ZWCAD .NETelementary guidance

CONTENT

Operating environments

CADplatform: ZWCAD
IDE:Visual studio 2010
.NETframework: .NETFramework 4.0
.NETlibrary files: ZwManaged.dll and ZwDatabaseMgd.dll
Development language: VB.NET or C# etc.

## Create a project and set properties

1. Create a project

Start Visual studio 2010. Go to menu File, and then select File-> New Project. Here you can select two kinds of projects: Windows Forms Application or Class Library. The first type will produce a stand alone .exe file that allows your application to automate ZWCAD. The second type will produce a .dll file that you can load inside ZWCAD and register new commands.
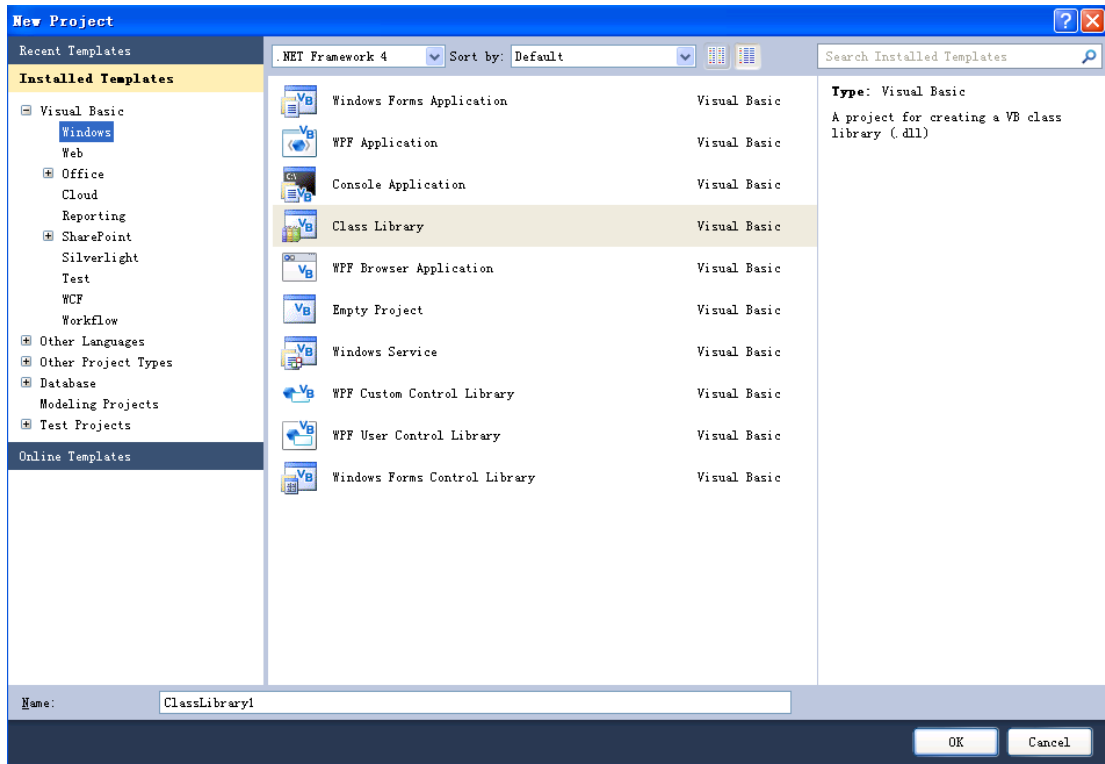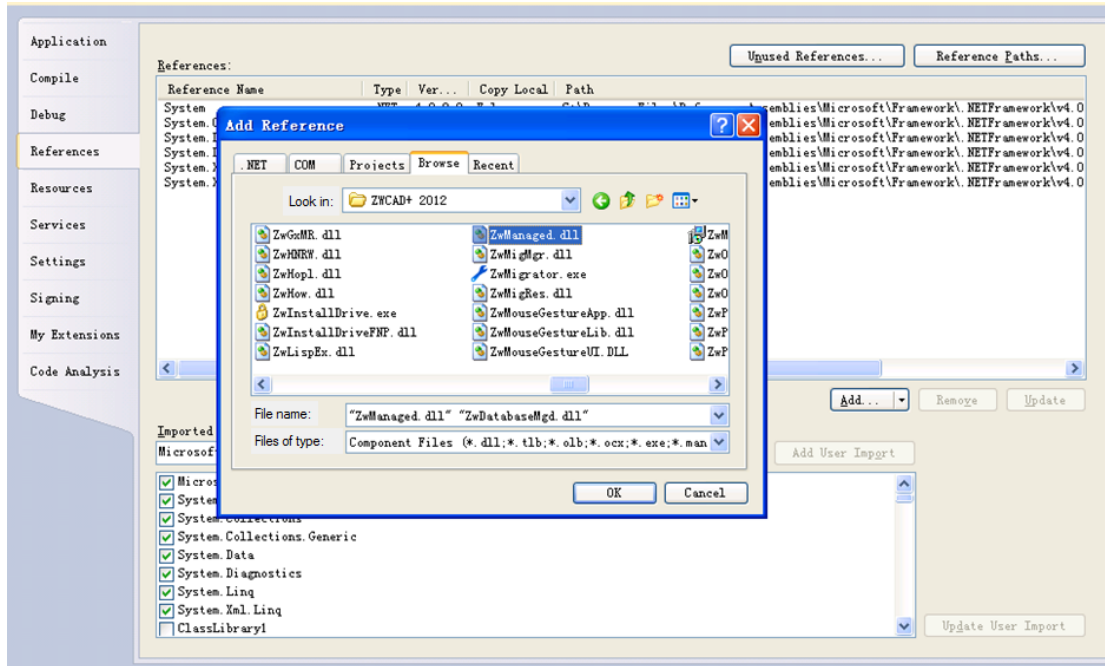
2. Add reference

