https://www.halvorsen.blog

Measurement Studio 2015

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Measurement Studio

- Measurement Studio is an add-on to Visual Studio.
- Measurement Studio is used for development of measurement, control and monitoring applications using .NET and Visual Studio.
- Measurement Studio has a library (DataSocket library) that makes it possible to communicate with OPC DA servers that we will use is this lab work
- Download Software here: http://www.ni.com/download

Measurement Studio

Measurement Studio 2015 with Microsoft Visual Studio 2015 and Newer

Read the following:
https://knowledge.ni.com/KnowledgeArticleDetails?id=kA00Z0000019KmMSAU

Visual Studio Editions

❑ I have Visual Studio 2013

- You can Install and use Measurements Studio 2015 without problems

❑ I have Visual Studio 2015/2017

- Measurement Studio 2015 is designed to work with Visual Studio 2013 (and older editions). Therefore, Measurement Studio 2015 does not install shipping examples and does not integrate with Visual Studio 2015/2017
- This means, if you install Measurement Studio 2015 with Visual Studio 2015/2017, the Measurement Studio 2015 .NET controls are not in the Toolbox, and you do not have a Measurement Studio menu item in the Visual Studio 2015/2017 toolbar.

Using Measurement Studio 2015 with Visual Studio 2015/2017

Measurement Studio 2015 does not have integration features for Visual Studio 2015/2017. If you install Measurement Studio 2015 with Visual Studio 2015/2017, the Measurement Studio .NET controls are not in the Toolbox, you do not have a Measurement Studio menu item in the Visual Studio 2015 toolbar, and .licx will not be automatically generated. We have plans to make changes to Measurement Studio that will help us better keep up with new versions. Unfortunately, these changes are a quite a bit more costly than it would seem, particularly the Visual Studio Help integration, so these changes may not come soon.

This situation is the same as previous Measurement Studio software as in the following article 'Using Measurement Studio 2013 with Microsoft Visual Studio 2013': http://digital.ni.com/public.nsf/allkb/C51E3B38578FAD2786257C070069F386

Visual Studio 2015/2017 is not supported officially in Measurement Studio 2015; however, as in the above article, you can add the Measurement Studio .NET controls to the Toolbox manually and can create .licx files manually. I have attached a Help Document on this topic so you can refer to the Adding Measurement Studio 2015 User Interface Controls to the Toolbox section for more information on How to Add controls. This section also describes how these controls are licensed.

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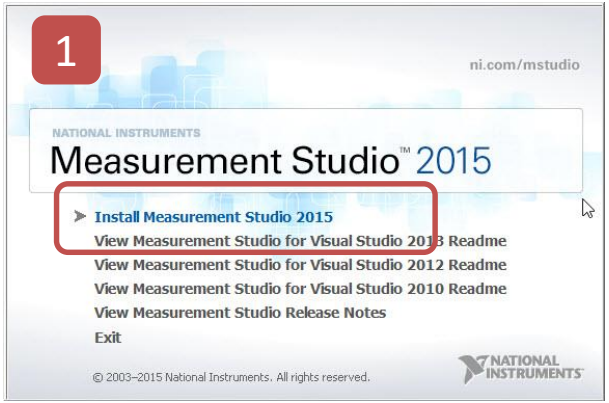
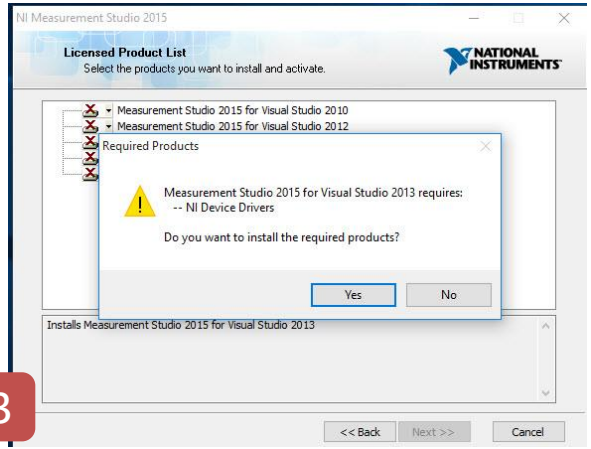
Applications Engineering
www.ni.com/support

