

# OpenCV for Unity 1.3.1

**iOS & Android** support

**Win & Mac** Standalone support(if Unity4,Pro only)

Support for preview in the **Editor**(if Unity4,Pro only)

**Work with Unity Free & Pro**

## System Requirements

**Build Win Standalone & Preview Editor : Windows7 or later**

**Build Mac Standalone & Preview Editor : OSX 10.8 or later**

**OpenCV for Unity** is an Assets Plugin for using **OpenCV** from within **Unity**.

- Since this package is **a clone of OpenCV Java**, you can use as it is **all** the API Reference OpenCV Java 2.4.11 ([link](#)). (“org.opencv.android” and “SURF and SIFT of org.opencv.features2d” are excluded)
- You can image processing in **real-time** by using the **WebCamTexture** capabilities of Unity. (**real-time face detection works smoothly in iPhone 5**)
- Provides a method to interconversion of **Unity's Texture2D** and **OpenCV's Mat**.
- **IDisposable** is implemented in many classes.You can manage the resources with the “**using**” statement.

Please download [Demo Application](#) for Android and watch Setup Tutorial Video([Unity4](#) [Unity5](#)).

## [API Reference OpenCV for Unity](#)

SampleCode using OpenCV for Unity is available.

- [MarkerBased AR Sample](#)
- [FaceTracker Sample](#)
- [Vuforia with OpenCV for Unity Sample](#)
- [Kinect with OpenCV for Unity Sample](#)

If you want to try the Beta Version of “OpenCV for Untiy” based on “OpenCV3.0.0” , unzip the OpenCVForUntiy3.0.0-beta.zip, please replace the “OpenCVForUnity” folder. “OpenCV for Untiy” based on “OpenCV3.0.0” support Unity5.not support Unity4.

## Version changes

**1.3.1** [Common]Fixed WebCamTextureToMatHelper.cs.(Add didUpdateThisFrame () method) [Common] Added Beta15 Version of “OpenCV for Untiy” based on “OpenCV3.0.0”.

**1.3.0** [Common]Fixed WebCamTextureToMatHelper.cs.( Bug of rotation conversion from WebCamTexture to Mat in Win,Mac StandAlone Build) [Common] Added Beta14 Version of “OpenCV for Untiy” based on “OpenCV3.0.0”.

**1.2.9** [Common]Added fastTexture2DToMat() and fastMatToTexture2D(). [Common] Renewed the samples using WebCamTextureToMatHelper.(Supports all screen orientation.) [Common] Added Beta13 Version of “OpenCV for Untiy” based on “OpenCV3.0.0”.

**1.2.8** [iOS]Fixed malloc\_error that occurs in Unity5.3.1p2. [Common] Added Beta12 Version of “OpenCV for Untiy” based on “OpenCV3.0.0”.

**1.2.7** [Common] Added Beta11 Version of “OpenCV for Untiy” based on “OpenCV3.0.0”.

**1.2.6** [iOS]Enabled Bitcode. [Common] Added Beta10 Version of “OpenCV for Untiy” based on “OpenCV3.0.0”.

**1.2.5** [Common] Added Beta9 Version of “OpenCV for Untiy” based on “OpenCV3.0.0”.( Added support for Windows10 UWP.This is a test version. opencv\_contrib modules is not supported.)

**1.2.4** [Common]Fix FaceRecognizerSample. [Common] Delete the method using Default parameter specifiers.

**1.2.3** [Common] Add Beta7 Version of “OpenCV for Untiy” based on “OpenCV3.0.0”. [Common]Add WrapPerspectiveSample, HandPoseEstimationSample, MultiObjectTrackingBasedOnColorSample.

**1.2.2** [iOS]Move “OpenCVForUnity/ iOSforXcode/opencv2.framework” to “OpenCVForUnity/Plugins/iOS/”folder. [iOS]Fix WebCamTexture bug of SampleScene in Unity5.2.

**1.2.1** [Common] Add Beta5 Version of “OpenCV for Untiy” based on “OpenCV3.0.0”(Add Linux support). [Common]Rewrite SampleScene.

**1.2.0** [Common]Add Utils. getGraphicsDeviceType(). [Common]Add SampleScene

Setup Tutorial Video for Unity5.

**1.1.9** [Common]Add CamShiftSample.(Object Tracking) [Common]Add OpenCVForUnityMenuItem.cs.( This script set plugin import settings automatically from MenuItem.)