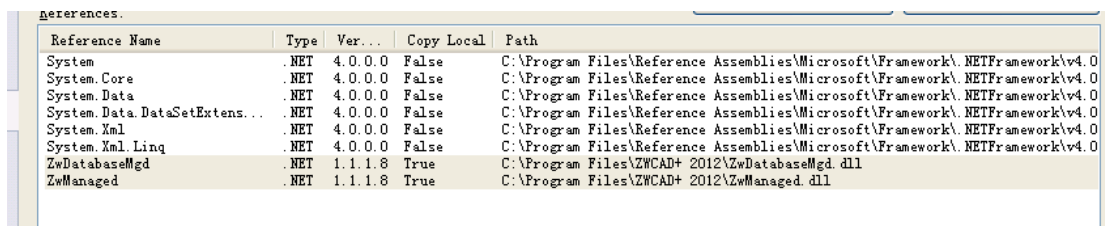Now, at the Solution Explorer window, double click the project's name to go to project properties.
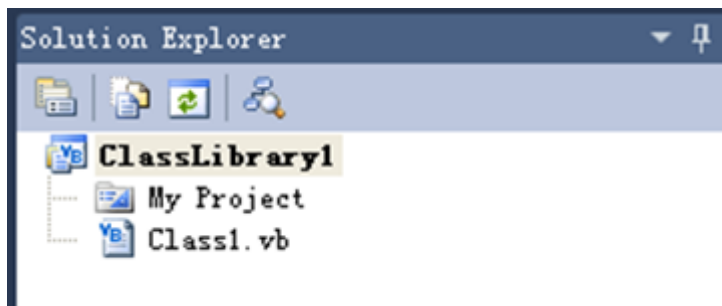
Select the "References" taband click on "Add" from the project properties, and select "Browse". Add reference to ZwManaged.dll and ZwDatabaseMgd.dll at the installationfolder of ZWCAD, like the image below.
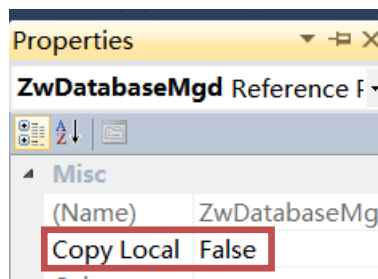
The result should be like in the following image.