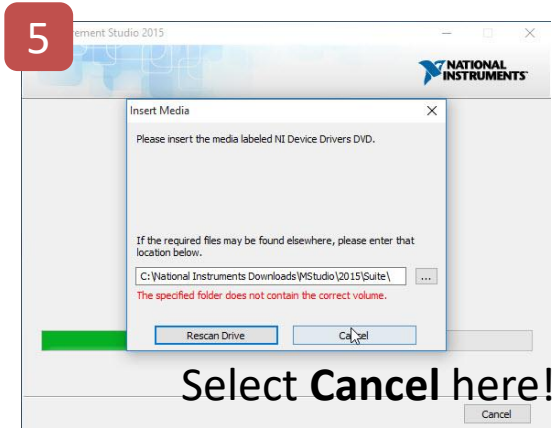
https://knowledge.ni.com/KnowledgeArticleDetails?id=kA00Z0000019KmMSAU

Measurement Studio 2015 Installation



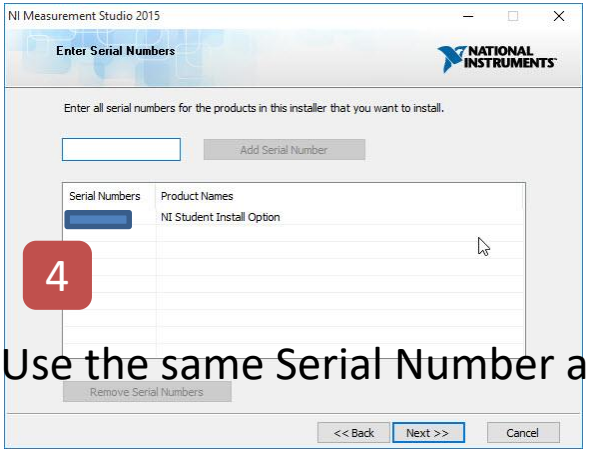
2 Select Measurement Studio 2015 for Visual Studio 2013





Select **Cancel** here!

You don need the NI Device Drivers – but still you need to select “Yes”!
If not the installation will not start!

