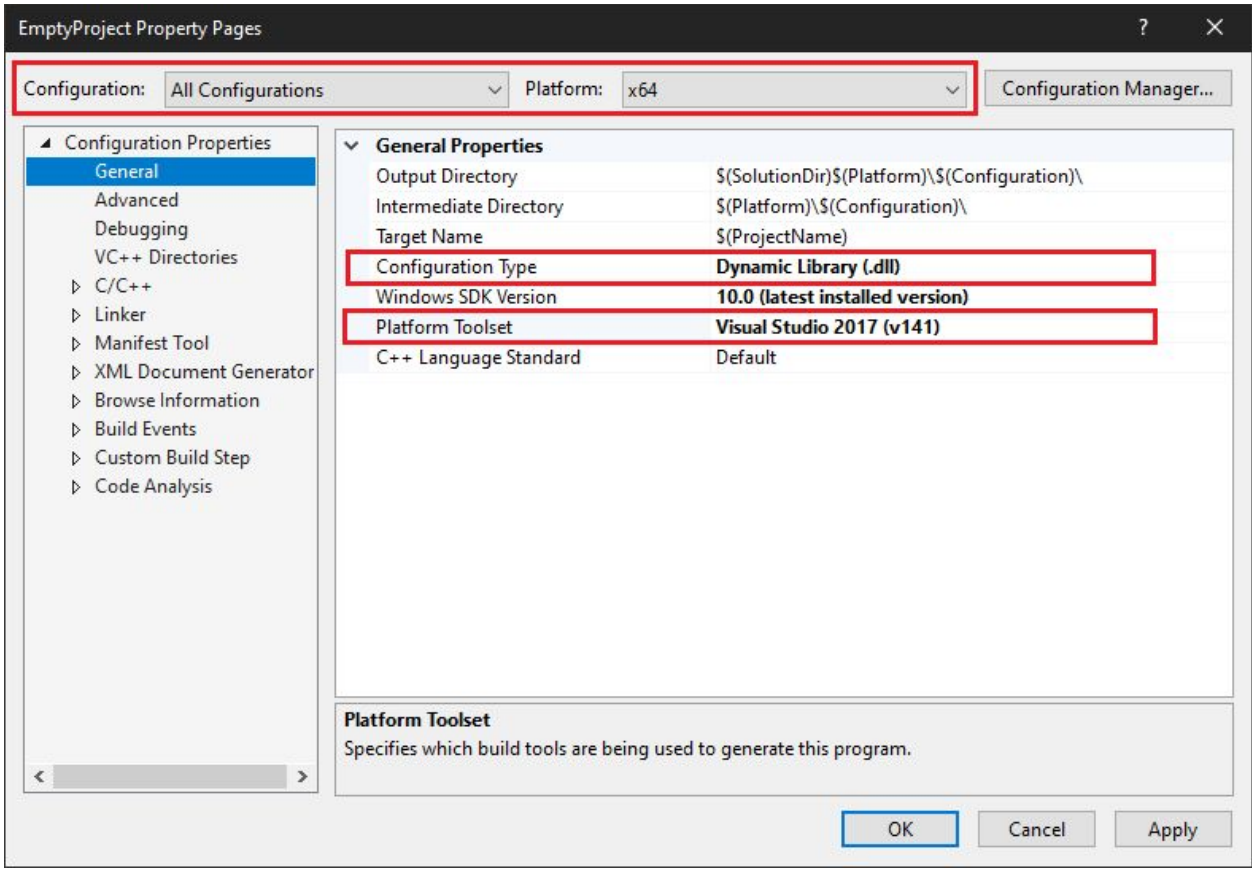
Using All Configurations allows common changes to be applied to each of the different configurations. Properties that differ between Release and Debug builds will be covered in the next section.