Additionally, as we will use some COM features with our project, add reference to ZWCAD.exe in the same folder. The result should be like in the following image.
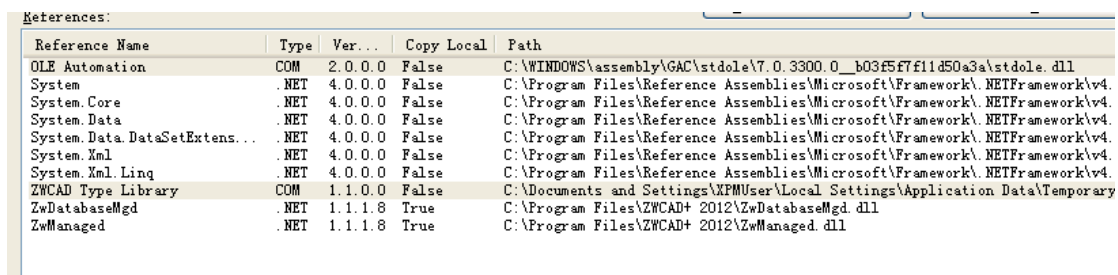
Finally, change the property "Copy Local" of ZwDatabaseMgd and ZwManaged to False.

In .NET we need to import the namespace we want to use. The code inside class1.vb will look like the following code:

Imports ZWCAD

3. Specify theversion of framework

Select the "Compile" taband click on "Advance Compile Options"from the project properties. Specify the version of framework from "Target framework (all configurations)" option at the "Advanced Compiler Settings" window.
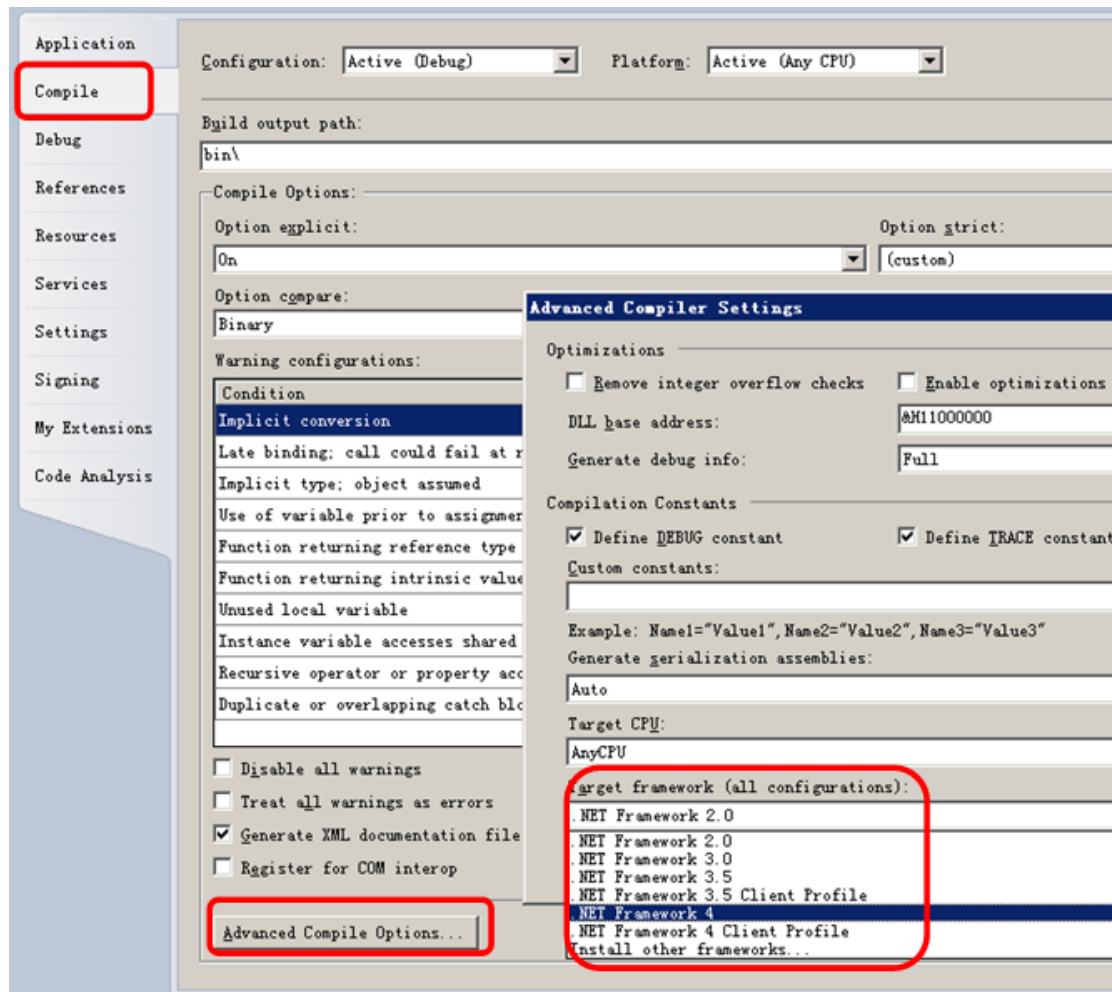
4. Debug Setting