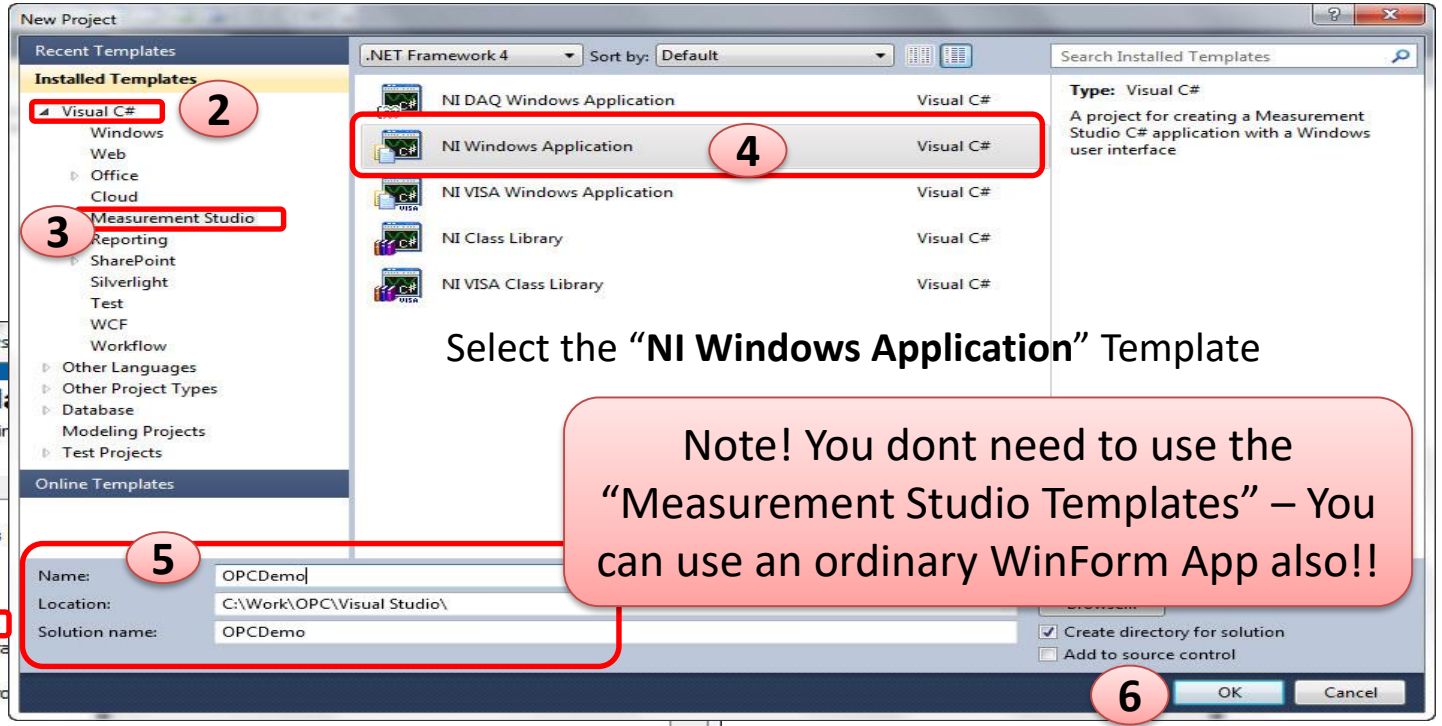


Use the same Serial Number as you use for LabVIEW

Visual Studio 2013 + Measurement Studio

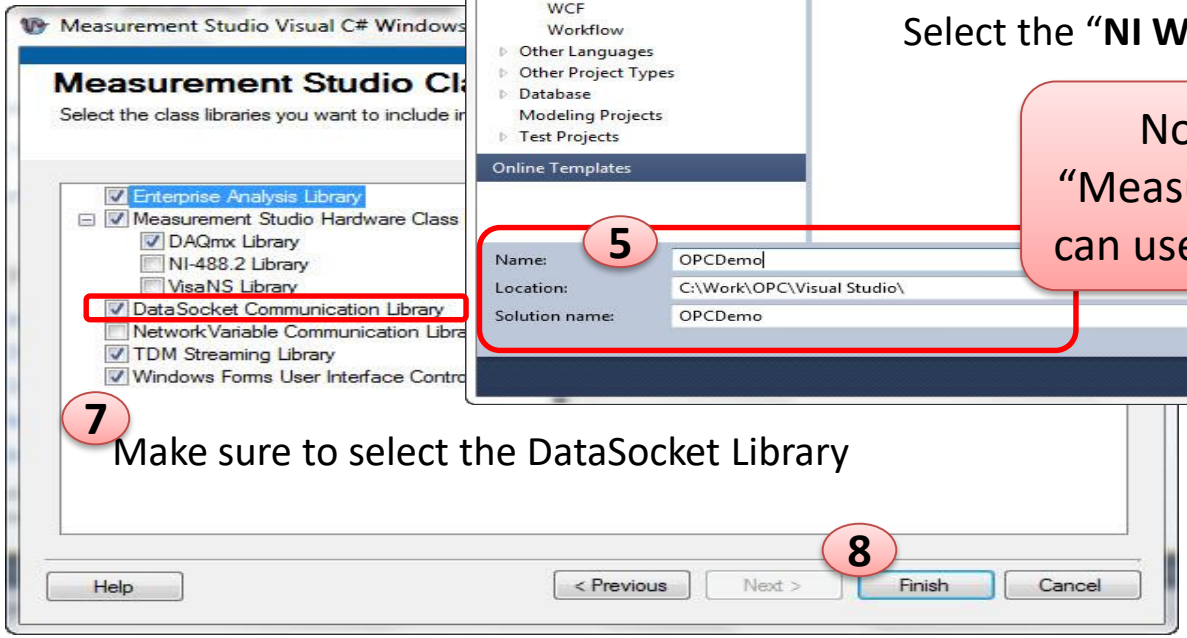
1

Select
“New Project”
in Visual Studio:



Select the “**NI Windows Application**” Template

Note! You dont need to use the “Measurement Studio Templates” – You can use an ordinary WinForm App also!!

