



.NET Upgrade Guide

GstarCAD 2027

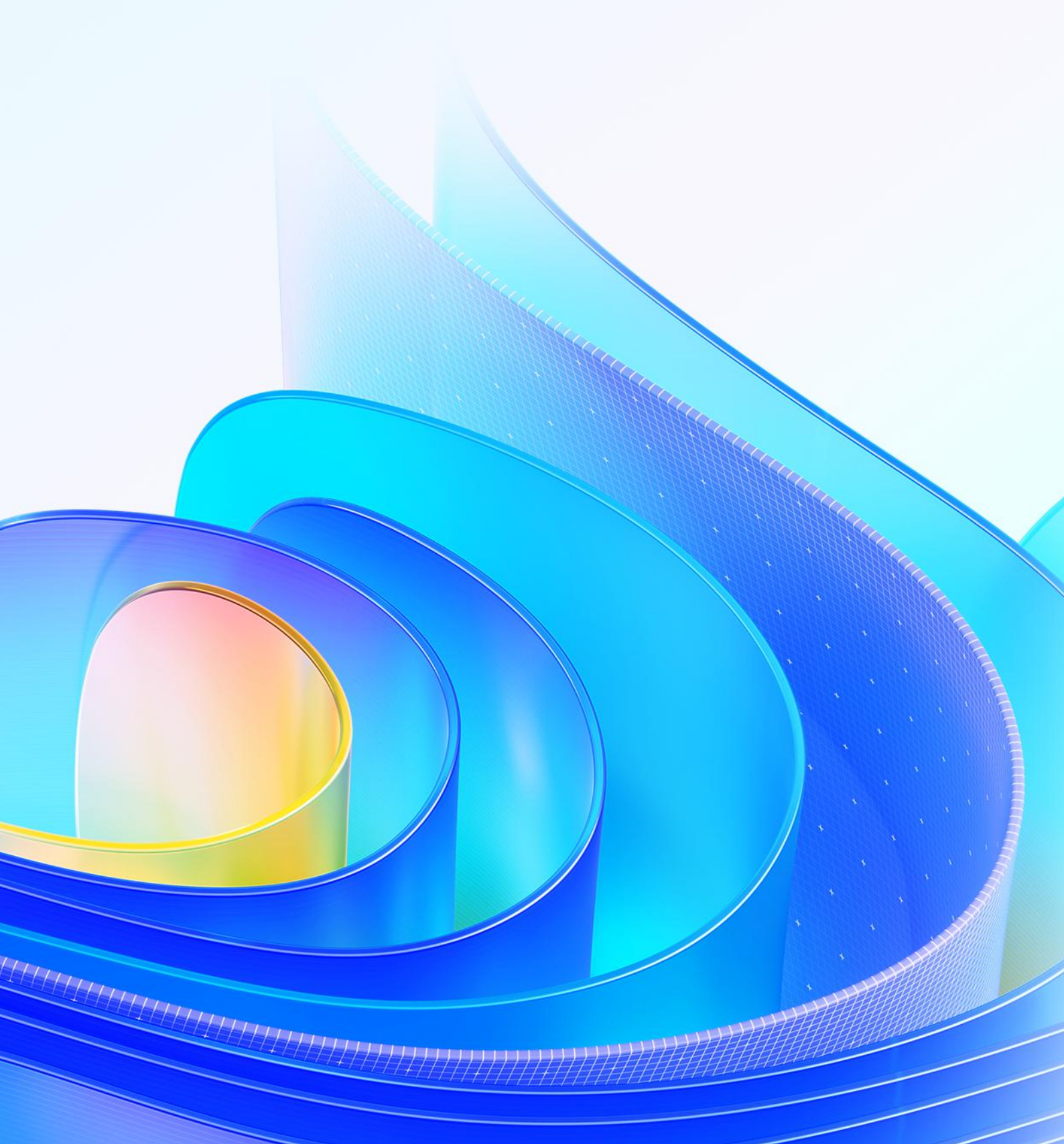


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1. Introduction

This document illustrates how to upgrade and adapt the .NET project/application from old versions.

2. Programming Environment

- Microsoft® Visual Studio 2022 (version 17.8.0)
- Windows SDK 10.0 (latest installed version)
- CPU:
 - Basic: 1.6 GHz CPU
 - Recommended: 3.0 GHz CPU and above
- RAM:
 - Basic: 2 GB
 - Recommended: 8 GB and above
- Operation System (OS)
 - Windows 11
 - Windows 10 (version 1507 and above):
 - Home, Professional, Education and Enterprise (not support LTSC and Windows 10 S)
- Monitor Resolution:
 - 1028x800 and above true color display, including 4K (3840x2160) display
- GRXSDK
- Microsoft .NET 8.0

3. Install SDK

Download SDK.

Unzip GRXSDK.ZIP file to the local disk (e.g. 'C:\grxsdk') and there will be 5 directories generated (in 'C:\grxsdk') which are: **arx**, **inc**, **inc-x64**, **lib-x64** and **utils**.

arx contains the header files, library files and sample programs used for porting ARX programs to GRX programs. It contains the following directories:

- **Inc:** Header files used for porting from ARX to GRX
- **inc-x64:** Files used by COM and .NET (for 64-bit)
- **lib-x64:** GRX libraries (for 64-bit)
- **Samples:** Sample projects, including Dotnet, fact_dg, HelloADS, HelloARX and SimplePalette.
 - **Dotnet:** .NET programming samples
 - 1) **Addline:** .NET programming sample of adding solid lines
 - 2) **Hello:** .NET programming sample of outputting prompt information
 - 3) **Vbhello:** Sample of .NET programming with VB .NET
 - **fact_dg:** Sample of LISP function definition
 - **HelloADS:** Sample of ADS programming
 - **HelloARX:** Sample of GRX programming
 - **SimplePalette:** Programming sample of how to create a set Palette windows
- **Utils:** Directory contains sub-directories of GRX extended applications, including APIs for extended function development, e.g. BREP for boundary representation.

Inc: Header files used for programming the GRX

inc-x64: Files used by COM and .NET (for 64-bit)

lib-x64: GRX libraries (for 64-bit)

Utils: Directory contains subdirectories of GRX extended applications, including APIs for extended function development, e.g. BREP for boundary representation.

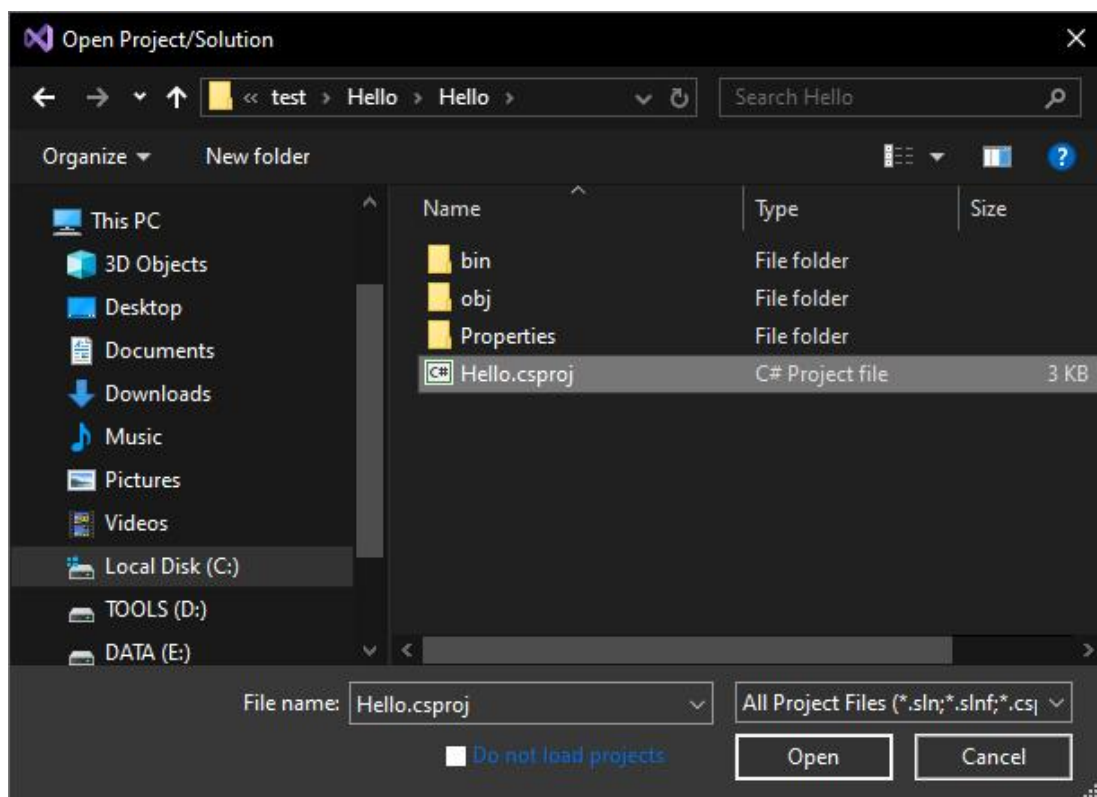
4. Visual Studio 2022 C# .NET Program Upgrade Process

The following illustrates the upgrade process by taking the 'Hello' project as an example, and assumes that the SDK is installed in 'C:\grxsdk'.

