

.NET Upgrade Guide

GstarCAD 2024



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1. Introduction

This document illustrates how to upgrade and adapt the .NET project/application to GstarCAD 2024 from old versions of GstarCAD.

2. Programming Environment

- Microsoft® Visual Studio Enterprise 2017 (Version 15.9.17)
- Windows SDK 10.0.17763.0
- ➤ CPU:

Basic:	1.6 GHz CUP
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Recommended:	3.0 GHz CPU and above
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► 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)

Windows 8.1 (with 2919355 update):

Core, Professional and Enterprise

Windows 7 SP1 (with the latest update):

Home, Professional, Enterprise and Ultimate

Monitor Resolution:

1028x800 and above true color display, including 4K (3840x2160) display

- GstarCAD SDK 2024
- ➢ GstarCAD 2024
- > .NET Framework 4.8 and above

3. Install GstarCAD SDK

Download GstarCAD SDK ('GRXSDK.ZIP' file) from GstarCAD website:

https://www.gstarcad.net/download/

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, HelloA 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 2017 C# .NET Program Upgrade Process

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

4.1. Change Reference File

4.1.1. Remove Reference

From **Solution Expore**r of Visual Studio 2017, find project '*Hello*' and remove relevant reference files of previous version of GstarCAD, as shown below.

N	Hello - Microsoft Visual Studio
File	Edit View Project Build Debug Team Tools Test A
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	Search Solution Explorer (Ctrl+;)
	 Solution 'Hello' (1 project) Image: Image: Ima
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	GrxCAD.Interop Properties Alt+Enter
	 Microsoft.CSharp System System.Core System.Data System.Data.DataSetExtensions System.Net.Http System.Xml System.Xml.Linq C* Class1.cs

4.1.2. Add Reference

In Solution Exporer of Visual Studio 2017, right-click on project '*Hello*' and select Add Reference. After the Reference Manager dialog window pops out, click Browse... button as shown below.



Reference Manager - Hello			? ×
 Assemblies 	Targeting: .NET Framework 4.8		Search (Ctrl+E)
Framework Extensions P Projects Shared Projects COM Browse	Name Accessibility CustomMarshalers ISymWrapper Microsoft.Build.Conversion.v4.0 Microsoft.Build.Framework Microsoft.Build.Framework Microsoft.Build.Tasks.v4.0 Microsoft.Build.Utilities.v4.0 Microsoft.Script Microsoft.VisualBasic Microsoft.VisualBasic.Compatibility Microsoft.VisualBasic.Compatibility Microsoft.VisualBasic.Compatibility Microsoft.VisualBasic Microsoft.VisualBasic Microsoft.VisualBasic Microsoft.VisualBasic Microsoft.VisualBasic Microsoft.VisualBasic Microsoft.VisualBasic Microsoft.VisualC Microsoft.VisualCorre PresentationFarmework PresentationFramework PresentationFramework.Aero PresentationFramework.Aero PresentationFramework.Aero1 PresentationFramework.Aero2 PresentationFramework.Classic PresentationFramework.Luna	Version 4.0.0.0 4.0.0.0 4.0.0.0 4.0.0.0 4.0.0.0 4.0.0.0 4.0.0.0 4.0.0.0 4.0.0.0 4.0.0.0 4.0.0.0 4.0.0.0 10.0.0.0 10.0.0.0 10.0.0.0 10.0.0.0 10.0.0.0 10.0.0.0 4.0.0.	Name: Accessibility Created by: Microsoft Corporation Version: 4.0.00 File Version: 4.8.3761.0 built by: NET48REL1
		Browse	e OK Cancel

4.1.3. Load Reference File

From the installation path of GstarCAD 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.

Select the files to reference X							
← → × ↑ 📙 « Local Disk	(C:) → grxsdk → arx → inc → → →	ව 🔎 Search inc					
Organize 👻 New folder		HI 🔻 🔟 ?					
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💼 3D Objects	PAL	File folder					
💻 Desktop	🧕 GcCoreMgd.dll	Application extension 1,315 KB					
Documents	🚳 GcDbMgd.dll	Application extension 7,488 KB					
Downloads	🚳 GcDbMgdBrep.dll	Application extension 556 KB					
	🚳 GcMgd.dll	Application extension 1,305 KB					
J Music							
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🚆 Videos							
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👝 TOOLS (D:)							
👝 DATA (E:)							
👝 BACKUP (F:)	/ <	>					
File name: 🛛	GcMgd.dll" "GcCoreMgd.dll" "GcDbMgd.dll"	 ✓ Component Files (*.dll;*.tlb;*.ol ✓ Add Cancel 					



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 Projects Shared Projects GcCoreMgd.dll GcDMgd.dll C:\grxsdk\arx\inc\Gc GcMgd.dll C:\grxsdk\arx\inc\sc GrcAD.Interop.dll C:\grxsdk\arx\inc-x64 	Assemblies				Search (Ctrl+E)		، ۹
	 Assemblies Projects Shared Projects COM Browse Recent 	KKK KKK	Name GcCoreMgd.dll GcDbMgd.dll GrxCAD.Interop.dll	Path C:\grxsdk\arx\inc\Gc C:\grxsdk\arx\inc\Gc C:\grxsdk\arx\inc-x6	Search (Ctrl+E) Name: GcCoreMgd.dll		Q -
Browse UK Cancel				Bro	owse OK	Can	cel

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*'.