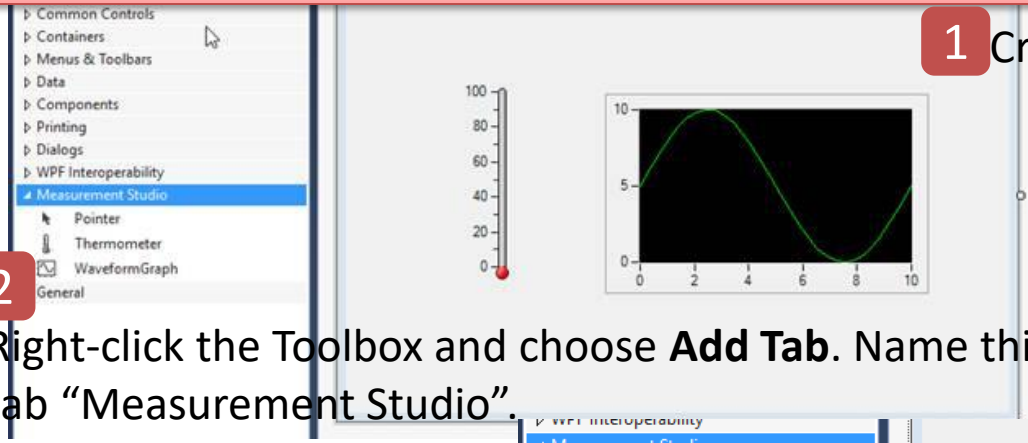


Make sure to select the DataSocket Library

Measurement Studio is an “Add-in” for Visual Studio created by National Instruments.

Visual Studio 2015/2017 + Measurement Studio

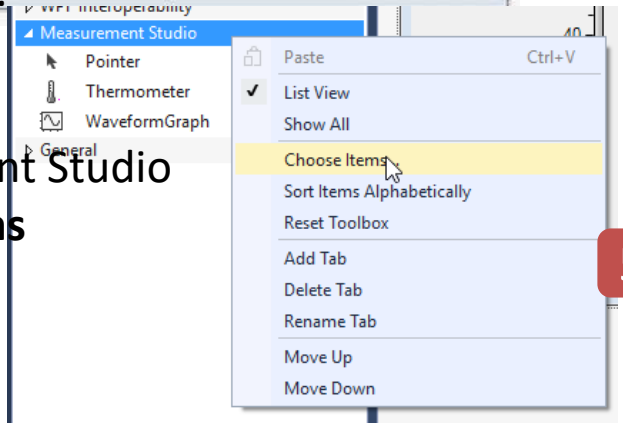
Adding Measurement Studio 2015 Windows Forms User Interface Controls to the Toolbox



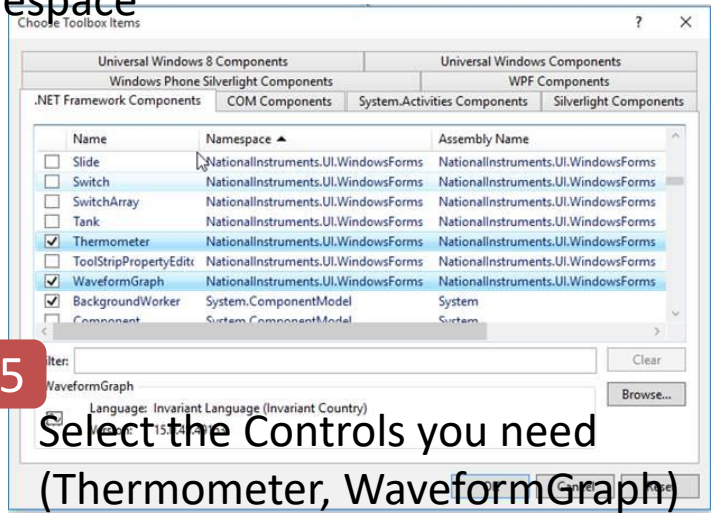
1 Create a new **Windows Forms Application**