Select the "Debug" taband specify ZWCAD.ext as the Start external programfrom the project properties.

Run the DLL file

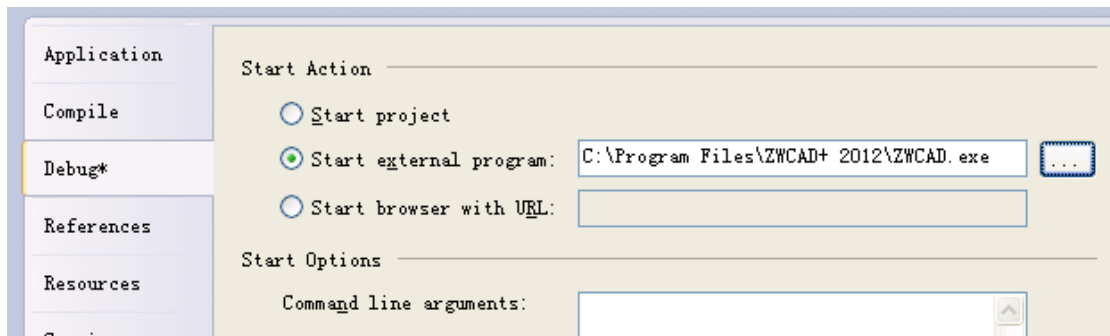After building a project, a dll file named as project's name will be generated in the path of …\bin\Release\.Start ZWCAD and run NETLOAD command to load the DLL file. And then you can run commands which are registeredin the code.

Sample code

The following example program is executing the AddCircle command in the command line, will create a red circle with radius of 10 in the drawing and center of the circle is (2, 3, 0).
Steps:
1. Follow the steps above to create a project and add reference. And then copy andpaste the bellow codes to the Class1.vb file.Overwrite the original code.

```
Imports ZwSoft.ZwCAD.ApplicationServices
Imports ZwSoft.ZwCAD.Runtime
Imports ZwSoft.ZwCAD.DatabaseServices
Imports ZwSoft.ZwCAD.Geometry

Namespace TEST
    Public Class SHMain
<CommandMethod("AddCircle")> _
        Public Sub AddCircle()
            Dim zcDoc As Document = Application.DocumentManager.MdiActiveDocument
            Dim zcDB As Database = zcDoc.Database
            Using zcTran As Transaction = zcDB.TransactionManager.StartTransaction
                Dim zcBLT As BlockTable
zcBLT = zcTran.GetObject(zcDB.BlockTableId, OpenMode.ForRead)
                Dim zcBLTR As BlockTableRecord
zcBLTR = zcTran.GetObject(zcBLT(BlockTableRecord.ModelSpace), OpenMode.ForWrite)
                Dim zcCircle As Circle = New Circle
zcCircle.Center = New Point3d(2, 3, 0)
zcCircle.Radius = 10
zcCircle.ColorIndex = 1
zcBLTR.AppendEntity(zcCircle)
zcTran.AddNewlyCreatedDBObject(zcCircle, True)
```

```vbnet
            zcTran.Commit()

        End Using

zcDoc.SendStringToExecute("_ZOOM E ", False, False, False)

    End Sub

End Class

End Namespace
```