General

1) Select **General** from the sidebar
2) Change the **Configuration Type** to **Dynamic Library (.dll)**
3) Change the **Platform Toolset** to **Visual Studio 2017 (v141)** for Maya 2020

    Note: Use Visual Studio 2015 (v140) for Maya 2018 and 2019

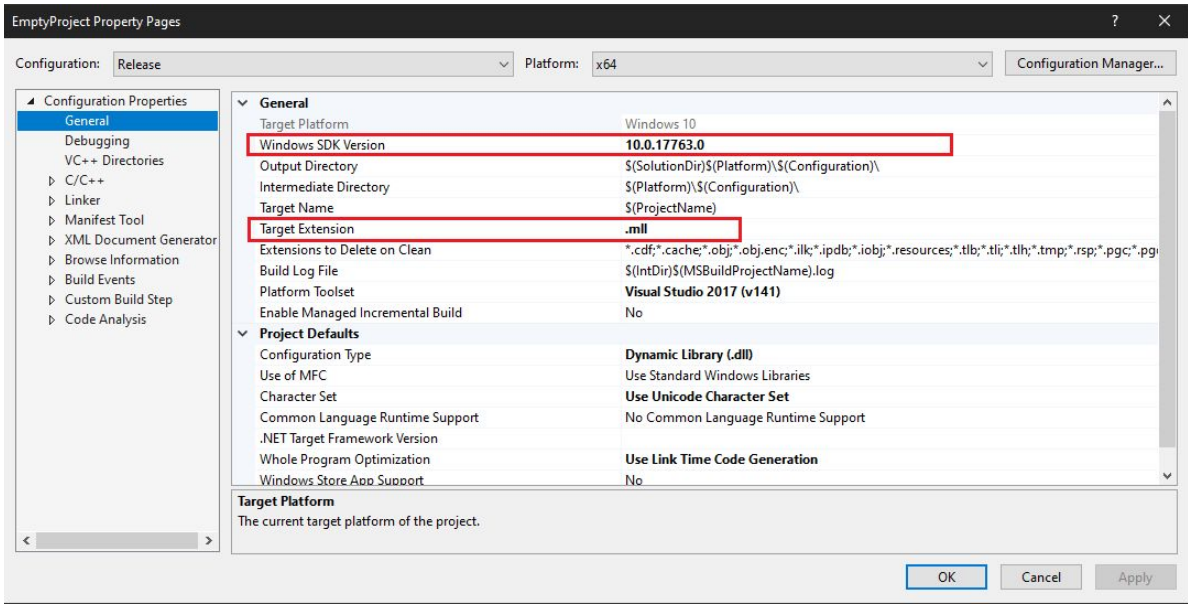
4) Click the **Apply** button



Note: After clicking Apply the General Properties page will have additional entries