4.1. Upgrade Project File

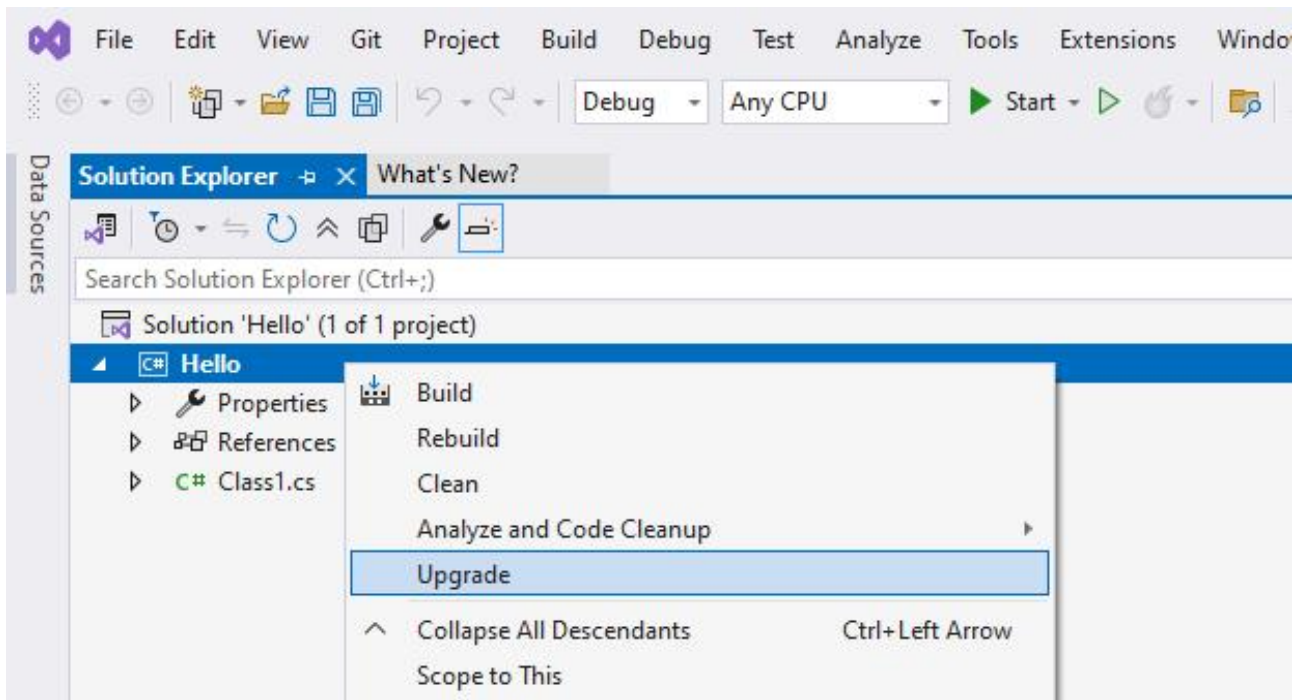
4.1.1. Open C# Project File

In Microsoft Visual Studio 2022, Click the **File** menu and select the **Open** submenu, then select **Open a Project/Solution....**, and select the C# project file to be upgraded in the dialog box.

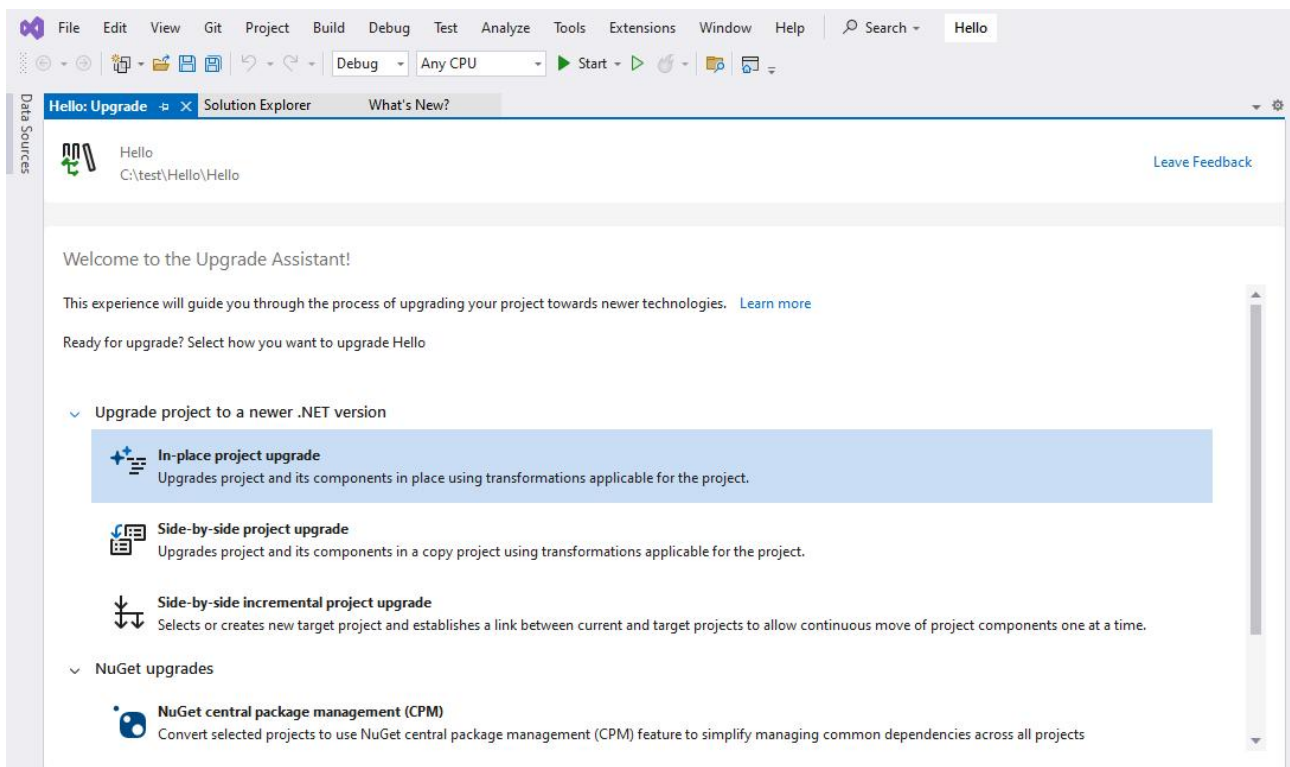


4.1.2. Upgrade Project File

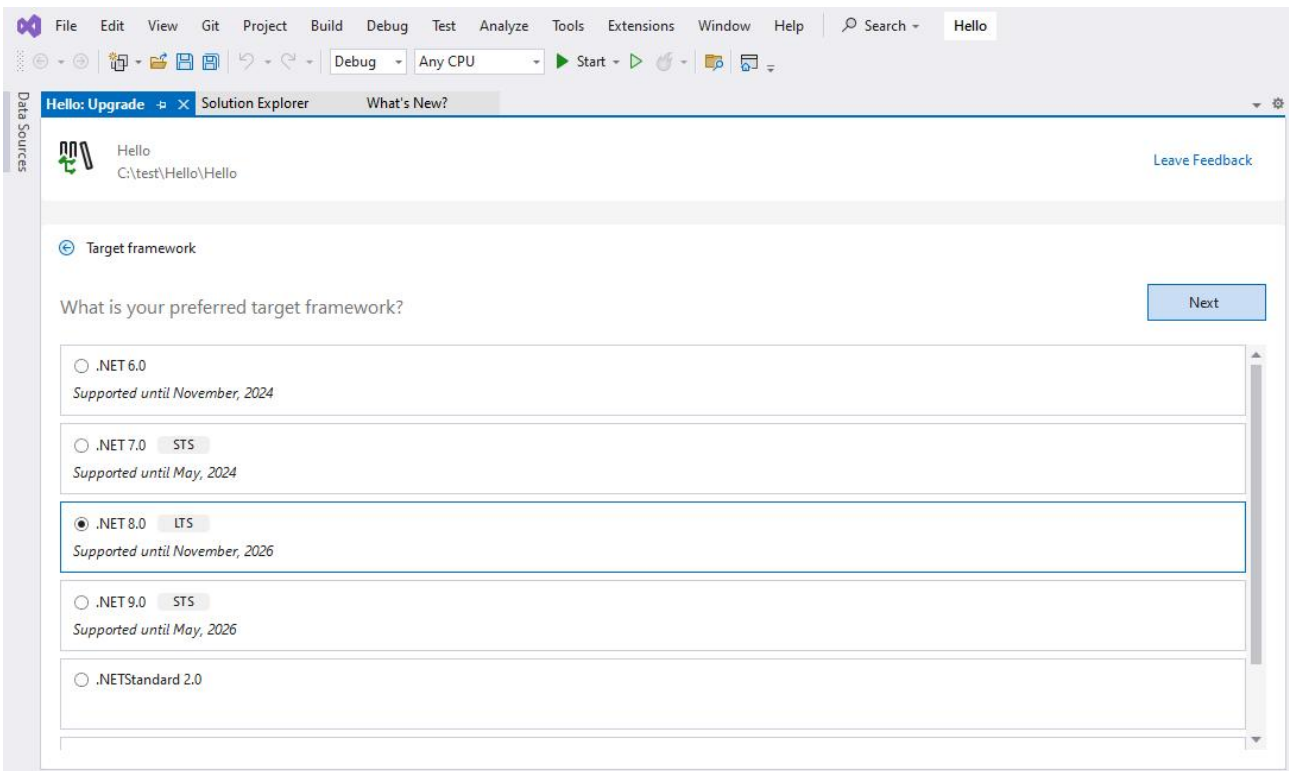
Step 1: In the Solution Explorer of Visual Studio 2022, right-click the project 'Hello', and select the **Upgrade**.