**1.1.8** [iOS] Fix problem when working with Metaio(UnityAppController problem). [iOS]Change file name from “OpenCVForUnity/Plugins/iOS/MyAppController.mm” to “OpenCVForUnity/Plugins/iOS/OpenCVForUnityAppController.mm”. [Common]Add [System.Serializable] to basic class. [iOS]Move “OpenCVForUnity/iOSforXcode/iOS\_BuildPostprocessor.cs” to “OpenCVForUnity/Editor” folder. [Common] Add Beta2 Version of “OpenCV for Untiy” based on “OpenCV3.0.0”(support Unity5).

**1.1.7** [Common] Update to OpenCV2.4.11. [Common] Add Beta Version of “OpenCV for Untiy” based on “OpenCV3.0.0”(support Unity5).

**1.1.6** [Common]Fix FaceRecognizer.cs(Compile Error had happened only in the case of Unity4 Non Pro License).

**1.1.5** [Common]Add Beta Version of “OpenCV for Untiy” based on “OpenCV3.0.0-rc1”(support Unity5). [Android]Fix Utils.getFilePath(). [Common]Add WebCamTextureAsyncDetectFaceSample. [iOS]Change folder name from “OpenCVForUnity/iOS for Xcode/” to “ OpenCVForUnity/iOSforXcode/”.Add iOS\_BuildPostprocessor.cs.

**1.1.4** [Common]Add FaceRecognizer subclass. [Common]Add FaceRecognizerSampleScene. [Common]Fix SampleScene.

**1.1.3** [Common]Fix SampleScene. [Common] Change Property of Platform Dependent Compilation from UNITY\_IPHONE to UNITY\_IOS.

**1.1.2** [Common]Fix the direction of rotation of the mat that is converted from WebCamTexture.

**1.1.1** [Common]Add OpticalFlowSampleScene. [Common]Fix SampleScene. [Common] Fix function name of CvANN\_MLP\_TrainParams class.

**1.1.0** [Common]Divide asset for Unity4 and Unity5.

**1.0.9** [Common]Support for Unity5.

**1.0.8** [Common]Update to OpenCV2.4.10

**1.0.7** [iOS]Support for arm64 build target.(Unity 4.6.1p3 or higher) [Common]Add Constructor VideoCapture(string filename). [Common]Add Method copyToMat(),copyFromMat().

**1.0.6** [Android]Support for x86 build target.(Unity 4.6 or higher)

**1.0.5** [Common] Bug fixes SampleScene.

**1.0.4** [Common]Add Method `matToTexture2D( Mat mat, Texture2D texture2D, Color32[] bufferColors = null)`.

**1.0.3** [Common]Support for preview in the Editor.(Pro only) [Common]Support for Win & Mac Standalone.(Pro only) [Android]Change of location of the file that you want to use for `Utils.getFilePath()`.Changed to use “Aseets/StreamingAssets/” folder. [iOS] Add the file that you want to use for `Utils.getFilePath()` to Xcode project is no longer required.Changed to use“Aseets/StreamingAssets/” folder.

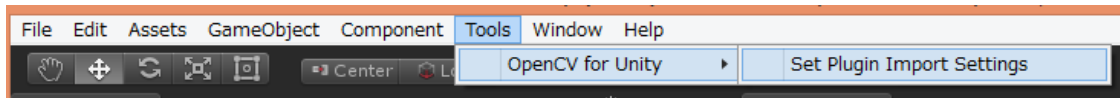
**1.0.2** [iOS]fix library(libjpeg,libpng) version coflicts.

**1.0.1** Initial version

In Unity4 and Unity5 the different files to be imported. When you update the project that you made in Unity4 to Unity5, please import again this asset in Unity5.

**Quick setup procedure to run the sample scene(Setup Tutorial Video [Unity4](#) [Unity5](#))**

1. If Unity4, Move “OpenCVForUnity/Plugins/”folder to “Assets/”folder.
2. If Unity5,Select MenuItem[Tools/OpenCV for Unity/Set Plugin Import Settings].

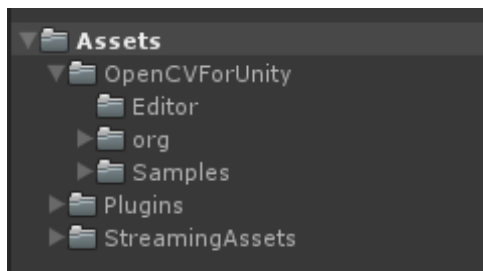


3. Move “OpenCVForUnity/StreamingAssets/”folder to “Assets/”folder.
4. Please set [PlayerSettings]-[Resolution and Presentation]-[Orientation]-[Default Orientation : Landscape Left] when you build the sample scene.
5. Add all of the “\*\*\*.unity” in the “OpenCVForUnity” folder to [Build Settings] – [Scene In Build].