2 Right-click the Toolbox and choose **Add Tab**. Name this tab “Measurement Studio”.

3 Right-click the Measurement Studio tab and select **Choose Items**



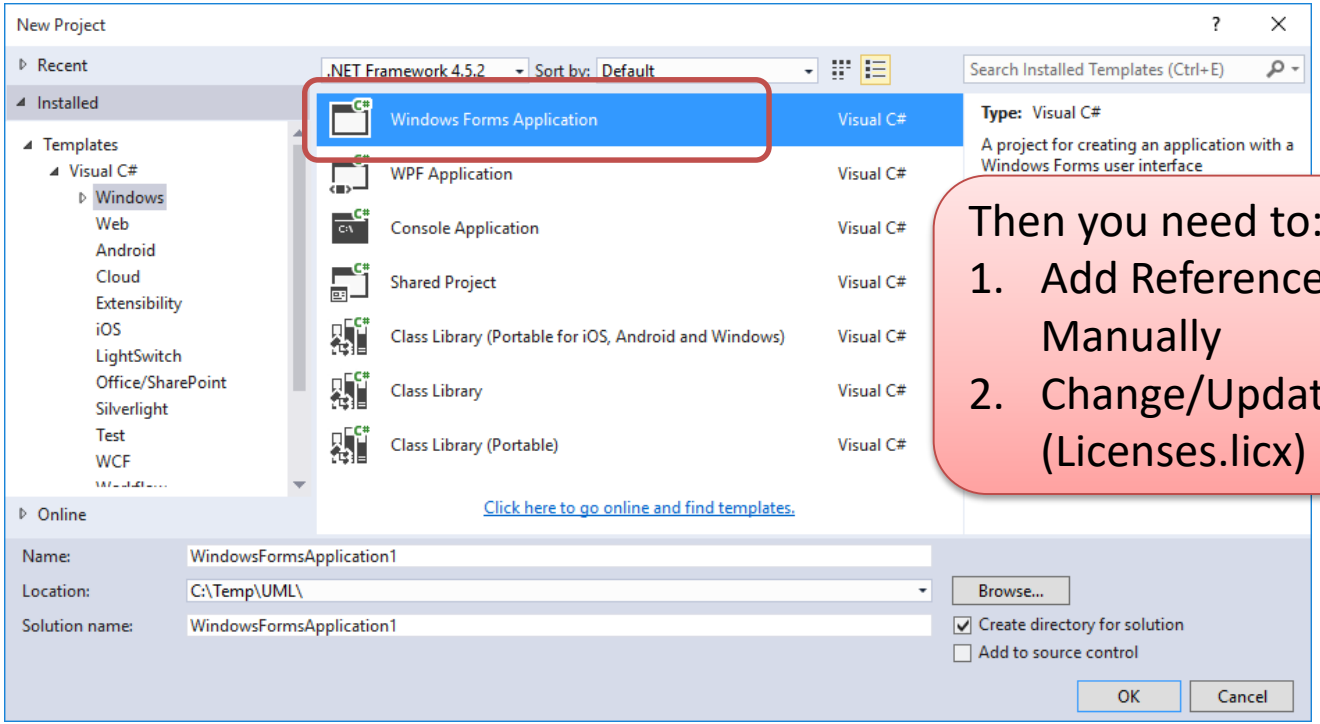
4 Sort the items by Namespace and find the “NationalInstruments.UI.WindowsForms” namespace