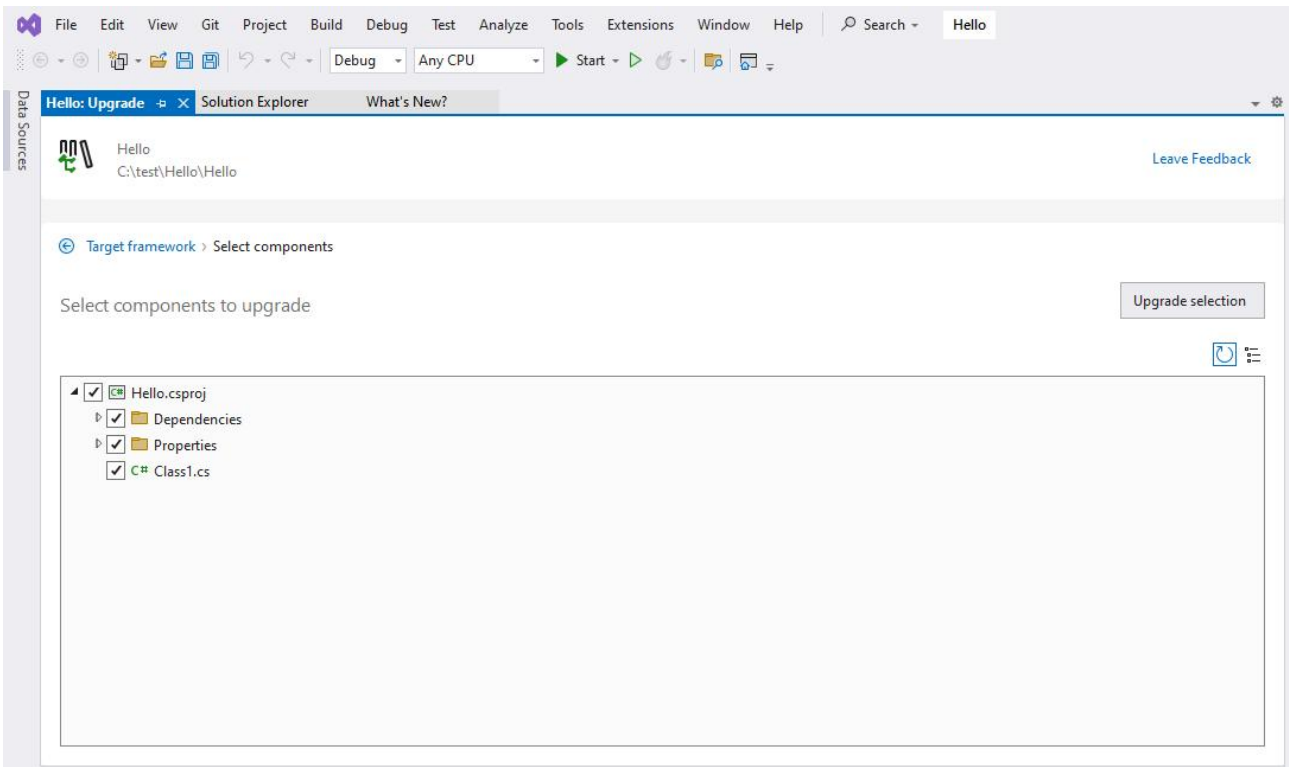
Step 2: Select 'In-place project upgrade' from **Upgrade project to a newer .NET version** drop-down list.



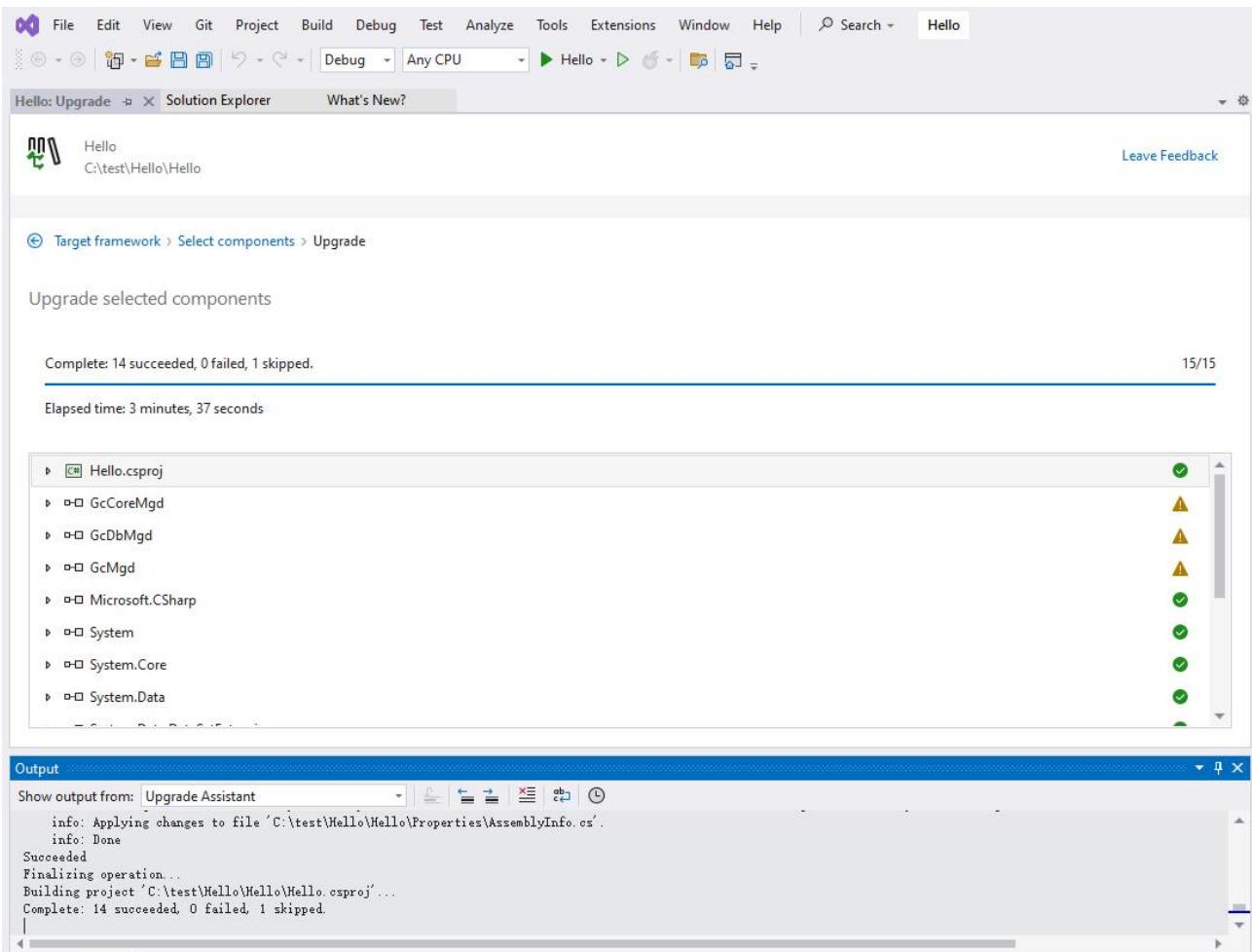
Step 3: Select **.Net 8.0** and click **Next**.



Step 4: Click **Upgrade selection** button.



Step 5: When the output window shows success, the upgrade is complete.