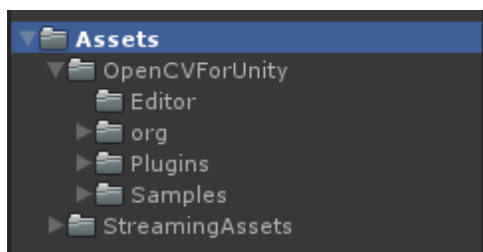
※Inspector Setting of “opencv2.framework” and “opencvforunity.bundle” might have been reset at the time of import. In that case, re-setup is required.

#### Screenshot after the setup

##### Unity4



##### Unity5



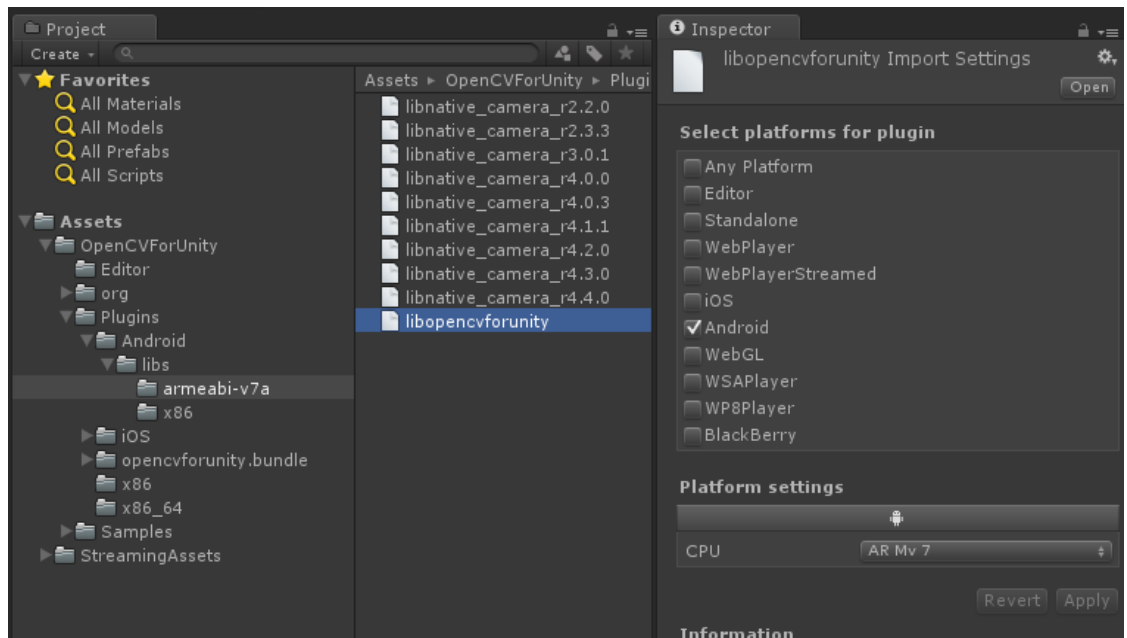
## Android Setup Procedure

### Unity4

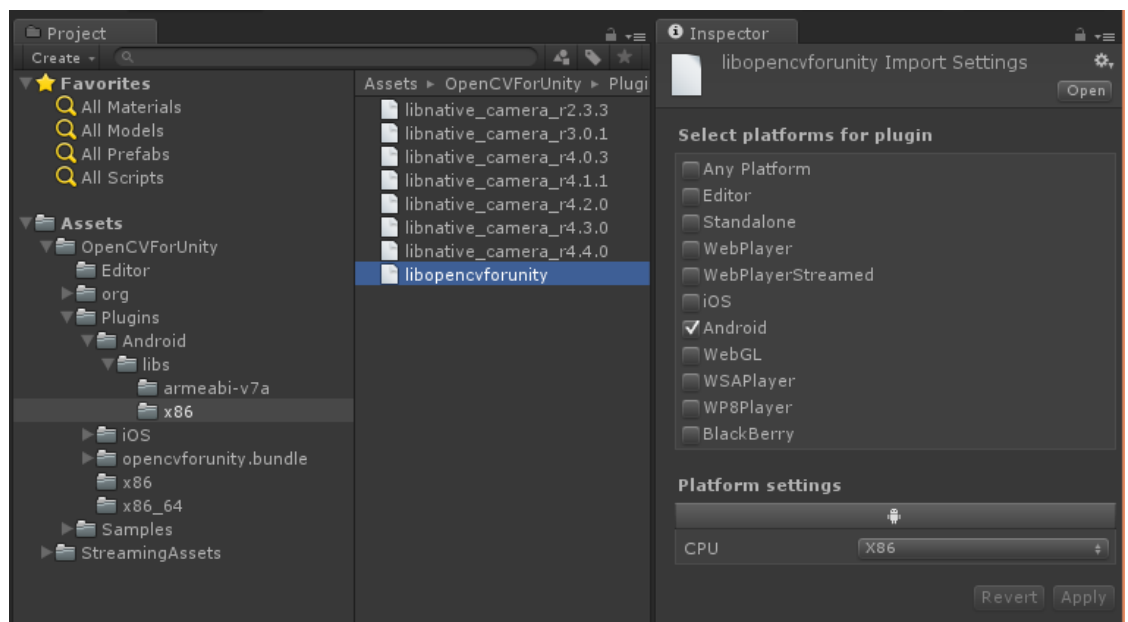
- Copy from “OpenCVForUnity/Plugins/Android/” to “Assets/Plugins/Android/” folder.( libnative\_camera\_r\*.\*.so is only required when using the VideoCapture.)

### Unity5

- “OpenCVForUnity/Plugins/Android/opencvforunity.jar” – Select platform Android in Inspector.
- “OpenCVForUnity/Plugins/libs/armeabi-v7a/\*.so” - Select platform Android and CPU ARMv7 in Inspector. ( libnative\_camera\_r\*.\*.so is only required when using the VideoCapture.)



- “OpenCVForUnity/Plugins/libs/x86/\*.so” – Select platform Android and CPU x86 in Inspector.( libnative\_camera\_r\*.\*.so is only required when using the VideoCapture.)