5 Select the Controls you need (Thermometer, WaveformGraph)

Visual Studio 2015/2017 + Measurement Studio

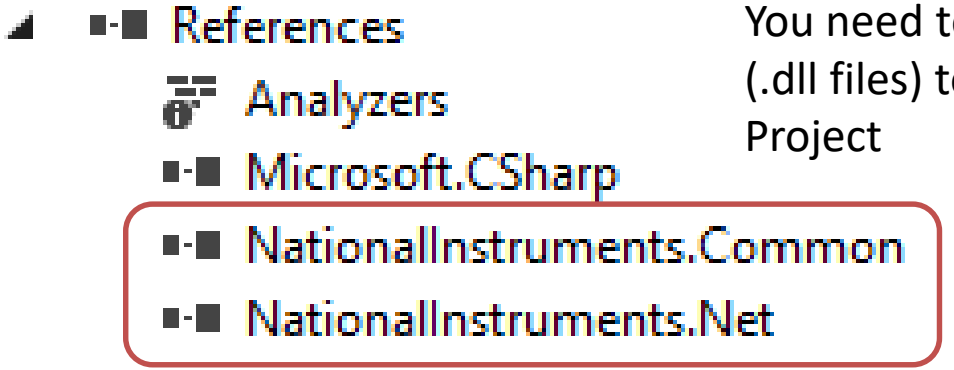
You can use an ordinary WinForm App



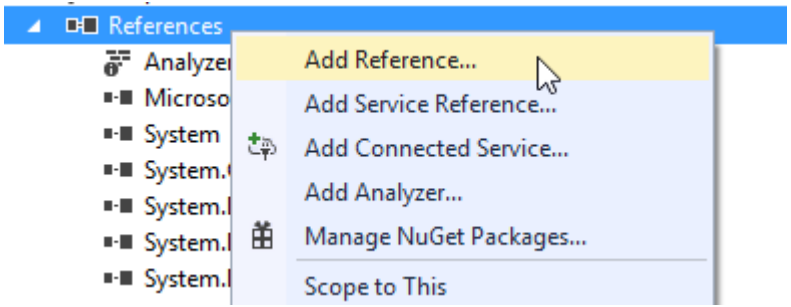
Then you need to:

1. Add References (Assemblies) Manually
2. Change/Update the License File (Licenses.licx)

Adding References to your Project



You need to add these Assemblies (.dll files) to your Visual Studio Project

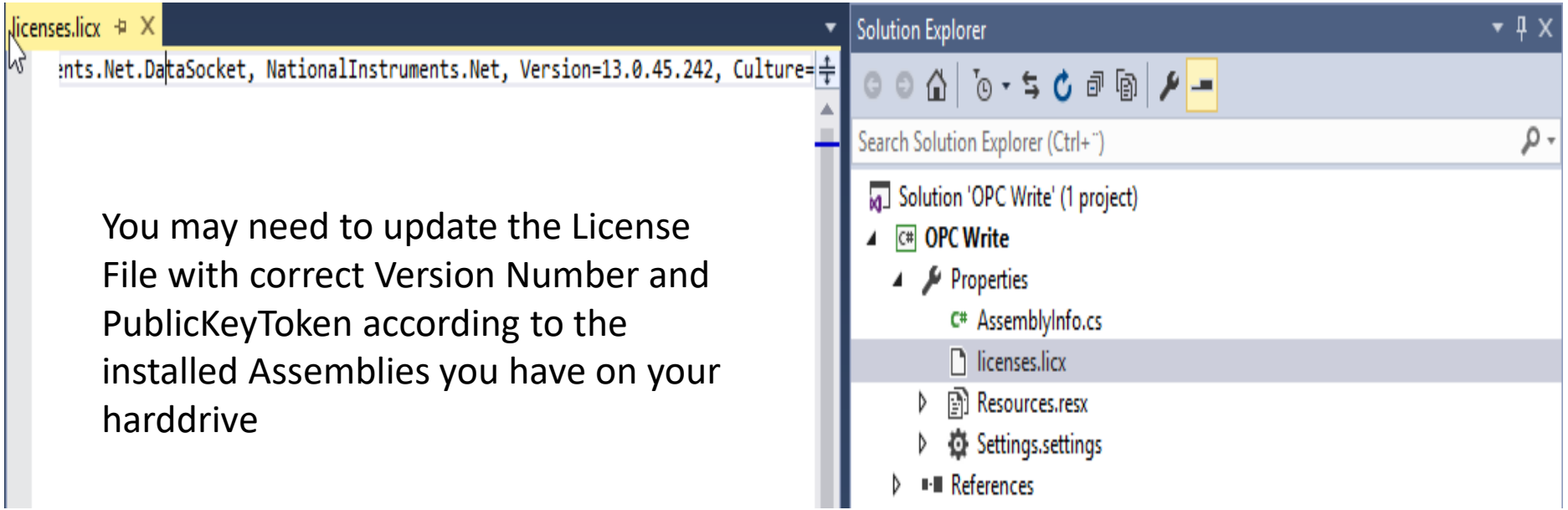


Locate the following Assemblies on your harddrive:
NationalInstruments.Common.dll
NationalInstruments.Net.dll

C:\Program Files…\National Instruments\MeasurementStudioVSXXXX\DotNET\Assemblies\Current\...