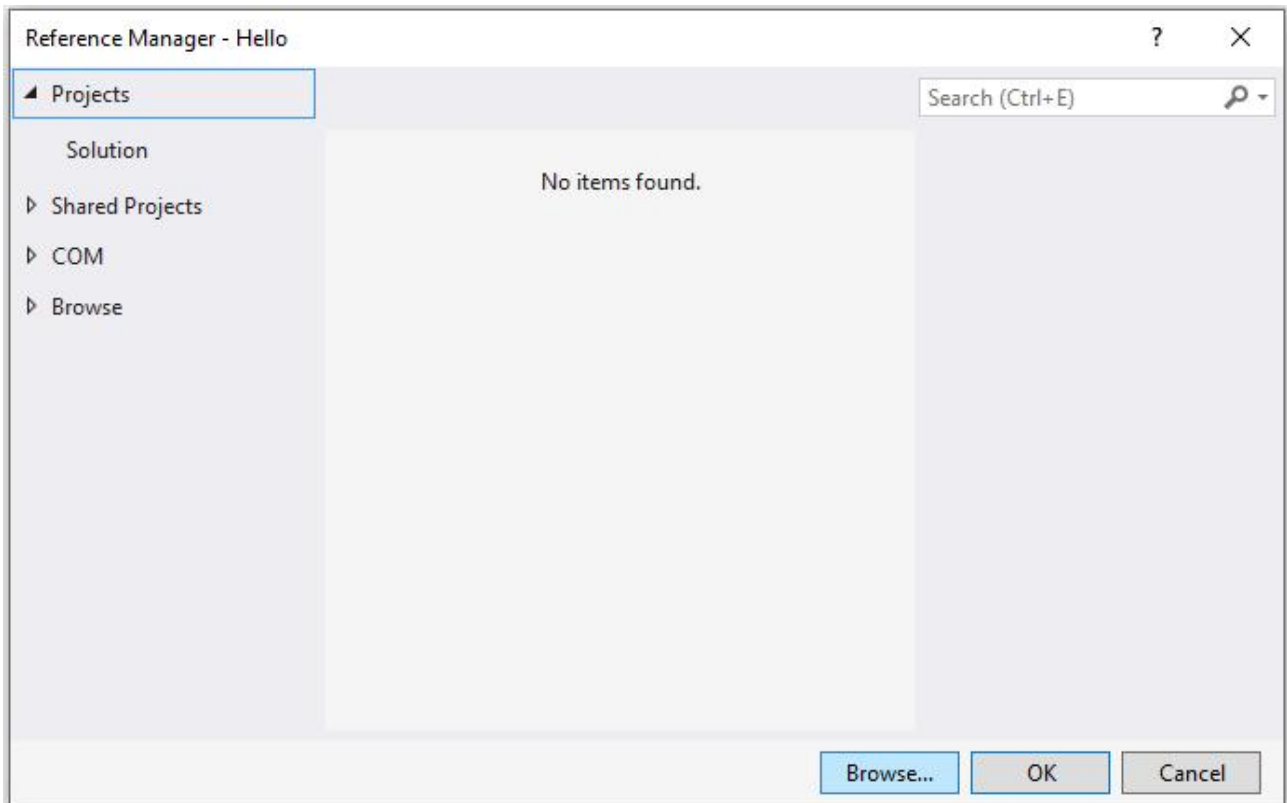
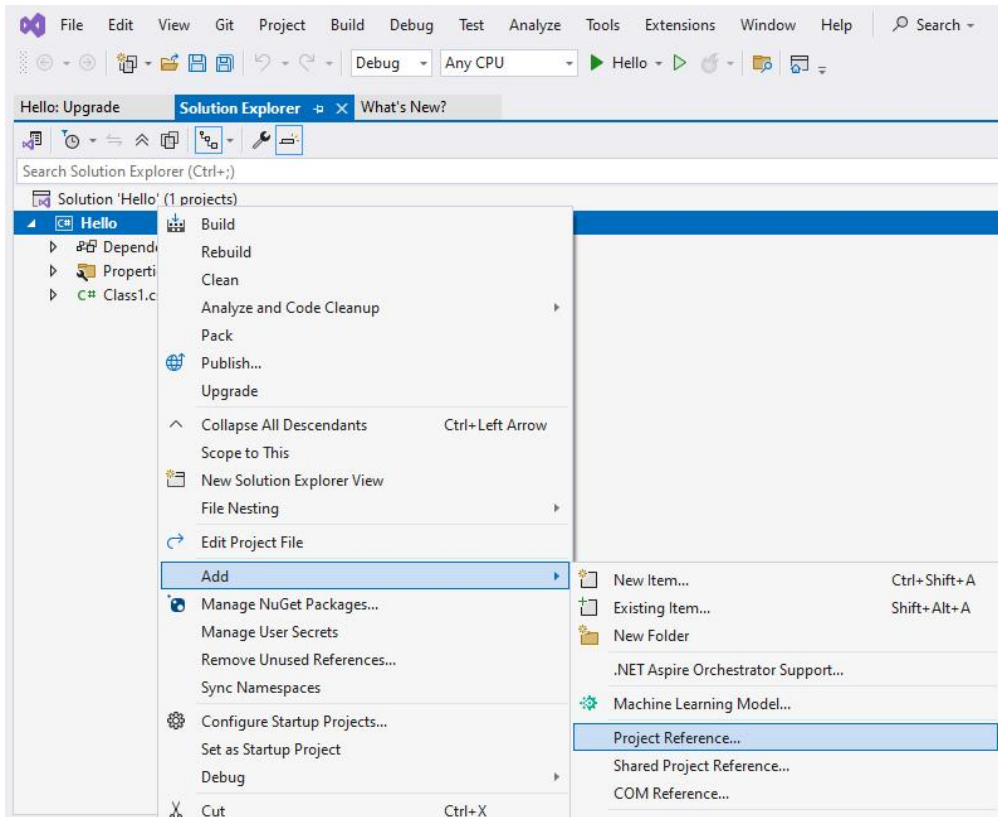


Note: The upgrade will modify the original csproj file. It is recommended to back up the lower version project file before upgrading.

4.2. Change Reference File

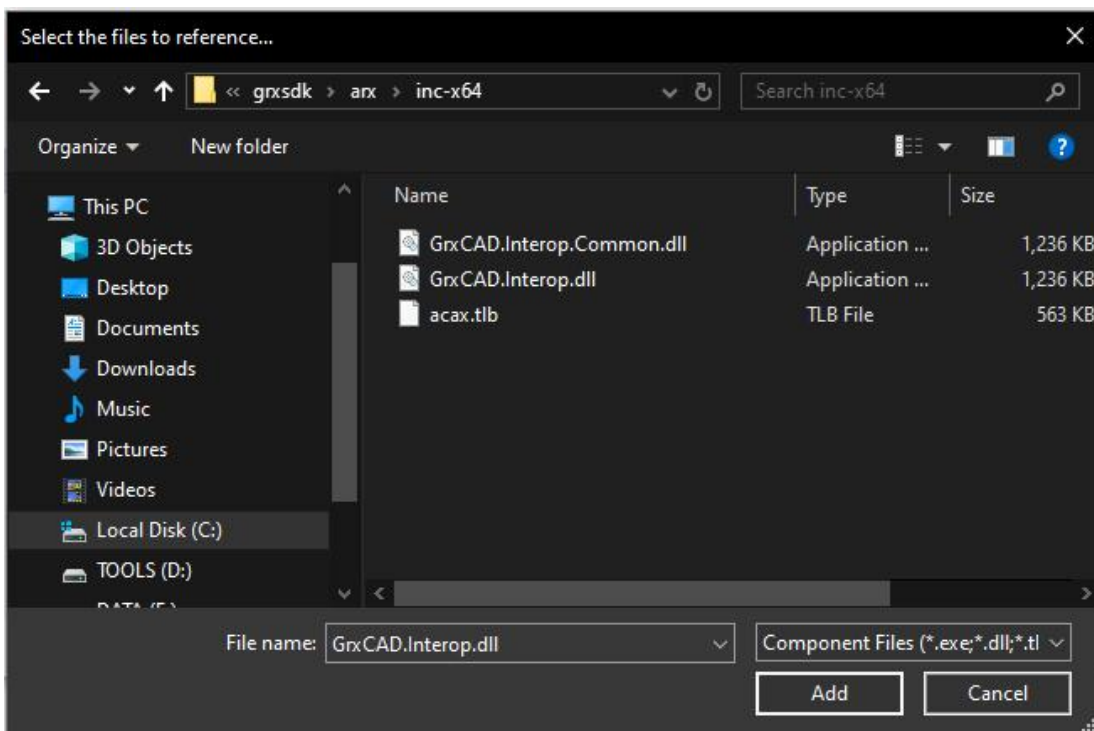
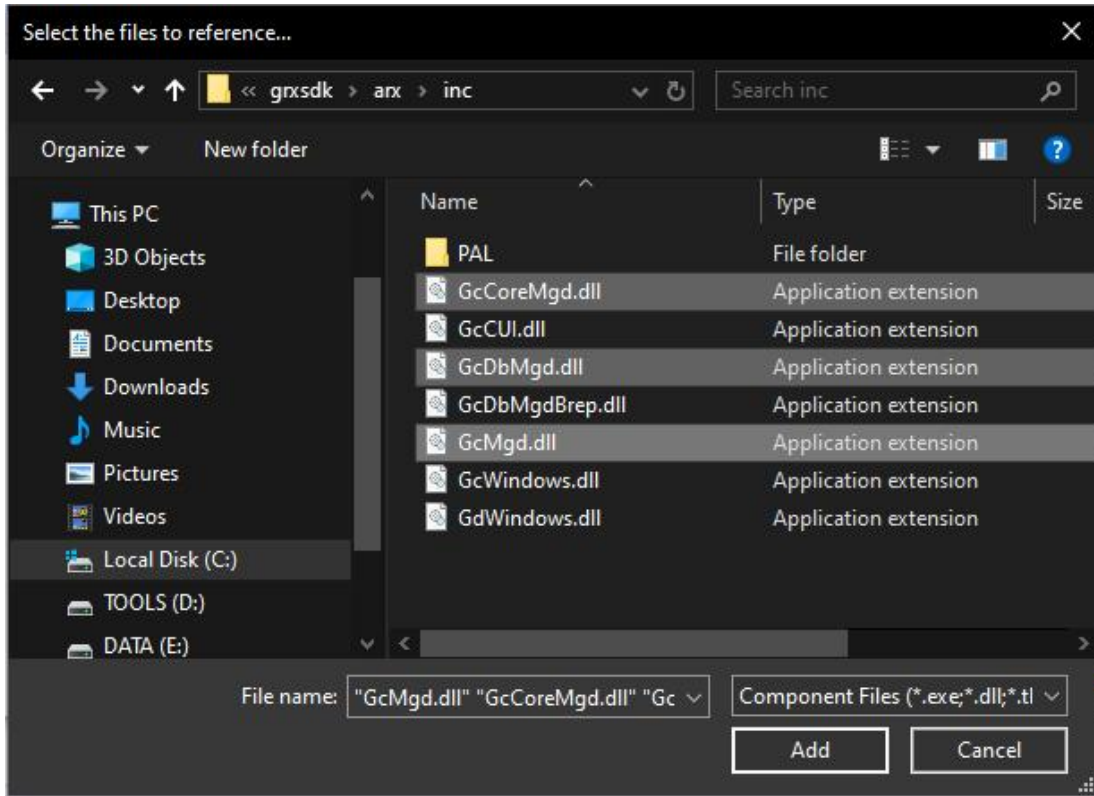
4.2.1. Add Referenced File