5) Set the **Windows SDK Version** to the most recent version available

6) Set the **Target Extension** to **.mll**

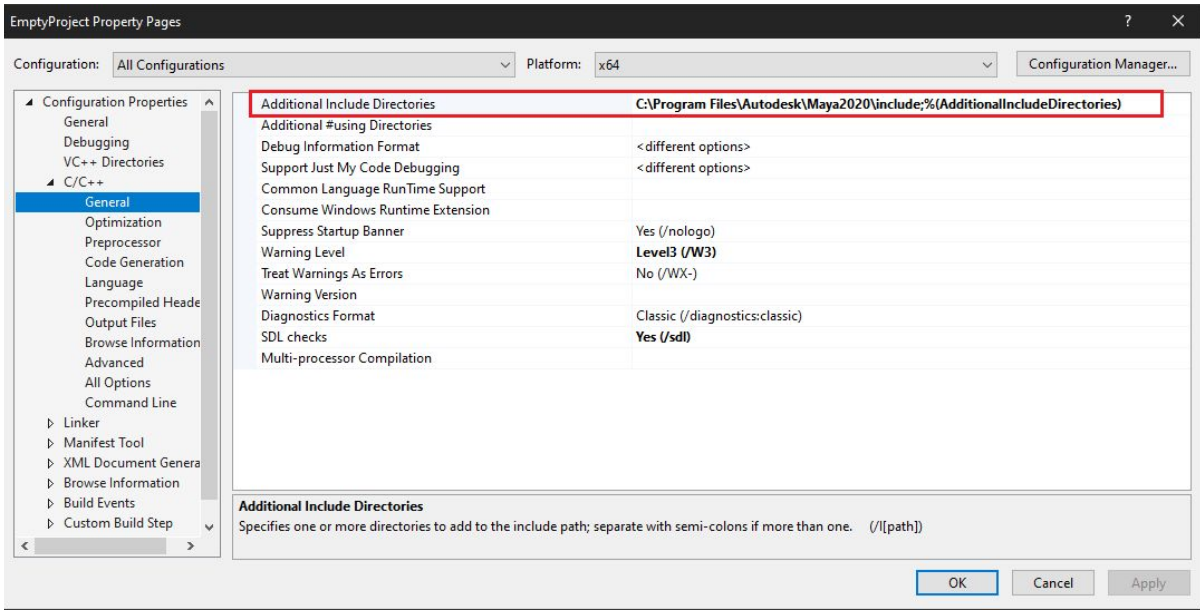


C/C++ General

Important: The C/C++ category will not be displayed until a code file (e.g. main.cpp) has been added to the project.

1) Select **C/C++ -> General** from the sidebar
2) **Additional Include Directories:** Add the path to Maya's include directory

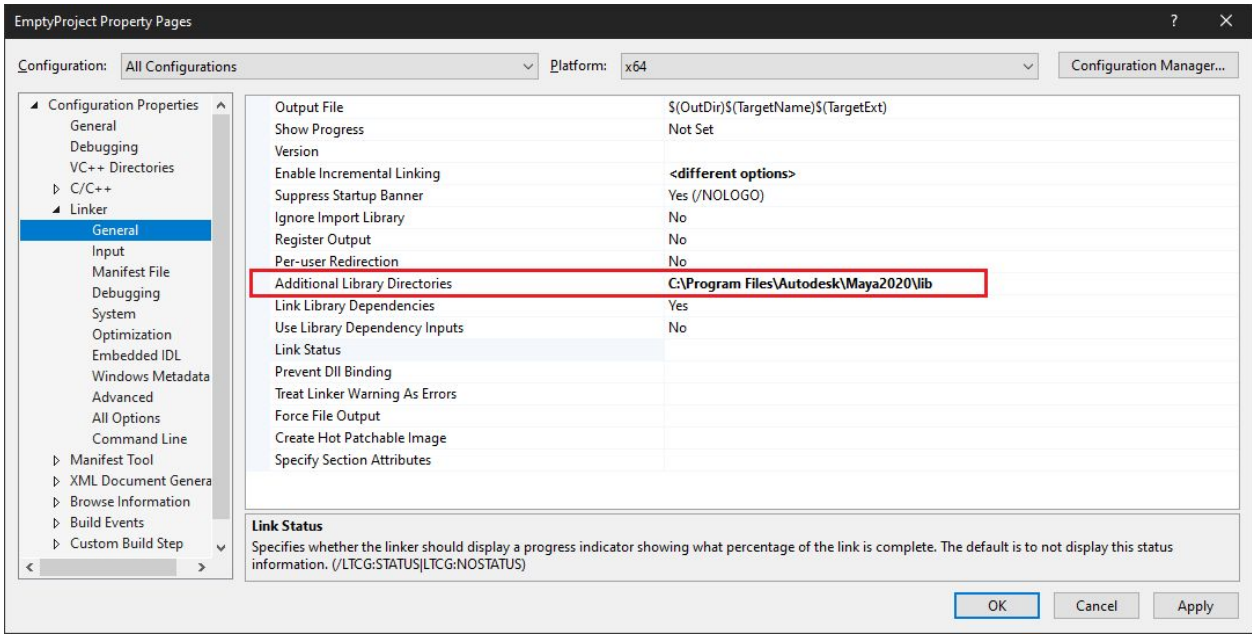
    e.g. For Maya 2020 this is *C:\Program Files\Autodesk\Maya2020\include*