License File

If the “licenses.licx” is not inside Properties, just create it in Notepad and select “Add Existing Item” in order to add it to the Visual Studio Project



You may need to update the License File with correct Version Number and PublicKeyToken according to the installed Assemblies you have on your harddrive

NationalInstruments.Net.DataSocket, NationalInstruments.Net, Version=13.0.45.242, Culture=neutral, PublicKeyToken=4febd62461bf11a4

Make sure you have Measurement Studio Installed!!

Read from OPC Server using Visual Studio

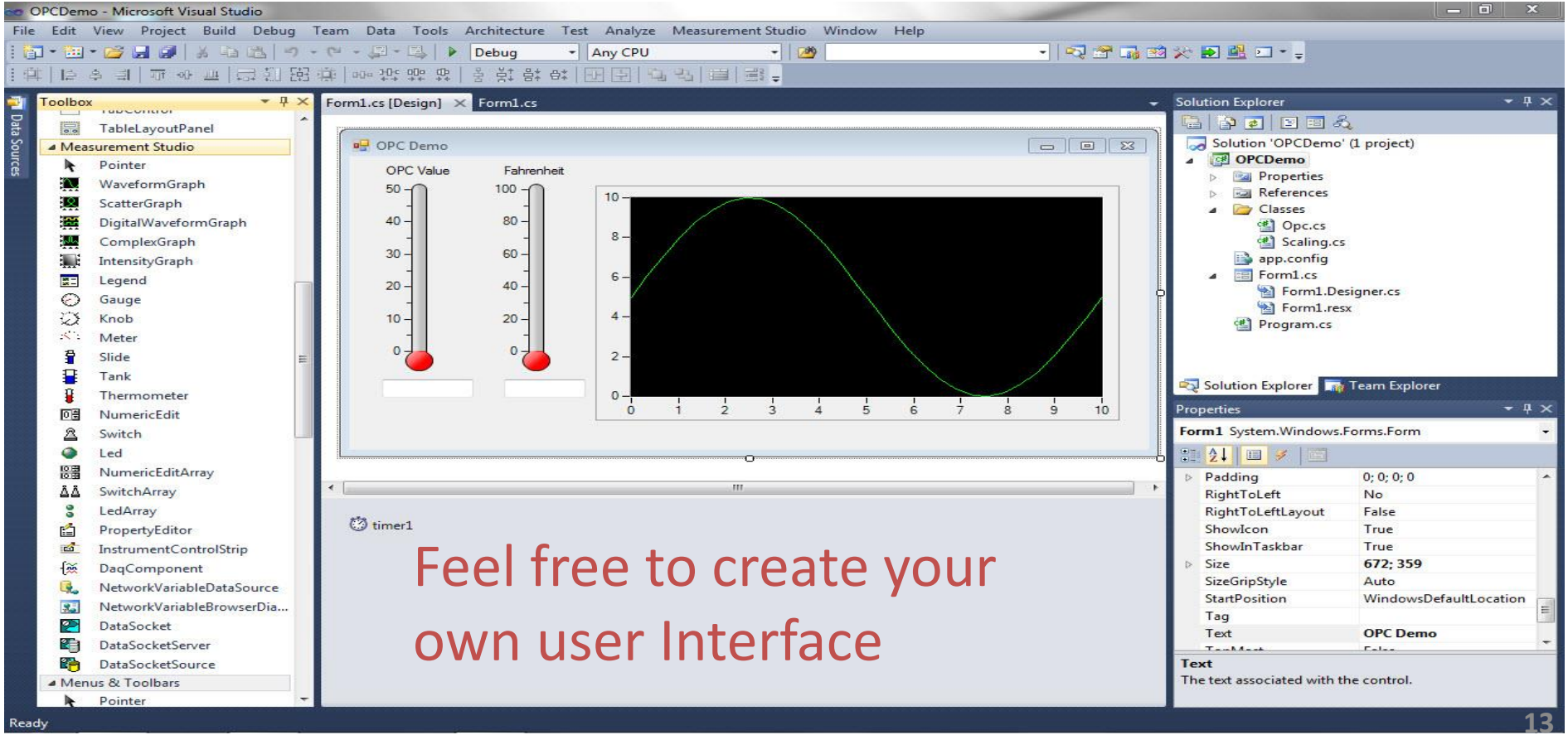
Read Temperature Data from the OPC Server using Visual Studio. Create a GUI.

```
using NationalInstruments;
using NationalInstruments.Net;
...
string opcUrl;
double opcValue;

opcUrl = "opc://localhost/Matrikon.OPC.Simulation/Bucket Brigade.Real4";

DataSocket dataSocket = new DataSocket();

if (dataSocket.IsConnected)
                dataSocket.Disconnect();

dataSocket.Connect(opcUrl, AccessMode.Read);
dataSocket.Update();
opcValue = Convert.ToDouble(dataSocket.Data.Value);
```