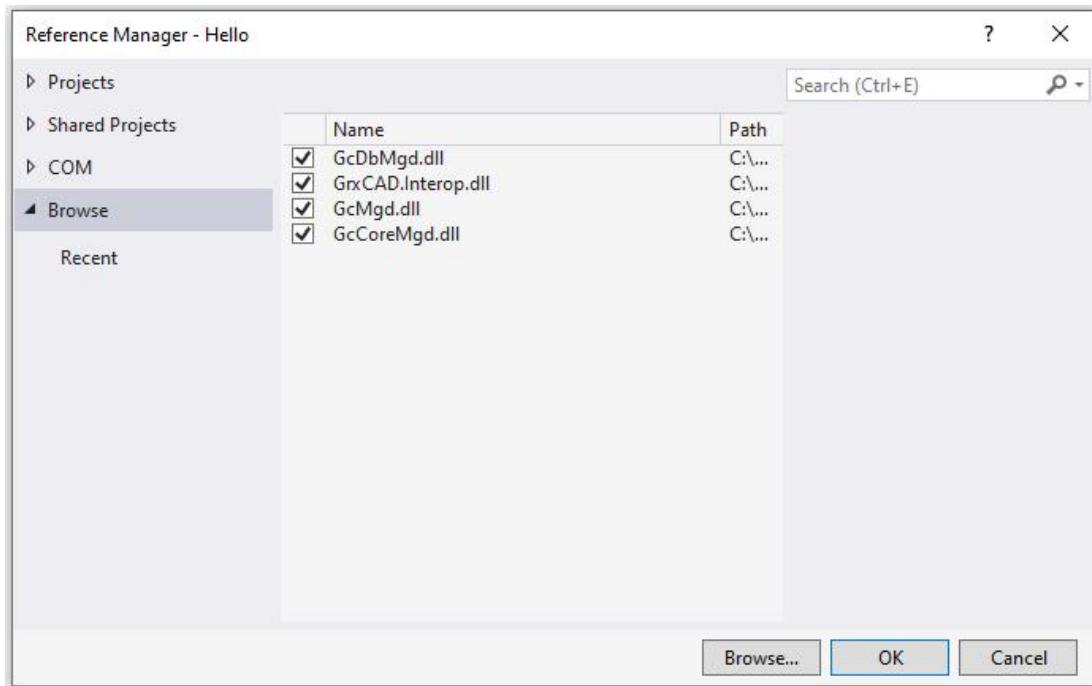
In **Solution Explorer** of Visual Studio 2022, right-click on project '*Hello*' and select **Add Reference**. After the **Reference Manager** dialog window pops out, click **Browse...** button as shown below.



4.2.2. Load Reference File

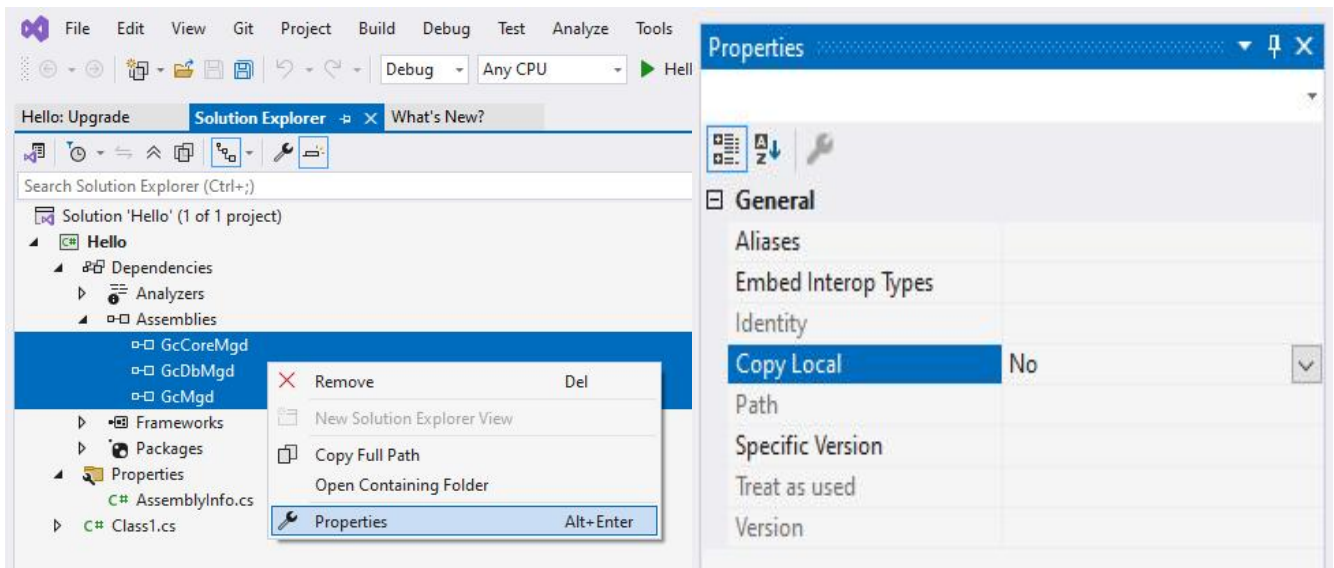
From the installation path of SDK, e.g. 'C:\grxsdk', select 'GcCoreMgd.dll', 'GcDbMgd.dll' and 'GcMgd.dll' in '\arx\inc' and 'GrxCAD.Interop.dll'(or 'acax.tlb') in '\arx\inc-x64', and add them by clicking **Add** button.





NOTE: 'GcCoreMgd.dll', 'GcDbMgd.dll' and 'GcMgd.dll' must be added while 'GrxCAD.Interop.dll' (or 'acax.tlb') is optional (needed when COM is used in the program).

After adding the files, right-click added 'GcCoreMgd.dll', 'GcDbMgd.dll' and 'GcMgd.dll' files one by one and select **Properties** at the context menu, the **Reference Properties** palette pops up. Set the value of **Copy Local** property to **False**. The following screenshot shows how to change **Copy Local** property of 'GcCoreMgd.dll'.



4.3. Modify Project File

Before compiling the project, you need to add the following to the ItemGroup element of the CSPROJ file , as follows :

```
<ItemGroup>  
<FrameworkReference Include="Microsoft.WindowsDesktop.App">  
</FrameworkReference>  
</ItemGroup>
```

4.4. Compile Program

In Visual Studio 2022, click **Build**→**Build Solution** to regenerate the DLL file in corresponding directory. Run CAD and input *'netload'* at command line, select the relative DLL file from **Select .Net Assembly** dialog window and click **Open** button to load it.

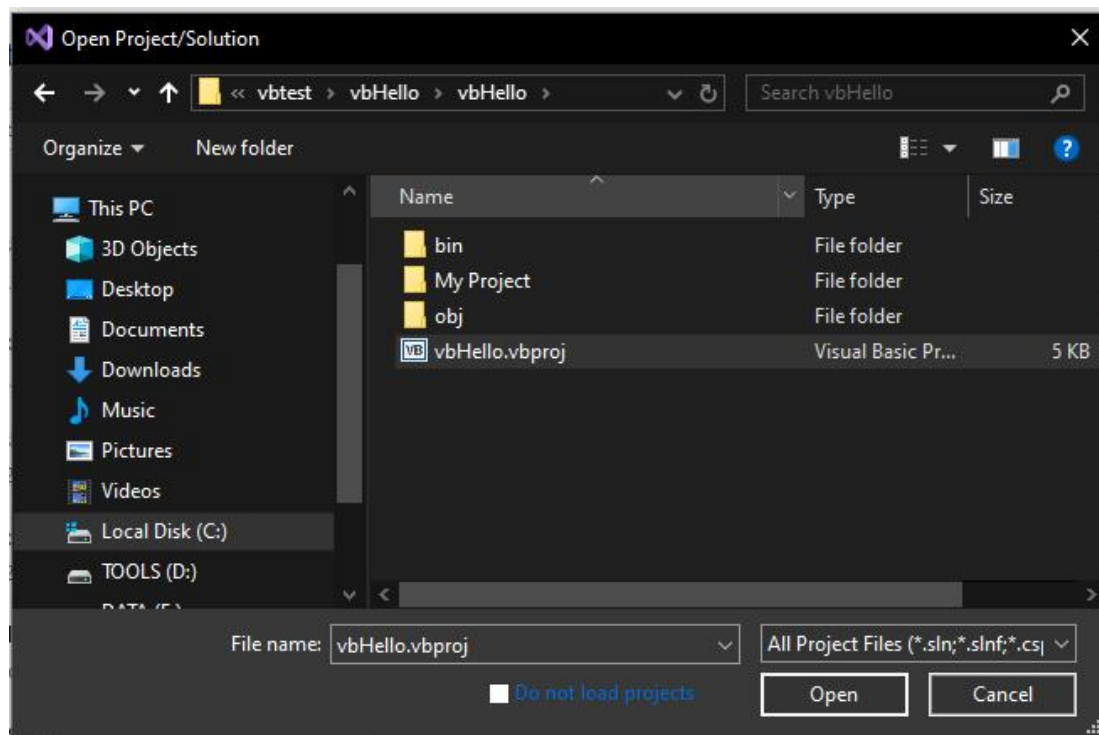
5. Visual Studio 2022 VB .NET Program Upgrade Process

The following illustrates the upgrade process by taking the 'vbHello' project as an example, and assumes that the SDK is installed in 'C:\grxsdk'.