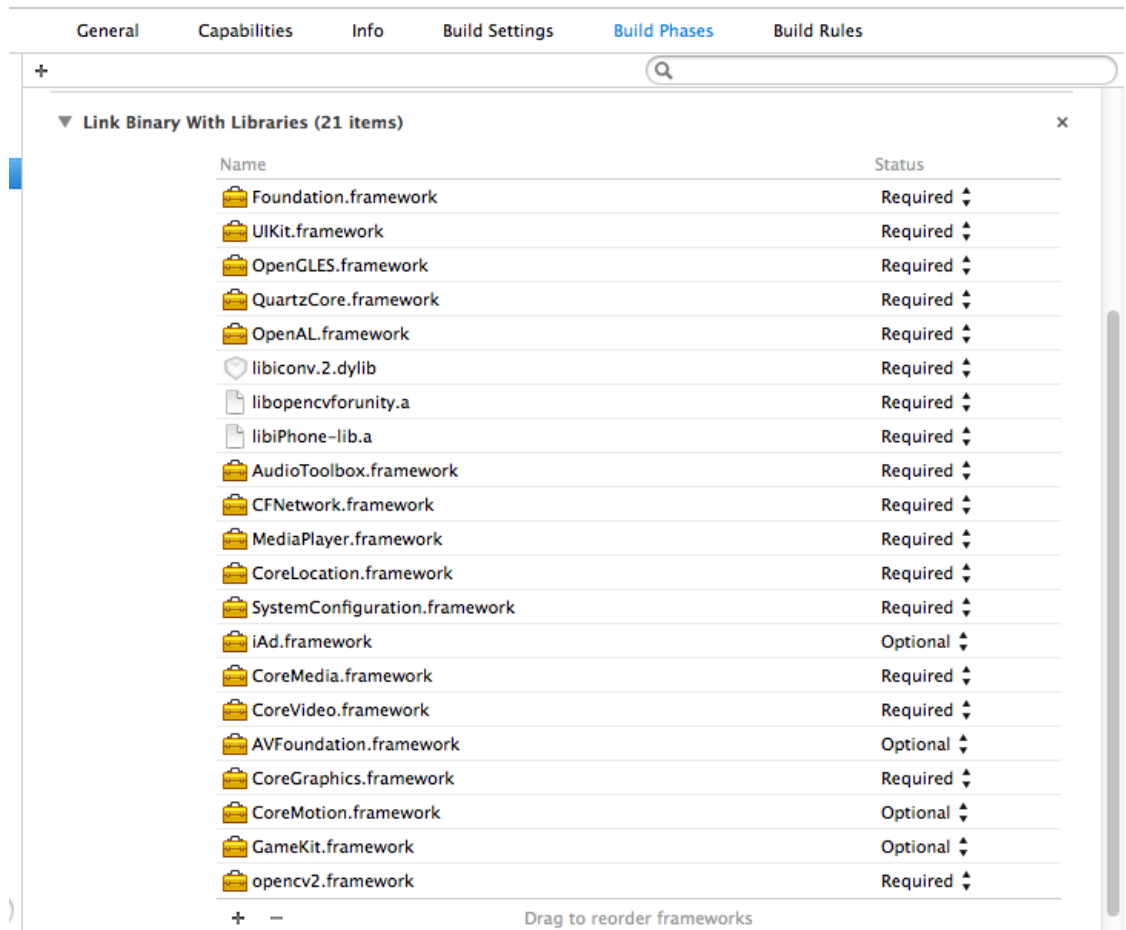


- Put the file that you want to use for `Utils.getFilePath()` in the “Assets/StreamingAssets/” folder. (haarcascade\_frontalface\_alt.xml etc is for `OpenCVForUnitySample.scene`. Please copy only when necessary.)

## iOS Setup Procedure

### Unity4

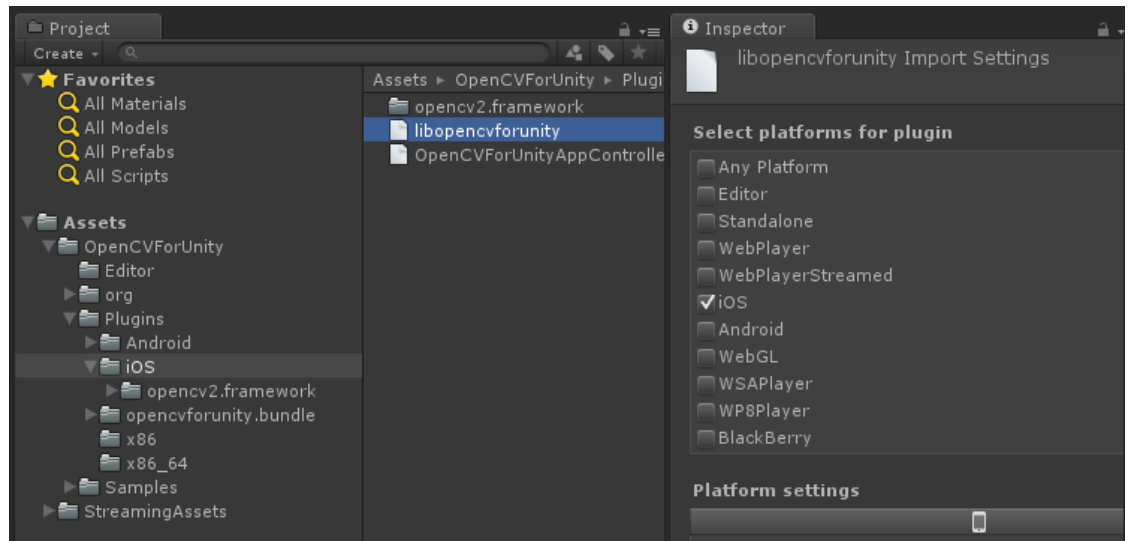
- Copy from “OpenCVForUnity/Plugins/iOS/” to “Assets/Plugins/iOS/” folder.
- Link “OpenCVForUnity/Plugins/iOS/opencv2.framework” to Xcode project. (in Xcode project. Build Phases > Link Binary with Libraries > Add opencv2.framework . recommend to use PostprocessBuildPlayer.)