Linker General

1) Select **Linker -> General** from the sidebar
2) **Additional Library Directories:** Add path to Maya's lib directory

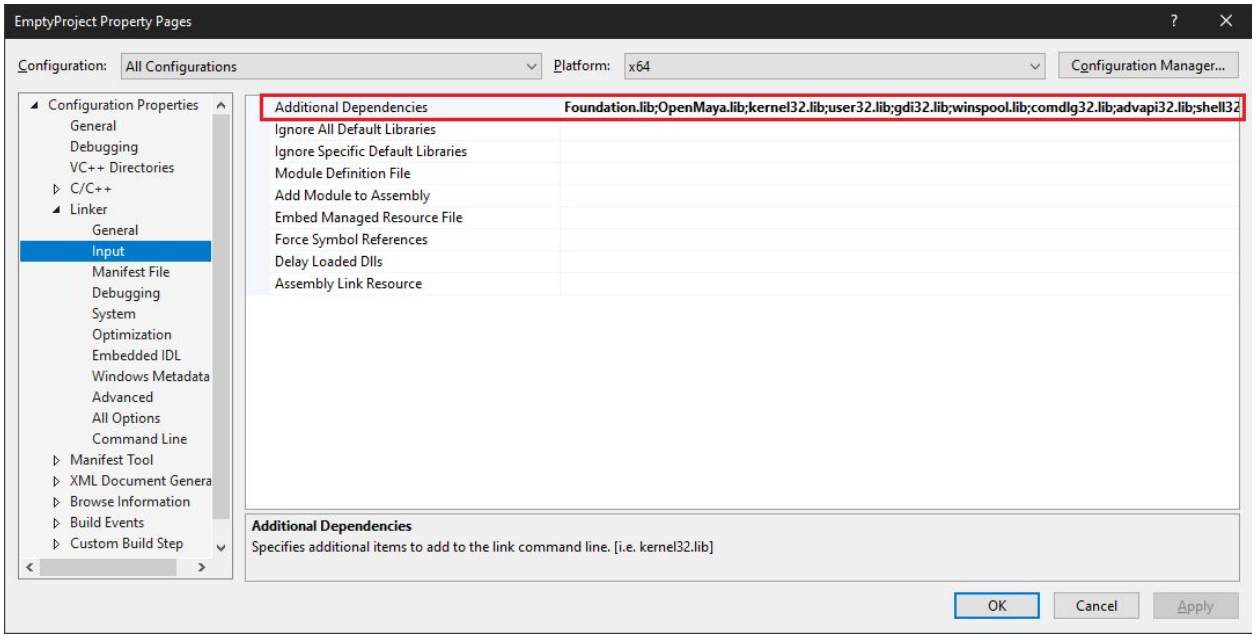
    e.g. For Maya 2020 this is *C:\Program Files\Autodesk\Maya2020\lib*



Linker Input

1) Select **Linker -> Input** from the sidebar
2) **Additional Dependencies**: Add the required library dependencies
    - At a **minimum** this should include *Foundation.lib* and *OpenMaya.lib*
    - If you use other Maya libraries in a plugin they will need to be added. This may include:

