

## Installation Cheat Sheet 3 - Emgu CV 3 (for Visual Basic.NET or C#) Using Windows 10 + Visual Studio 2013 or 2015 + precompiled binaries

[Click here to go to the YouTube video for this Cheat Sheet](#)

[GitHub page with all Cheat Sheets and code](#)

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Note: **Blue** indicates something that will change depending on your chosen version of Emgu CV, CUDA or non-CUDA Emgu CV, and version of Visual Studio

- 1a)** Download and install Visual Studio **2013** or **2015** Community Edition (yes, it's free, choosing all default options will work fine)
- 1b)** Note: Unlike the previous two cheat sheets for regular OpenCV, Emgu CV **3.0.0** pre-compiled binaries can be used with either Visual Studio **2013** or **2015**. Presumably versions of Emgu CV after **3.0.0** will also support both Visual Studio **2013** and **2015**.
- 2a)** Download the latest version of the Emgu CV 3 executable installer either without or with CUDA support, ex. "**libemgucv-windows-universal-3.0.0.2157.exe**" or "**libemgucv-windows-universal-cuda-3.0.0.2158.exe**"
- 2b)** Run the installer (choosing all the defaults will work fine)
- 3a)** Add bin\x86 directory to the PATH for your version of Emgu CV, for example if you are using Emgu **3.0.0** non-CUDA version, add the following to PATH:  
C:\Emgu\**emgucv-windows-universal 3.0.0.2157**\bin\x86
- 3b)** Pull up a Command Prompt and verify your PATH now includes the above directory, then reboot
- 4)** From my [MicrocontrollersAndMore GitHub](#) page decide which example you are going to use:  
CannyStill.vb (VB.NET, uses a still image)  
CannyStill.cs (C#, uses a still image)  
CannyWebcam.vb (VB.NET, uses a webcam)  
CannyWebcam.cs (C#, uses a webcam)  
RedBallTracker.vb (VB.NET, tracks a red ball, uses a webcam)  
RedBallTracker.cs (C#, tracks a red ball, uses a webcam)

If you are going through this for the first time I suggest *CannyStill.vb*

- 5a)** Start Visual Studio
- 5b)** Make a new project
- 5c)** Choose Visual Basic or Visual C#, Windows Forms Application, name the project as you prefer, ex "CannyStill1", and choose your preferred project location. I recommend unchecking "Create directory for solution" and "Add to source control", then choose OK.
- 5d)** Save the project (continue saving throughout as needed)

**6)** Rename your main form if desired, for example "frmMain". It's much better to do this now than later. When asked "Would like to perform a rename in this project of all references?" answer "Yes".

**7a)** Go to: "Project -> Add Reference -> Browse -> Browse..."

**7b)** Navigate to the Emgu bin directory, ex "C:\Emgu\emgu~~cv~~**cv-windows-universal 3.0.0.2157**\bin"

**7c)** Highlight all DLLs *except* the DLLs that are for a different year Visual Studio. For example if you are using Emgu **3.0.0** and Visual Studio **2015** you would highlight the following:

Emgu.CV.Contrib.dll

Emgu.CV.Cuda.dll

Emgu.CV.DebuggerVisualizers.VS**2015**.dll

Emgu.CV.dll

Emgu.CV.ML.dll

Emgu.CV.OCR.dll

Emgu.CV.Shape.dll

Emgu.CV.Stitching.dll

Emgu.CV.Superres.dll

Emgu.CV.UI.dll

Emgu.CV.UI.GL.dll

Emgu.CV.VideoStab.dll

Emgu.Util.dll

**7d)** Choose Add, make sure all the DLLs you just choose are checked, then choose OK. Note: most of these DLLs are not necessary for most projects, but choosing all makes sure you have your bases covered. If you distribute your program eventually it would be recommended to check which DLLs you end up using and only include those.

**8a)** Go to: "Project -> Add Existing Item"

**8b)** Navigate to the Emgu bin\x86 directory, ex "C:\Emgu\emgu~~cv~~**cv-windows-universal 3.0.0.2157**\bin\x86"

**8c)** Change viewable files to "All Files (\*.\*)" (drop down box in the lower right corner of the screen)

**8d)** Highlight all the DLLs and choose Add

**9a)** In Solution Explorer, highlight all the DLLs that were just added

**9b)** In the Properties window, set "Copy to Output Directory" to "Copy always"

**10)** The following will add the special Emgu controls to the Toolbox (you only have to do this once):

**10a)** Choose Design View (where you edit the form) if you are not in Design View already

**10b)** Bring up the Toolbox, the usual controls will be there (Button, Text Box, etc.)

**10c)** Expand "General"

**10d)** Right click in an empty area of General, choose "Choose Items . . ."

**10e)** ImageBox will not be listed yet

**10f)** Choose "Browse..."

**10g)** Navigate to the Emgu bin directory, ex "C:\Emgu\emgu~~cv~~**cv-windows-universal 3.0.0.2157**\bin"

**10h)** Double click on "Emgu.CV.UI.dll" (or single click and choose OK)

**10i)** ImageBox should be listed now, check it if it is not already checked and choose OK

**10j)** Move ImageBox above the other Emgu controls, then move "General" to the top of the toolbox

**11)** Depending on which of the 6 examples you are doing above, add the applicable controls to the form (found in the comments section at the top of the source). For example, if you are using CannyStill.vb or CannyStill.cs, add the following controls:

tlpOuter (TableLayoutPanel)

tlpInner (TableLayoutPanel)

btnOpenFile (Button)

lblChosenFile (Label)

ibOriginal (Emgu ImageBox)

ibCanny (Emgu ImageBox)

ofdOpenFile (OpenFileDialog)

**12)** You can use "Containers" to place components, or place components by coordinates and use code to resize the components when the form is resized. Either way, set the applicable settings and make the applicable changes to configure the form as desired. The video demonstrates form configuration using Containers.

**13)** Check the code for your chosen example to see which events are present, for example a Button Click or a Form Load

**13a)** If your chosen example uses a button, for example btnOpenFile, verify the button is correctly named, then double click on the button in the design view. This will write the first and last lines of btnOpenFile\_Click() for you.

**13b)** If your chosen example uses a frmMain\_Load event, in design view double click on an open area of the form, or the title bar of the form if there is no open area, this will write the first and last lines of frmMain\_Load for you. Alternatively, in design view choose the form, then go to **Properties -> Events (lightning bolt icon) -> double click on "Load"**.

**13c)** Perform similar steps to **13a)** and **13b)** for any other components that respond to events

**14)** Copy/paste the *remaining code only* (do **not** copy/paste over the entire file and do **not** change the code that Visual Studio wrote for you) from your chosen example, then run (with or without debugging)