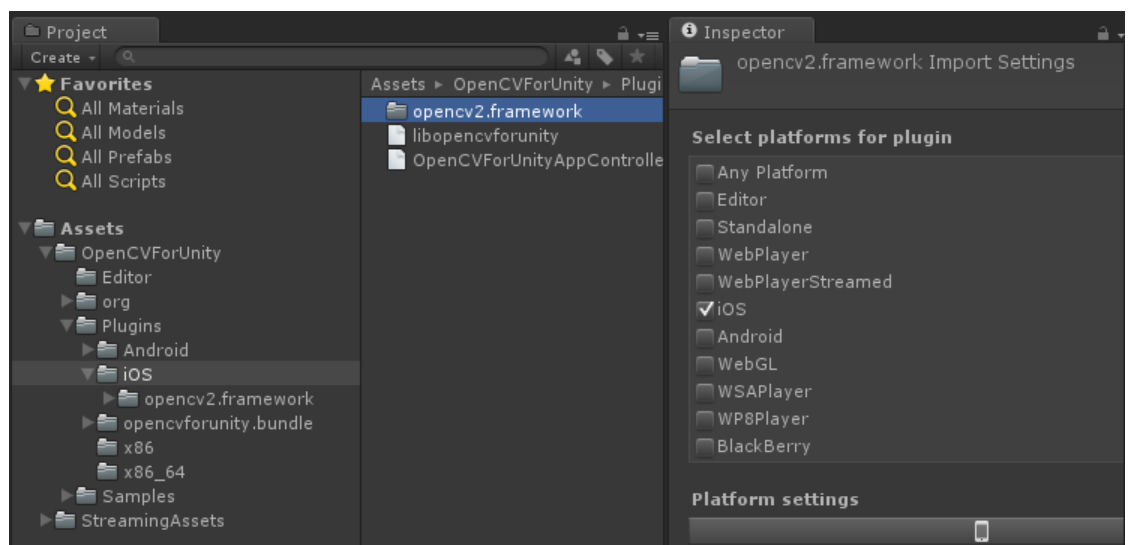
### Unity5

- “OpenCVForUnity/Plugins/iOS/libopencvforunity.a” – Select platform iOS in Inspector.





- “OpenCVForUnity/Plugins/iOS/opencv2.framework” – Select platform iOS in Inspector.



- Put the file that you want to use for `Utils.getFilePath()` in the “Assets/StreamingAssets/” folder. (haarcascade\_frontalface\_alt.xml etc is for OpenCVForUnitySample.scene. Please copy only when necessary.)