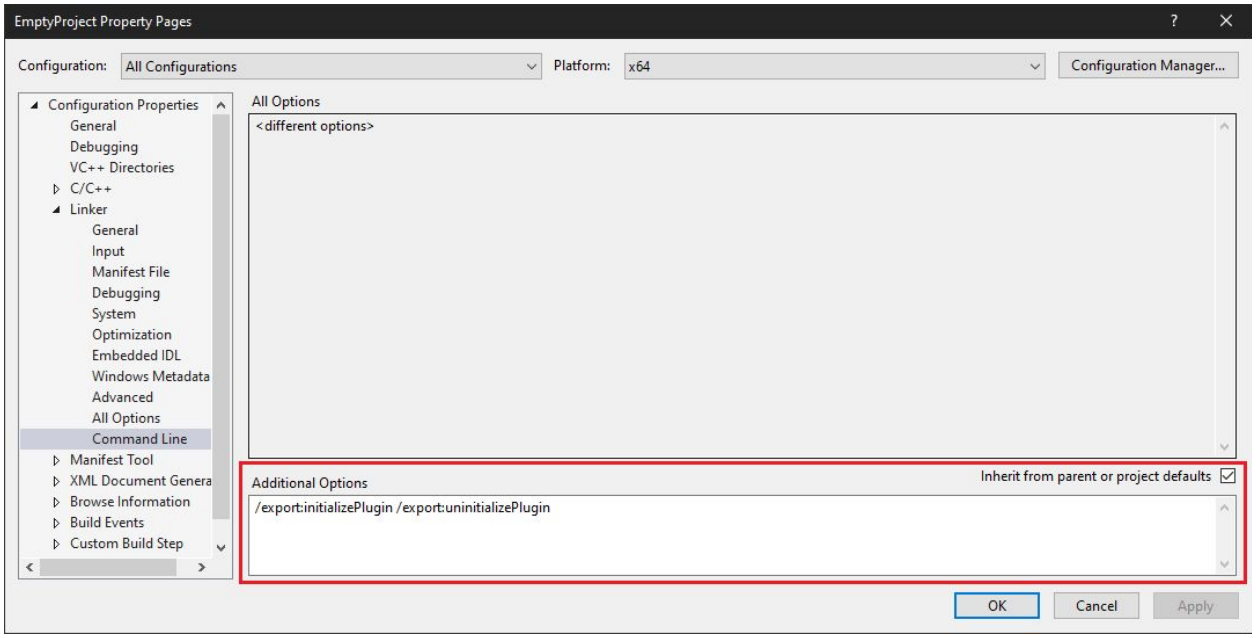
        - OpenMayaUI.lib
        - OpenMayaAnim.lib
        - OpenMayaFX.lib
        - OpenMayaRender.lib
        - Image.lib
        - opengl32.lib



Linker Command Line

1) Select **Linker -> Command Line** from the sidebar
2) Under **Additional Options** add:

    /export:initializePlugin /export:uninitializePlugin



Release Configuration

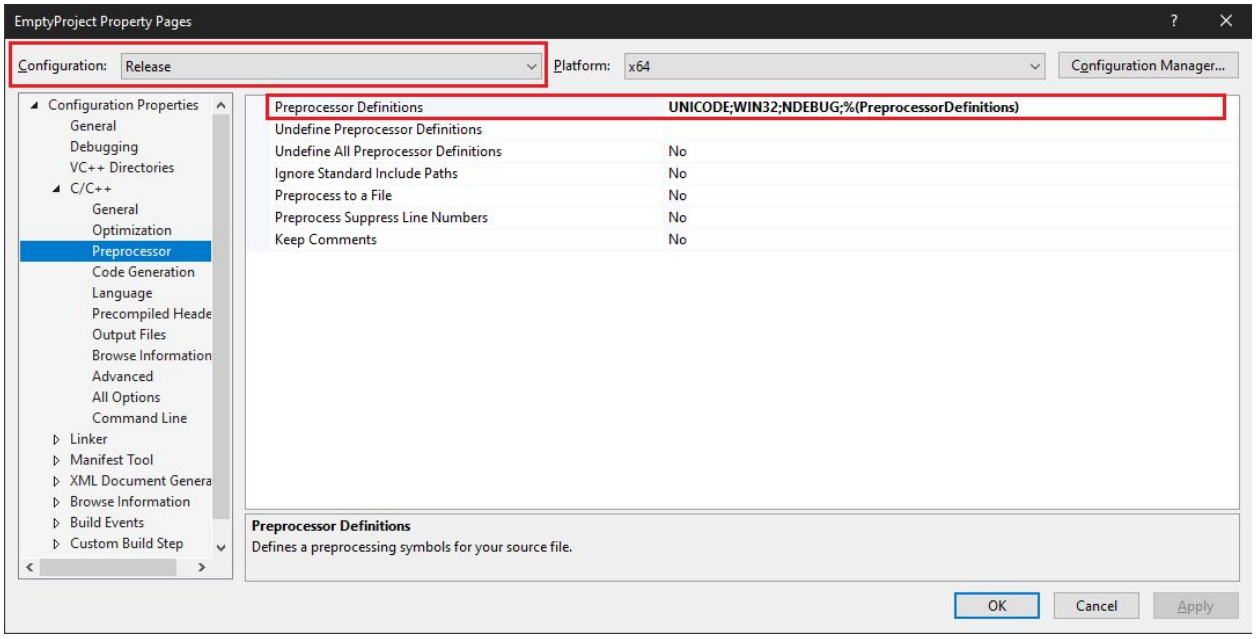
*** Change the Configuration drop-down to **Release** ***