5.1. Upgrade Project File

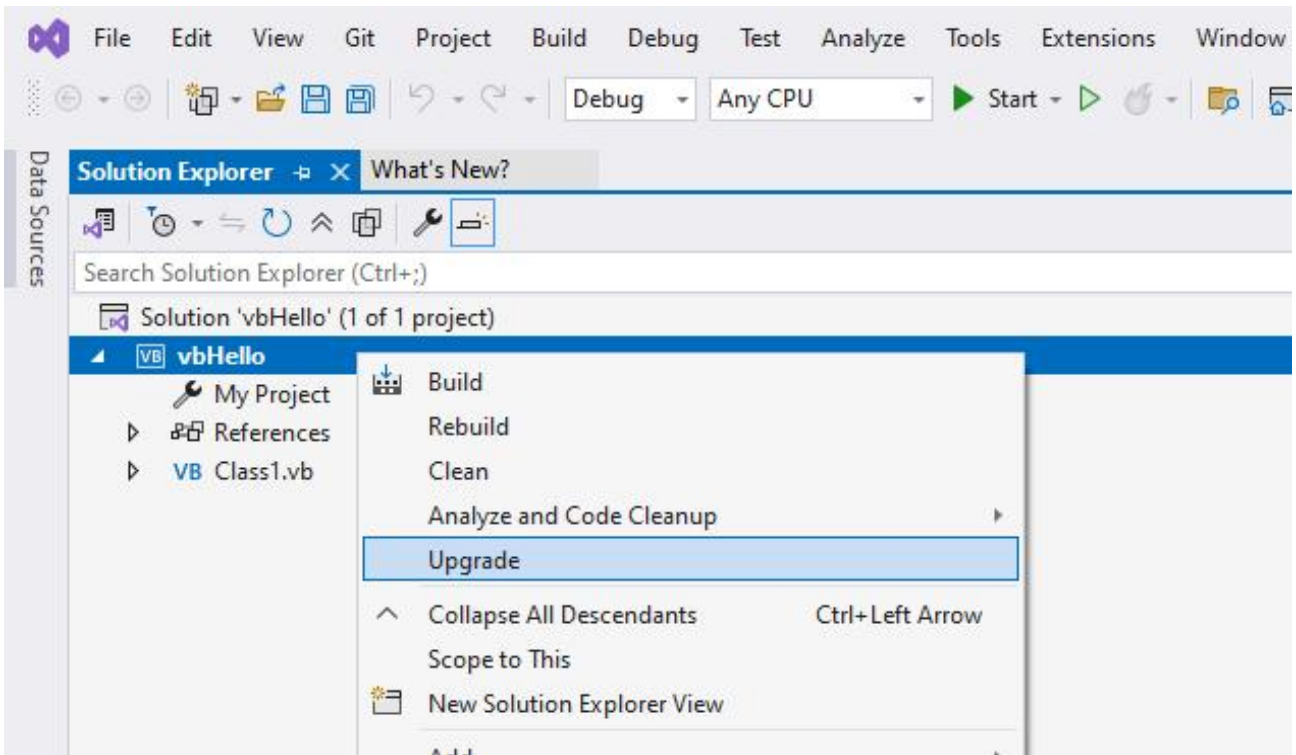
5.1.1. Open VB Project File

In Microsoft Visual Studio 2022, Click the **File** menu and select the **Open** submenu, then select **Open a Project/Solution...**, and select the VB project file to be upgraded in the dialog box.