For your convenience, here is C# code:

```csharp
using System;
using System.Collections;
using System.Collections.Generic;
using System.Data;
using System.Diagnostics;
using ZwSoft.ZwCAD.ApplicationServices;
using ZwSoft.ZwCAD.Runtime;
using ZwSoft.ZwCAD.DatabaseServices;
using ZwSoft.ZwCAD.Geometry;
namespace TEST
{
    public class SHMain
    {
        [CommandMethod("AddCircle")]
        public void AddCircle()
        {
            Document zcDoc = Application.DocumentManager.MdiActiveDocument;
            Database zcDB = zcDoc.Database;
            Transaction ZcTran = zcDoc.TransactionManager.StartTransaction();
            using (ZcTran)
            {
                BlockTable zcBLT = (BlockTable)ZcTran.GetObject(zcDB.BlockTableId,
OpenMode.ForRead);
                BlockTableRecord zcBLTR =
(BlockTableRecord)ZcTran.GetObject(zcBLT[BlockTableRecord.ModelSpace], OpenMode.ForWrite);
                Circle zcCircle = new Circle();
                zcCircle.Center = new Point3d(2, 3, 0);
                zcCircle.Radius = 10;
                zcCircle.ColorIndex = 1;
                zcBLTR.AppendEntity(zcCircle);
                ZcTran.AddNewlyCreatedDBObject(zcCircle, true);
                ZcTran.Commit();
            }
            zcDoc.SendStringToExecute("_ZOOM E ", false, false, false);
        }
    }
```
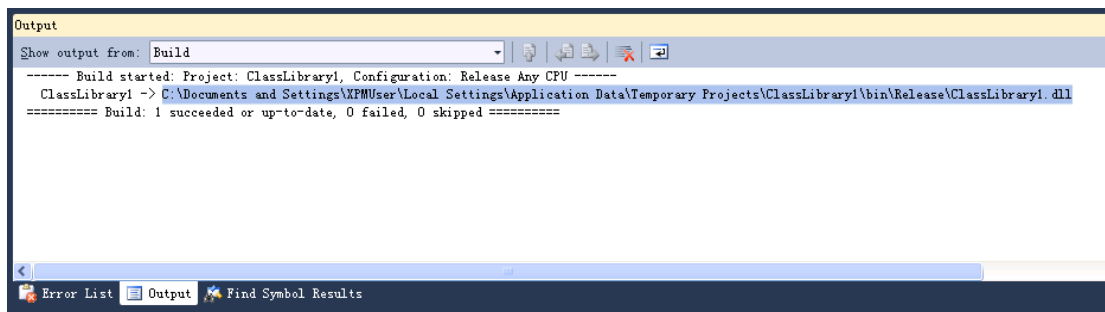
}

2. Go to menu File, and then select Build->Build ClassLibrary1 (the ClassLibrary1 is project's name) to build the project.
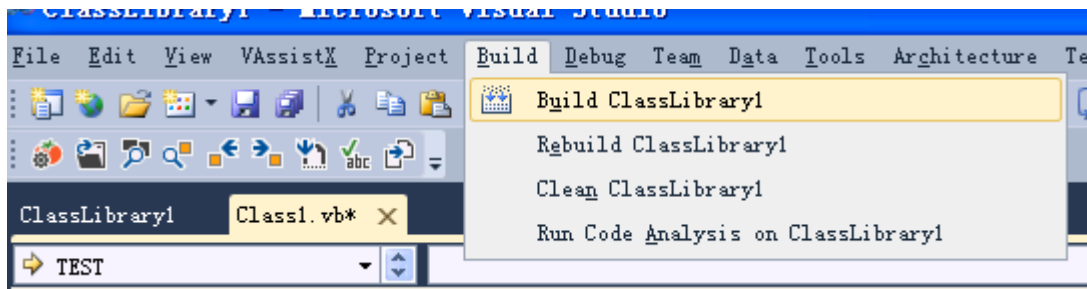
After building the program, the result will be shown in the Output window as shown below.

3. Start ZWCADby manual or select Debug->Start Debugging to launch ZWCADautomatically.
4. Run NETLOAD command and load the DLL file.
5. After loading the DLL file, run the AddCircle command and a red circle will be created in the drawing.