These changes should only be made in the **Release** build.

C/C++ Preprocessor

1) Select **C/C++ -> Preprocessor** from the sidebar
2) **Preprocessor Definitions** - Add the following definitions

    UNICODE; WIN32; NDEBUG



Debug Configuration

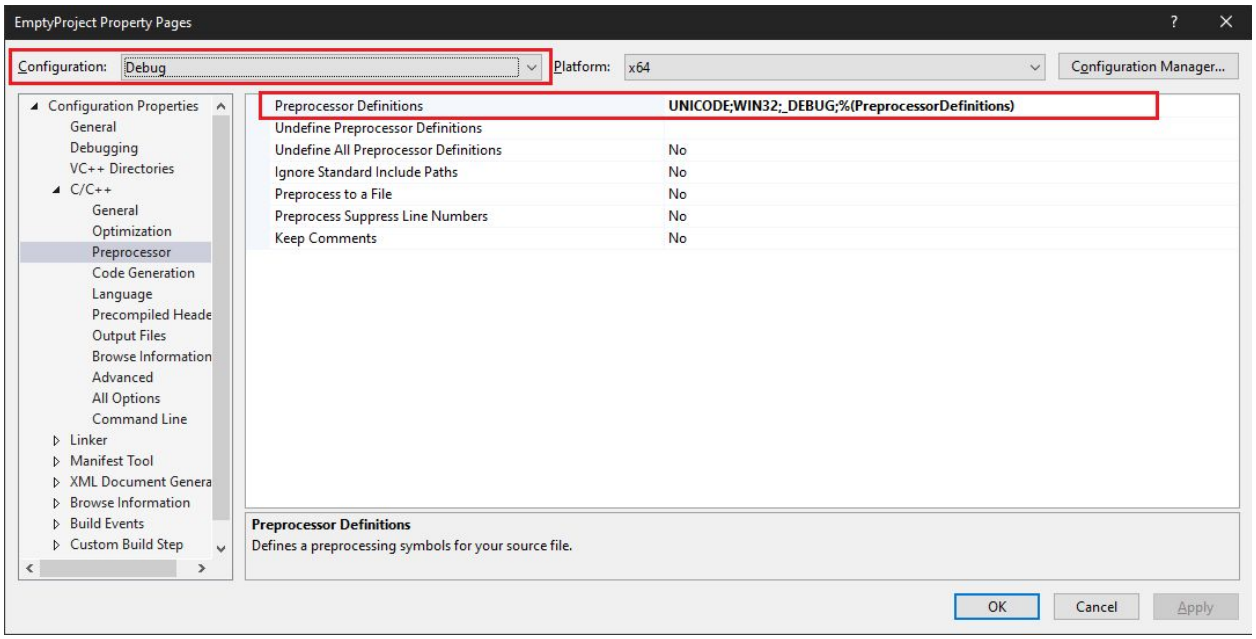
*** Change the Configuration drop-down to **Debug** ***

These changes should only be made in the **Debug** build.