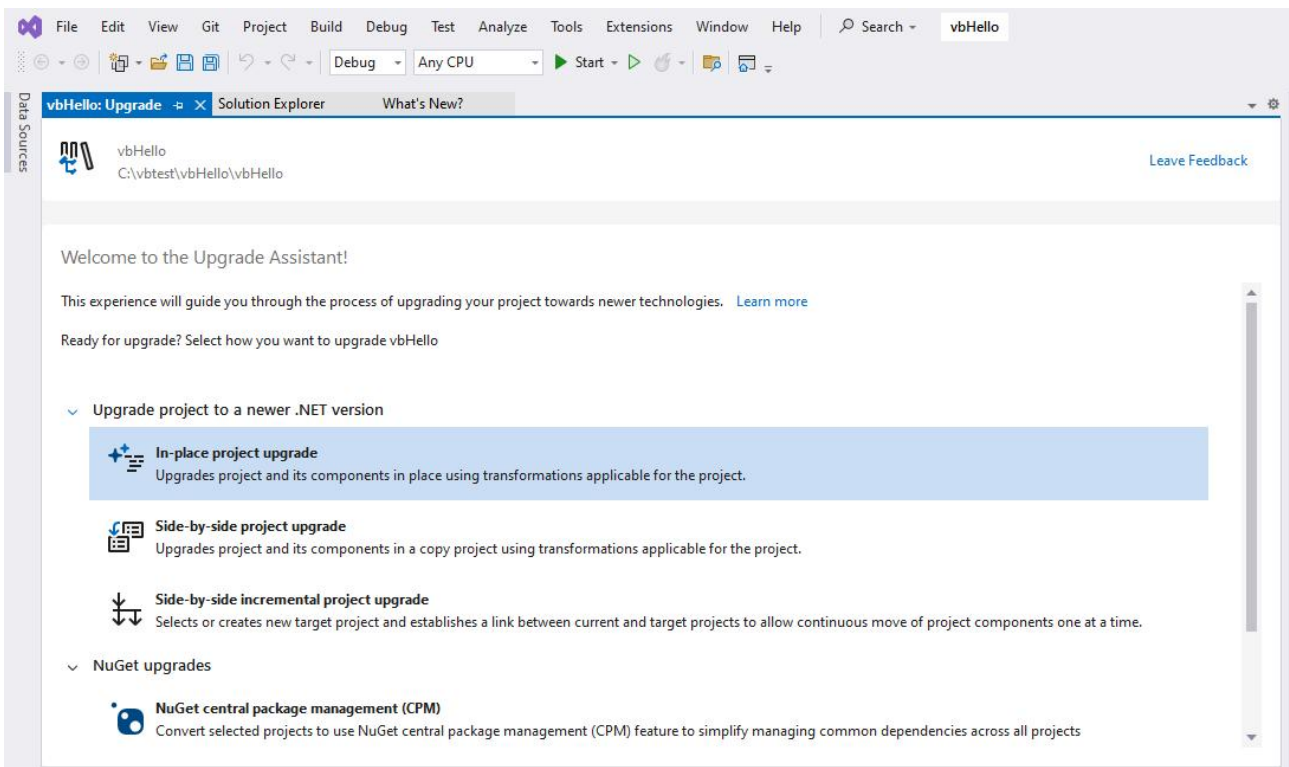


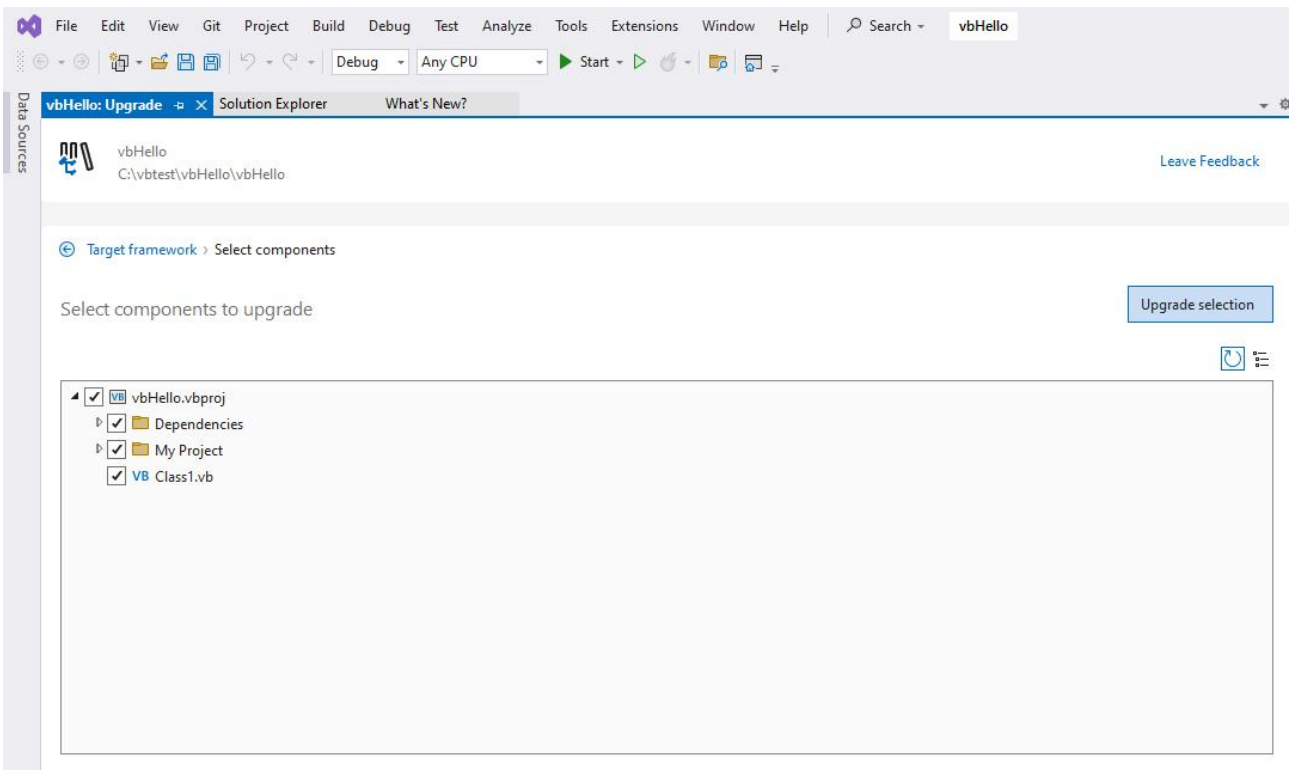
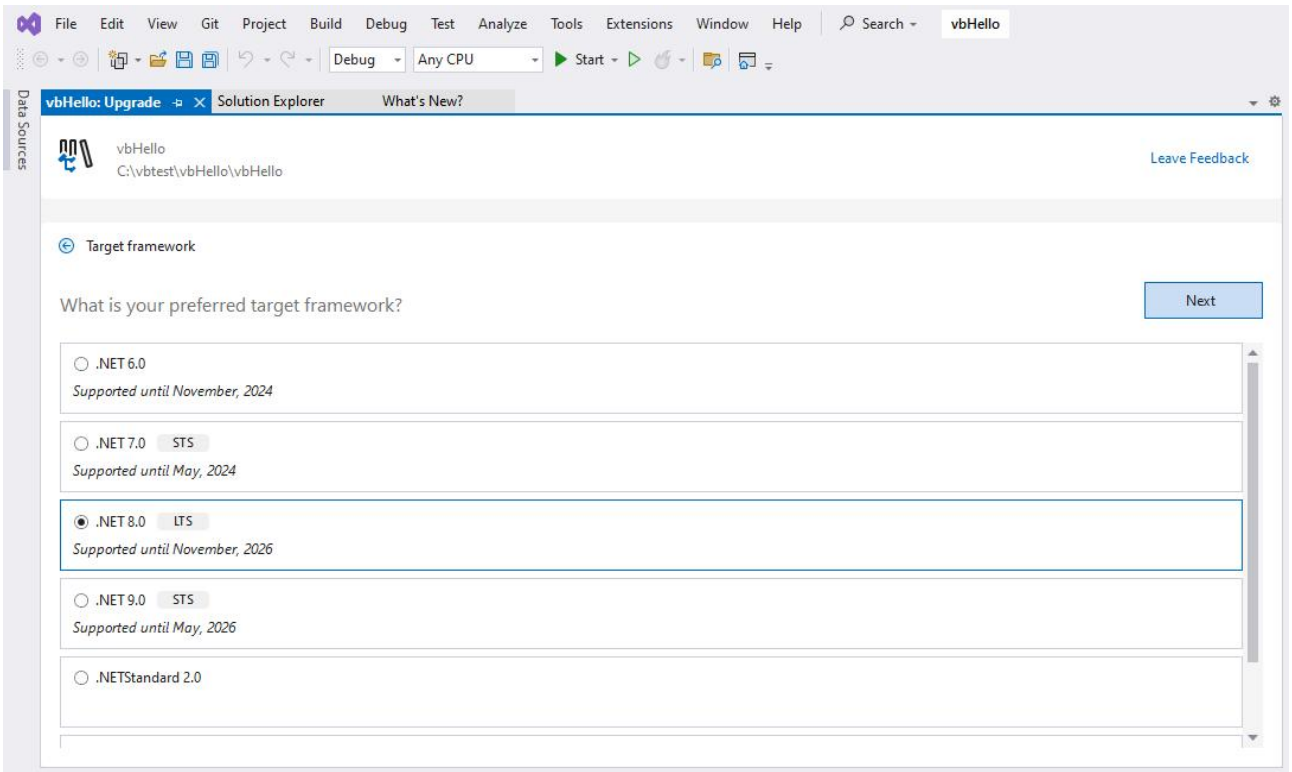
5.1.2. Upgrade Project File

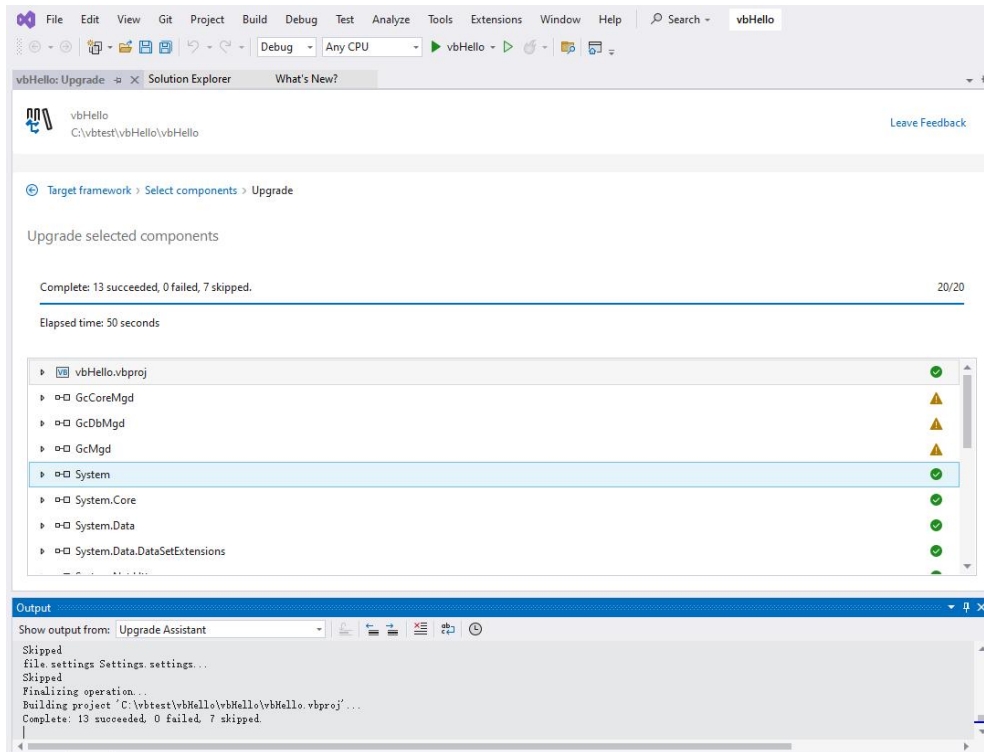
In the Solution Explorer of Visual Studio 2022, select the project name 'vbHello', right-click, and select the [Upgrade] menu item.



The following upgrade steps are the same as the C# upgrade steps:





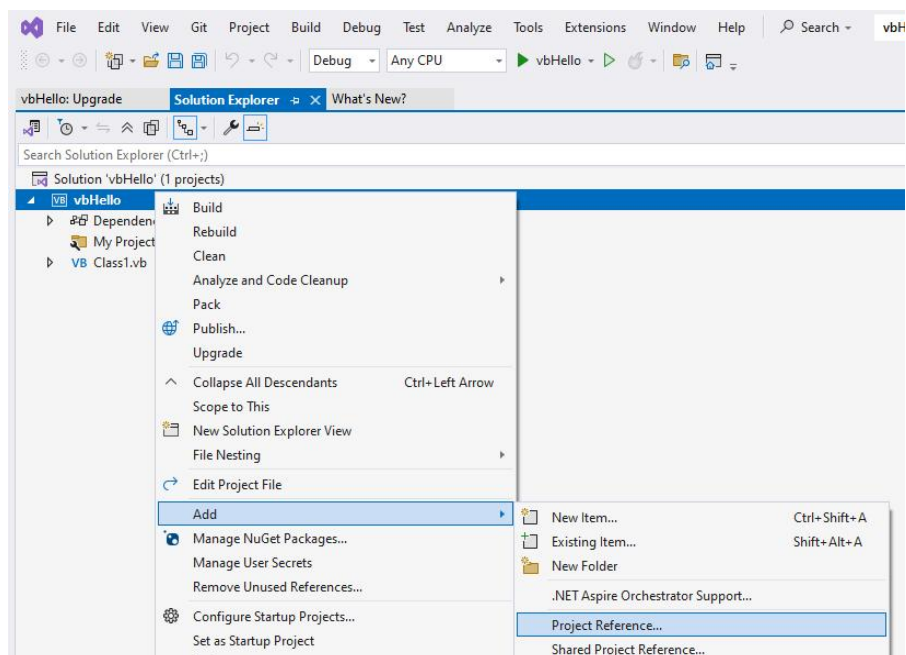


Note: The upgrade will modify the original vbproj file. It is recommended to back up the lower version project file before upgrading.