刘 Hello - Microsoft Visual S	Studi	o	Pr	operties	▼ ⊟ ×
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▲ 🖙 Hello				Culture	
Properties References				Description	
🔐 Analyzers				Embed Interop Types	False
GcCoreMgd		View in Object Browser		File Type	Assembly
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■ GrxCAD.Intero	۶	Properties Alt+Enter		Path	C:\grxsdk\arx\inc\GcCore
■ ■ System	ч г			Resolved	True
■•■ System.Core				Runtime Version	v4.0.30319
Image: System.Data Image: System.Data.Data.Data.Data.Data.Data.Data.Dat	taSe	tExtensions		Specific Version	False
■•■ System.Net.Htt	р			Strong Name	False
Image: System.Xml Image: System.Xml.Lin	a			Version	1.0.8481.30606
¢ C# Class1.cs					

In Solution Exporer of Visual Studio 2017, right-click on project '*Hello*' and select Properties. After the dialog window pops out, select Application and change the Target framework to .NET Framework 4.8 from the pull-down list.



4.3. Compile Program

In Visual Studio 2017, click **Build** -> **Build Solution** to regenerate the DLL file in corresponding directory. Run GstarCAD 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 2017 VB .NET Program Upgrade Process

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

5.1. Change Reference File

5.1.1. Remove Reference

From **Solution Expore**r of Visual Studio 2017, find project '*Hello*' and remove relevant reference files of previous version of GstarCAD, as shown below.

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	ut∎ gmdb	×	Rem	ove		Del		
	GrxCAD.Interop	×	Prop	erties		Alt+Ent	ter	
	 System System.Core System.Data System.Data.DataSe System.Net.Http System.Xml System.Xml.Linq VB Class1.vb 	etExt	tension	15				

5.1.2. Add Reference

In Solution Exporer of Visual Studio 2017, right-click on project '*Hello*' and select Add Reference. After the Reference Manager dialog window pops out, click Browse... button as shown below.



Reference Manager - Hello		? ×
Assemblies	Targeting: .NET Framework 4.8	Search (Ctrl+E)
Framework Extensions Projects Shared Projects COM Browse	Name Version Accessibility 4.0.0.0 CustomMarshalers 4.0.0.0 ISymWrapper 4.0.0.0 Microsoft.Activities.Build 4.0.0.0 Microsoft.Build.Conversion.v4.0 4.0.0.0 Microsoft.Build.Framework 4.0.0.0 Microsoft.Build.Framework 4.0.0.0 Microsoft.Build.Framework 4.0.0.0 Microsoft.Build.Tasks.v4.0 4.0.0.0 Microsoft.CSharp 4.0.0.0 Microsoft.UsualBasic 10.0.0.0 Microsoft.VisualBasic.Compatibility 10.0.0.0 Microsoft.VisualBasic.Compatibility.Data 10.0.0.0 Microsoft.VisualC 10.0.0.0 Microsoft.VisualC.STLCLR 2.0.0.0 mscorlib 4.0.0.0 PresentationFramework 4.0.0.0 PresentationFramework 4.0.0.0 PresentationFramework.Aero 4.0.0.0 PresentationFramework.Aero 4.0.0.0 PresentationFramework.Aero2 4.0.0.0 PresentationFramework.Aero2 4.0.0.0 PresentationFramework.Aero2 4.0.0.0 PresentationFramework.Aero2 4.0.0.0	Name: Accessibility Created by: Microsoft Corporation Version: 4.0.00 File Version: 4.8.3761.0 built by: NET48REL1
	PresentationFramework.Luna 4.0.0.0	e OK Cancel

5.1.3. Load Reference File

From the installation path of GstarCAD 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.

Select the files to reference		×
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📃 Desktop	🚳 GcCoreMgd.dll	Application extension 1,315 KB
Documents	🚳 GcDbMgd.dll	Application extension 7,488 KB
Downloads	GcDbMgdBrep.dll	Application extension 556 KB
	📓 GcMgd.dll	Application extension 1,305 KB
J Music		
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		Add Cancel
Select the files to reference		×



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*'.

Hello - Microsoft Visual S	Studi	0		P	operties	* ⊟ ×
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0065.0.5	¢	a 🕼 🗡 🗕			(Name)	GcCoreMgd
Search Solution Explorer (Ctrl+	;)				Aliases	global
Solution 'Hello' (1 project)				Copy Local	False 🗸
▲ Œ Hello				Culture		
Properties References					Description	
🚰 Analyzers					Embed Interop Types	False
GcCoreMgd		View in Object Browser			File Type	Assembly
■ GcMgd	x	Remove E	Del		Identity	GcCoreMgd
GrxCAD.Intero Microsoft CSh	۶	Properties A	Alt+Enter		Path	C:\grxsdk\arx\inc\GcCore
■ System					Resolved	True
System.Core				Runtime Version	v4.0.30319	
 System.Data System.Data.Da 	taSe	tExtensions		Specific Version	False	
■■ System.Net.Htt	р			Strong Name	False	
 System.Xml System.Xml.Lin 	a			Version	1.0.8481.30606	
C# Class1.cs	-1					

5.2. Change Target Framework

In Solution Exporer of Visual Studio 2017, right-click on project '*Hello*' and select Properties. After the dialog window pops out, select Application and change the Target framework to .NET Framework 4.8 from the pull-down list.

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Hello* + X Solution Application Compile	Explorer Configuration: N/A • Pla	atform: N/A	Solution Explorer +> × Search Solution Explorer (Ctrl+;)	
Debug	Assembly name:	Root namespace:	Solution 'Hello' (1 project)	
References	Hello	Hello	Hello	
Resources	Target framework:	Application type:	My Bef Rebuild	
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Settings	V Auto-generate binding redirects		■ ■ Analyze	,
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5.3. Compile Program

In Visual Studio 2017, click **Build**—**Build Solution** to regenerate the DLL file in corresponding directory. Run GstarCAD and input '*netload*' at command line, select the relative DLL file from **Select**.**Net Assembly** dialog window and click **Open** button to load it.

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