Note! This Code Snippet reads only one value once, you can use e.g. a **Timer** in order to read values at specific intervals.

Visual Studio + Measurement Studio

Example:



Timer

In Visual Studio you may want to use a Timer instead of a While Loop in order to read values at specific intervals.

1

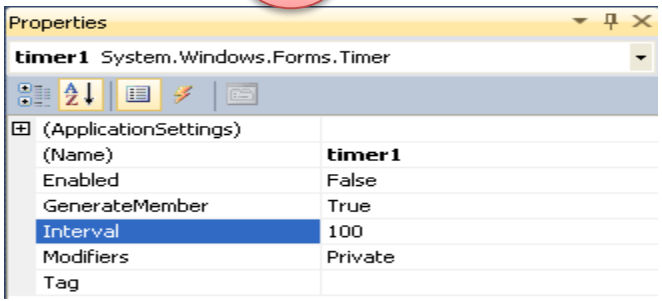
Select the “Timer” component in the Toolbox

2 **Initialization:**

```
public Form1()
      {
         InitializeComponent();

         timer1.Start();
      }
```

Double-click on the Timer object in order to create the Event

Properties: 3



You may specify the Timer Interval in the Properties Window

4 **Timer Event:**

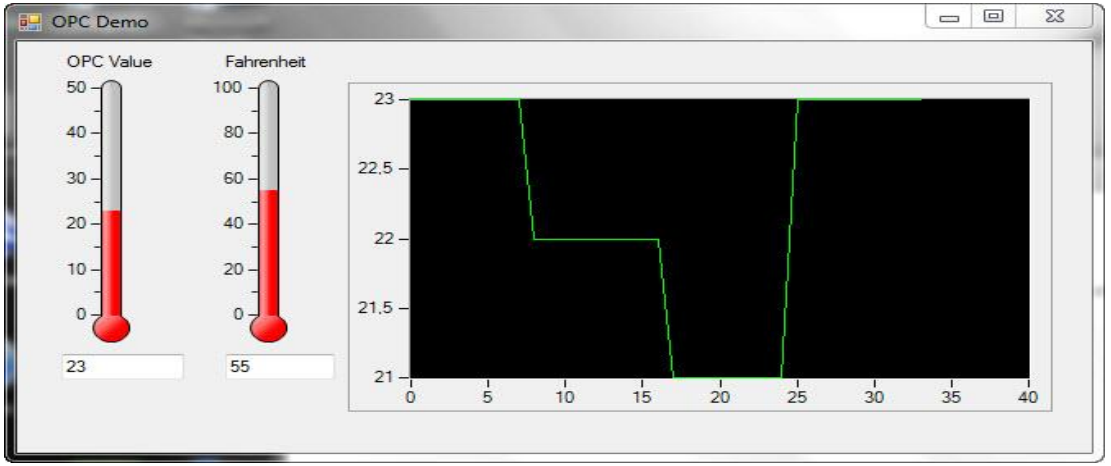
```
private void timer1_Tick(object sender, EventArgs e)
      {
        … //Read from OPC
        … //Scaling
        … //Plot Data
      }
```

Structure your Code properly!!
Define Classes and Methods which you can use here

Trending Data

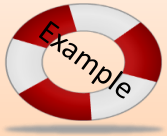
Trend the Data in a Plot

You may use the "**WaveformGraph**" Control included with Measurement Studio



You only need one line of code, e.g. in the Timer Event:

```
…
{
        …

        waveformGraph.PlotYAppend(analogDataIn);

}
```



Name of your WaveformGraph control

Name of the Method to use

Name of the variable with Temperature data

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