5.2. Change Reference File

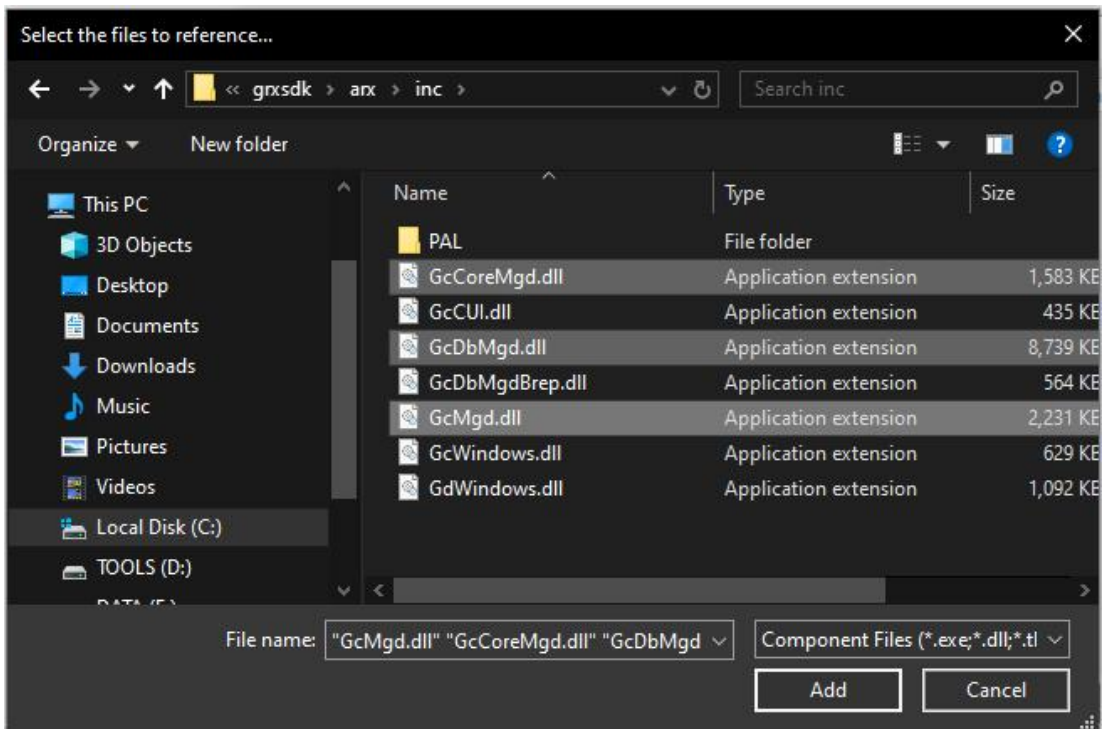
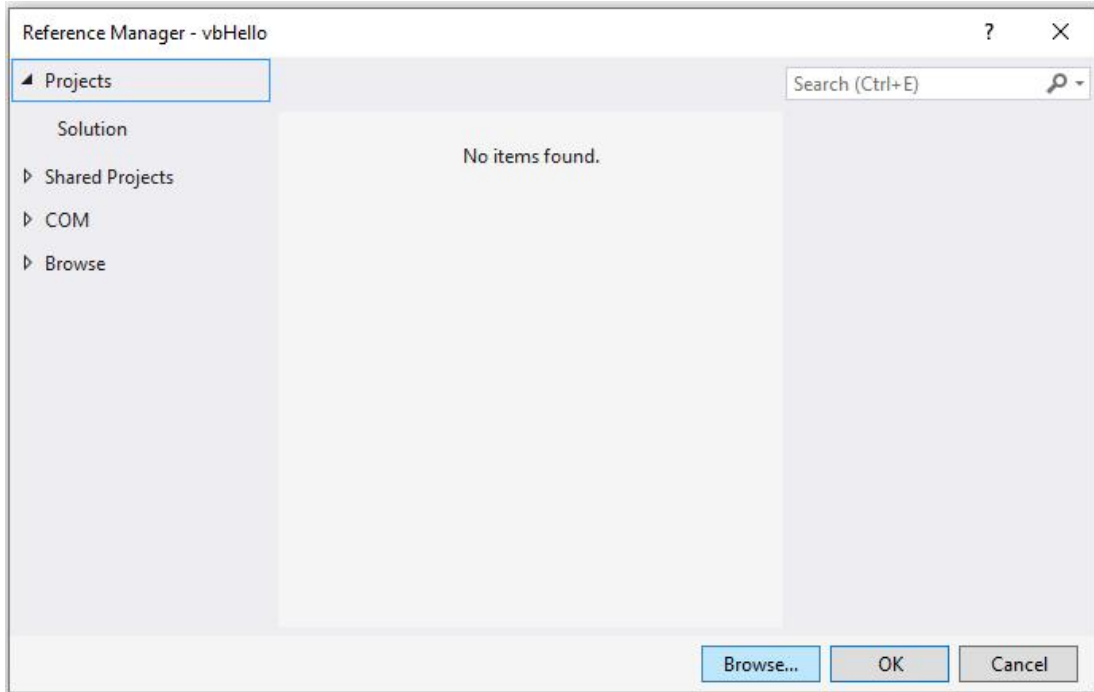
5.2.1. Add Referenced File

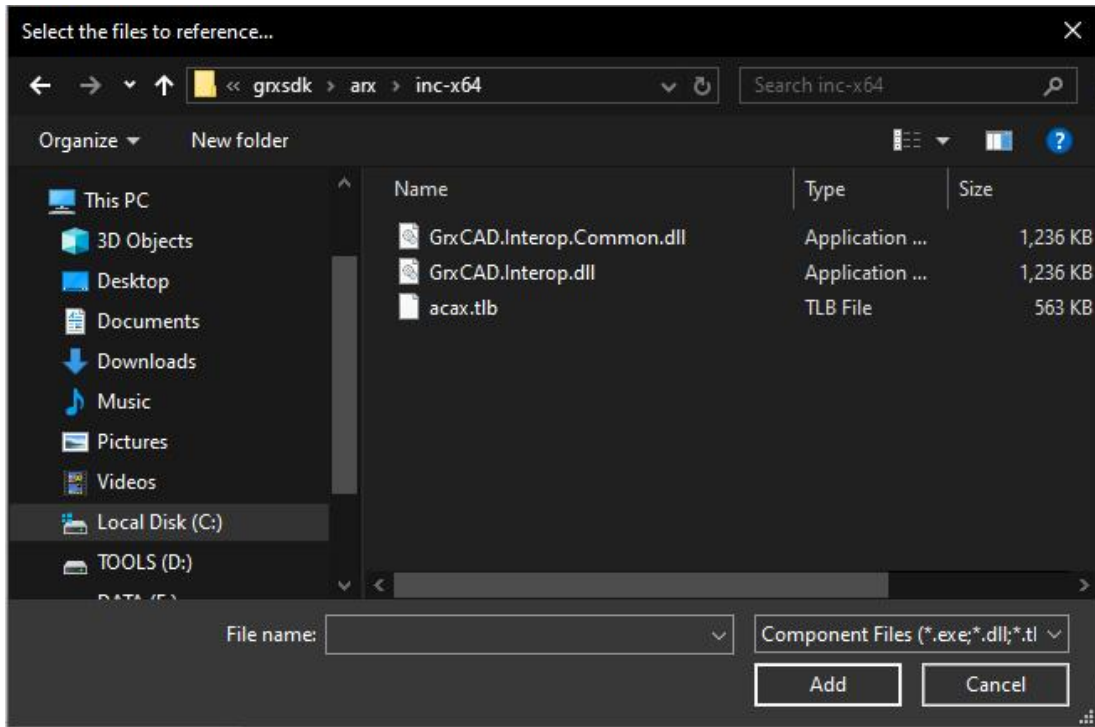
In **Solution Explorer** of Visual Studio 2022, right-click on project '*vbHello*' and select **Add Reference**. After the **Reference Manager** dialog window pops out, click **Browse...** button as shown below.



5.2.2. Load Reference File

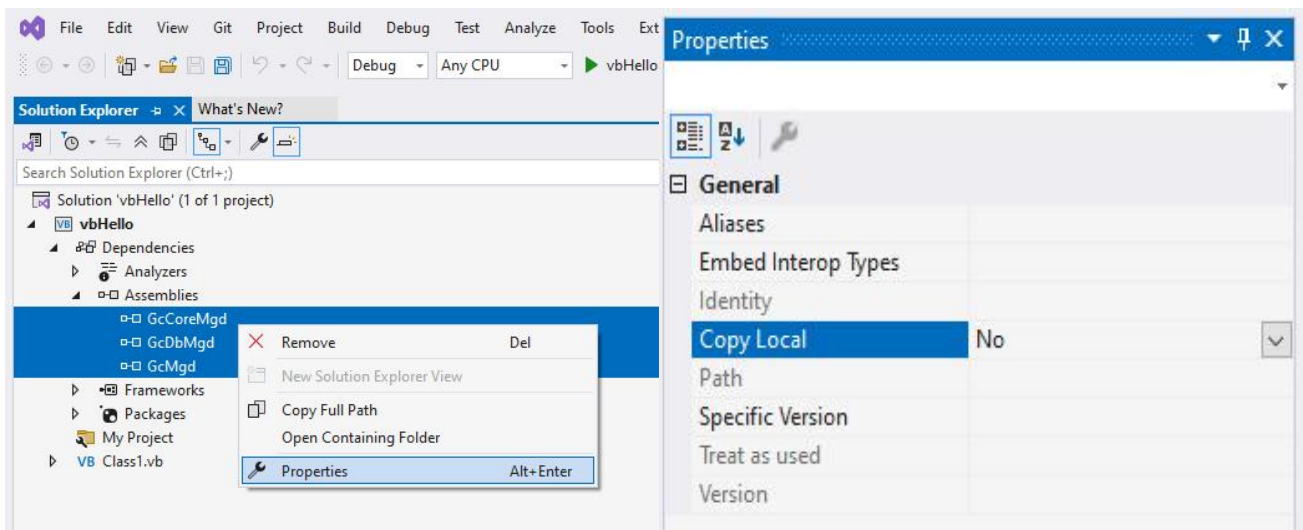
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In Visual Studio 2022, click **Build**→**Build Solution** to regenerate the DLL file in corresponding directory. Run CAD and input *'netload'* at command line, select the relative DLL file from **Select .Net Assembly** dialog window and click **Open** button to load it.

6. Copyright

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