C/C++ Preprocessor

1) Select **C/C++ -> Preprocessor** from the sidebar
2) **Preprocessor Definitions** - Add the following definitions

    UNICODE;WIN32;_DEBUG



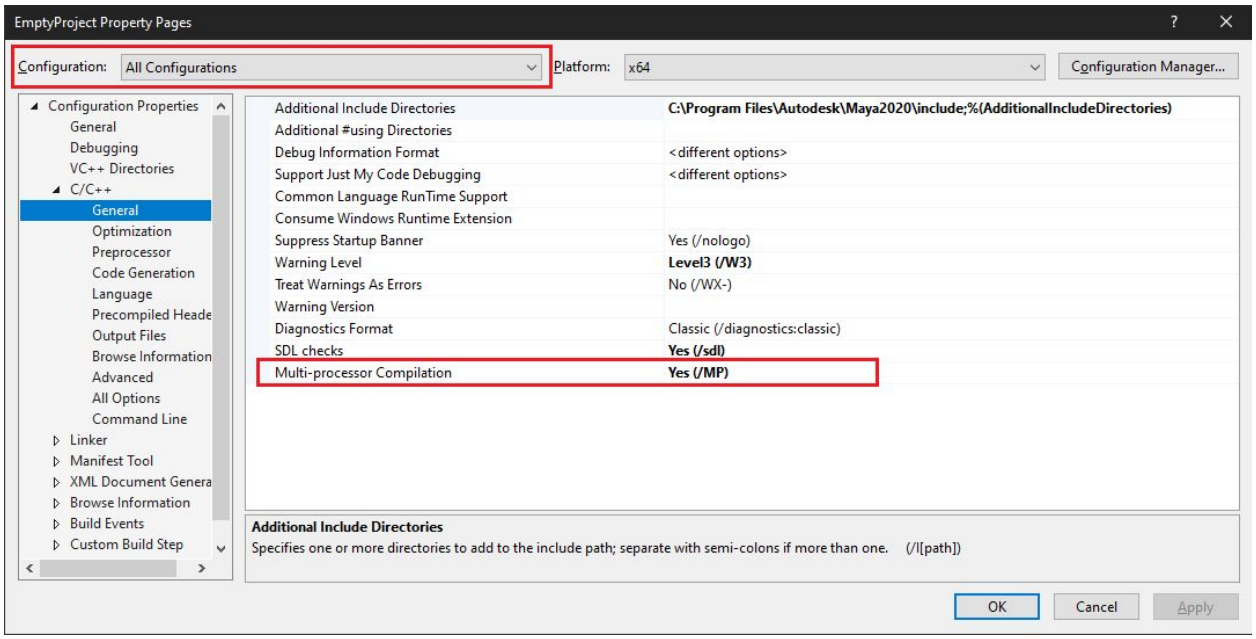
Optional (All Configurations)

*** Change the Configuration drop-down to **All Configurations***

Multi-threaded Compilation

With plugins that contain many cpp files, build times can be improved by using more than one thread when compiling.

1) Select **C/C++ -> General** from the sidebar
2) Set **Mutli-processor Compilation** to **Yes (/MP)**



Additional Notes

Once the steps above have been completed, click the **OK** button to apply any changes and close the Properties Pages.

The settings provided above are what I would consider the minimum for Maya C++ plug-in development. If a project has additional dependencies, libraries, etc… additional changes will be required.

Changes can be made to the Properties Pages at any time by right-clicking on the project in the Solution Explorer and selecting Properties.