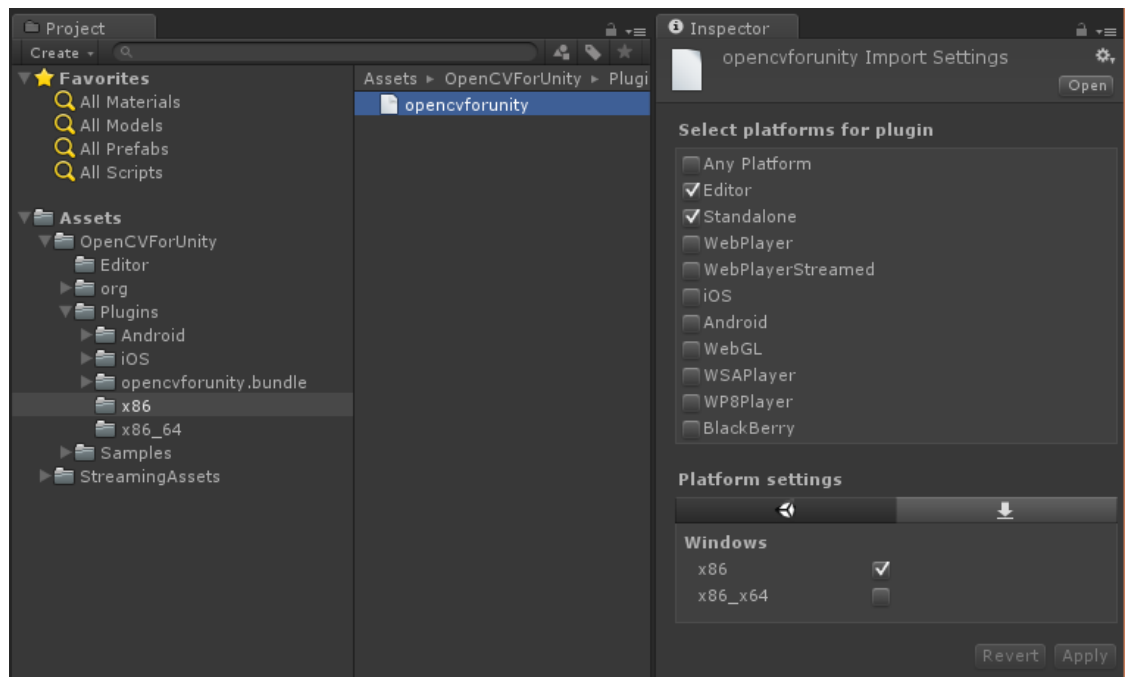
## Win Standalone Setup Procedure

### Unity4

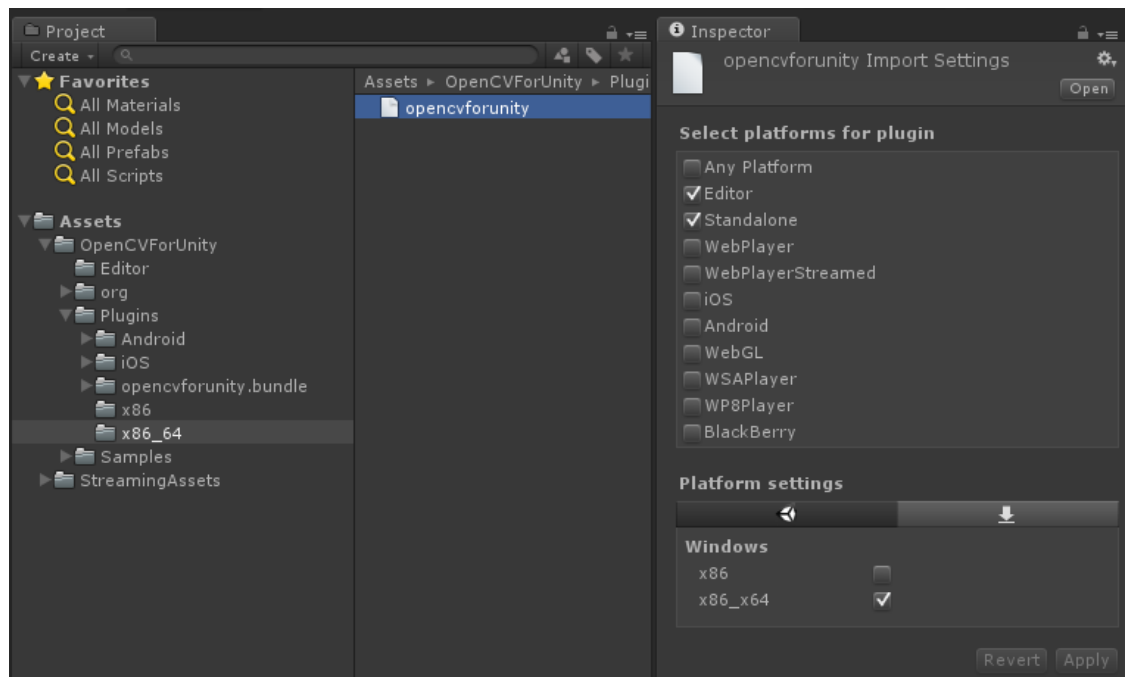
- Copy from “OpenCVForUnity/Plugins/x86/” to “Assets/Plugins/x86/” folder.
- Copy from “OpenCVForUnity/Plugins/x86\_64/” to “Assets/Plugins/x86\_64/” folder.

### Unity5

- “OpenCVForUnity/Plugins/x86/opencvforunity.dll” – Select platform Editor, Standalone and CPU x86 and OS Windows in Inspector.



- “OpenCVForUnity/Plugins/x86\_64/opencvforunity.dll” – Select platform Editor, Standalone and CPU x86\_64 and OS Windows in Inspector.



- Put the file that you want to use for `Utils.getFilePath()` in the "Assets/StreamingAssets/". (haarcascade\_frontalface\_alt.xml etc is for `OpenCVForUnitySample.scene`. Please copy only when necessary.)
- If you use the "VideoCapture(string filename)", require setup.
  - 1)Download "OpenCV for Windows Version 2.4.11"(<http://opencv.org/downloads.html>).
  - 2)Set Path to "opencv\_ffmpeg2411.dll"
    - if 32bit, "%path%to%opencv%build%x86%vc12%bin%".
    - if 64bit, "%path%to%opencv%build%x64%vc12%bin%".

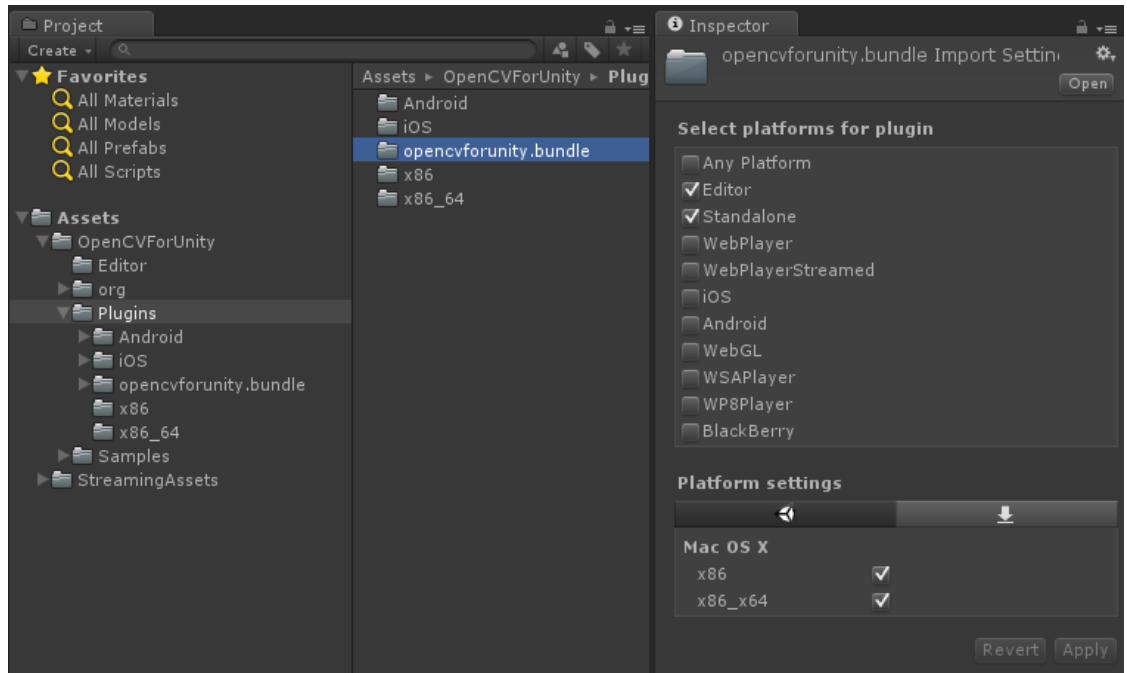
## Mac Standalone Setup Procedure

### Unity4

- Copy from “OpenCVForUnity/Plugins/opencvforunity.bundle” to “Assets/Plugins/” folder.

### Unity5

- “OpenCVForUnity/Plugins/opencvforunity.bundle” – Select platform Editor, Standalone and CPU x86\_64 and OS OSX in Inspector.



- Put the file that you want to use for `Utils.getFilePath()` in the “Assets/StreamingAssets/”. (haarcascade\_frontalface\_alt.xml etc is for `OpenCVForUnitySample.scene`. Please copy only when necessary.)

## Q & A

Q1.

“DllNotFoundException: opencvforunity” is displayed on the console when run the sample scene.

A1.

Plugin does not seem to be loaded correctly. Please check the setup procedure.

Q2.

“ArgumentException: The output Mat object has to be of the same size” is displayed on the console when run the sample scene.

A2.

After having set up Plugin, Plugin may work well when you reboot Unity.

Q3.

"Level 'Texture2DtoMatSample' (-1) could not be loaded because it has not been added to the build settings." is displayed on the console when run the sample scene.

A3.

Please Add all of the “\*\*\*.unity” in the “OpenCVForUnity” folder to [Build Settings] – [Scene In Build].

Q4.

In DetectFaceSample or WebCamTextureDetectFaceSample, red rectangle is not displayed around face.

A4.

you might have failed to read the "haarcascade\_frontalface\_alt.xml".Please confirm whether there is "OpenCVForUnity/StreamingAssets" folder at the right position.

Q5.

Support Web platform?

A5.

Since the Unity Web Player does not support the native plugin, "OpenCV for Unity" does not support "WebPlayer Platform".

Q6.

Support WindowsStoreApps8.1 & WindowsPhone8.1 & Windows10 UWP?

A6.

If you want to try the Beta Version of “OpenCV for Untiy” based on “OpenCV3.0.0”(Support WindowsStoreApps8.1 & WindowsPhone8.1 & Windows10 UWP)

, unzip the OpenCVForUntiy3.0.0-beta.zip, please replace the “OpenCVForUnity” folder.“OpenCV for Untiy” based on “OpenCV3.0.0” support Unity5.not support Unity4.

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