

Getting Started with OpenCV

Technical Application Note TAN2015011

Revised April 20, 2015

1.1. Subject

Technical Application Note (TAN2015011): Getting Started with OpenCV

1.2. Applicable Product(s)

- All Point Grey imaging cameras

1.3. Application Note Description

OpenCV is an open-source computer vision library that allows you to perform image processing on Point Grey imaging cameras. This application note provides information on how to install and use OpenCV in Visual Studio. OpenCV does not support machine vision standards such as USB3 Vision and GigE Vision, therefore it is not recommended to grab images using OpenCV functions. Instead, Point Grey recommends using FlyCapture 2 SDK to grab images and convert them to OpenCV images.



This document provides examples using [OpenCV 2.4.6](#). It also applies to newer versions.

[Preparing for Use](#)

[Install OpenCV](#)

[Configure OpenCV in Visual Studio](#)

[Sample Code for OpenCV](#)

[Additional Downloads and Support](#)

1.4. Preparing for Use

Before you use your Point Grey camera, we recommend that you are aware of the following resources available from the [Point Grey Downloads](#) page:

Getting Started Manual for the camera—provides information on installing components and software needed to run the camera.

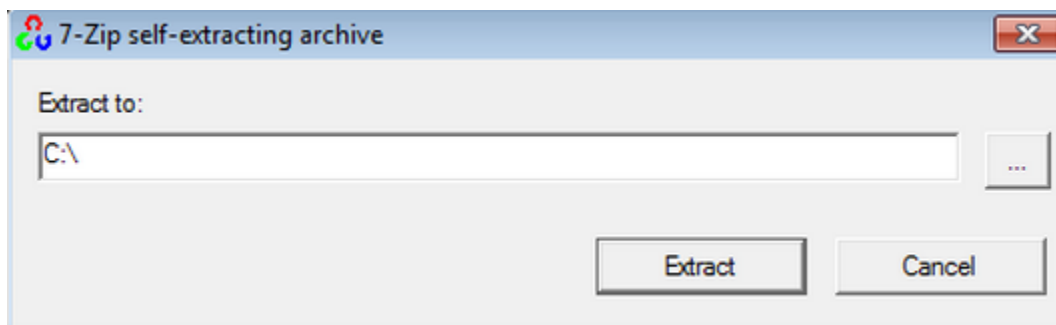
Technical Reference for the camera—provides information on the camera's specifications, features and operations, as well as imaging and acquisition controls.

Firmware updates—ensure you are using the most up-to-date firmware for the camera to take advantage of improvements and fixes.

1.5. Install OpenCV

This document describes the steps for OpenCV version 2.4.6, but it also applies to newer versions. For best results, download the latest version.

1. Download the latest version of OpenCV from <http://opencv.org/downloads.html>.
2. Extract OpenCV in C:\

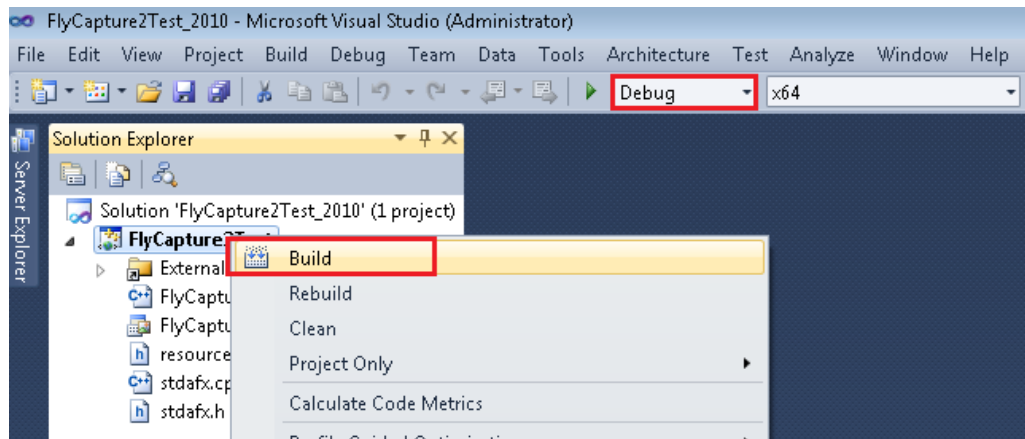


3. From the Start Menu, right-click on Computer and select Properties.
4. In the System window left pane, click Advanced system settings.
5. In the System Properties dialog, from the Advanced tab, click Environment Variables.
6. From the System variables list, select the Variable called Path and click Edit.
7. At the end of the Variable value field, enter
`;C:\opencv\build\x64\vc10\bin`
For 32-bit OpenCV version, replace x64 with x86.
8. Click OK.

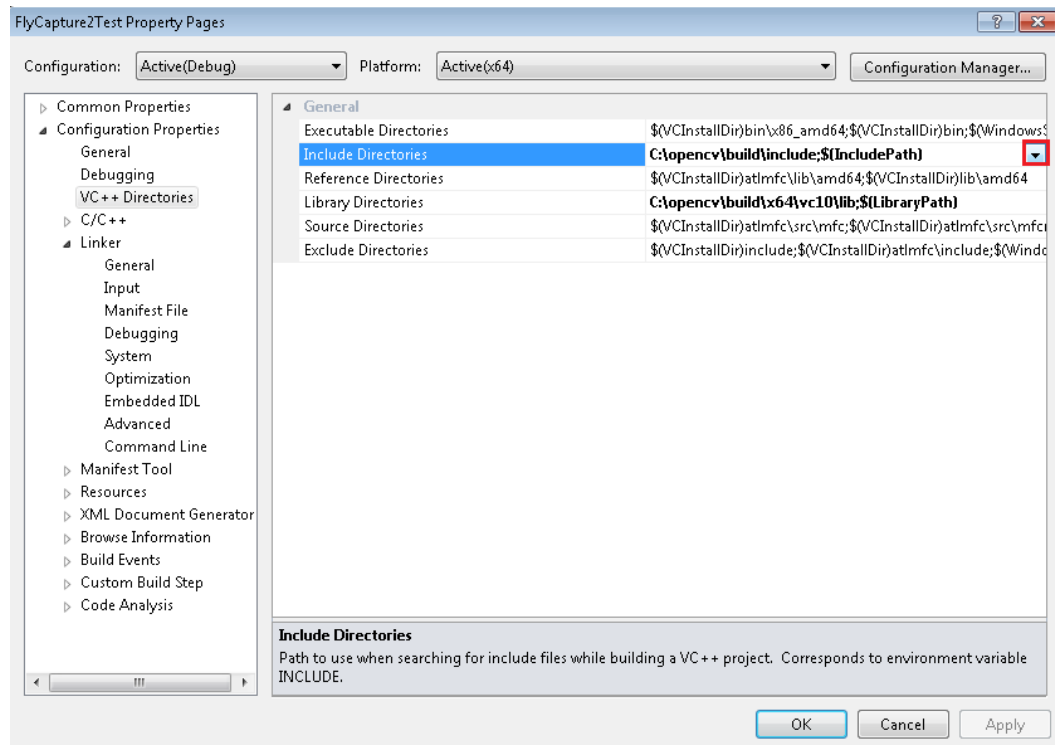
1.6. Configure OpenCV in Visual Studio

Add OpenCV to Visual Studio projects to perform image processing. The steps below outline how to prepare the Visual Studio settings in order to use OpenCV with Point Grey's FlyCapture2 SDK.

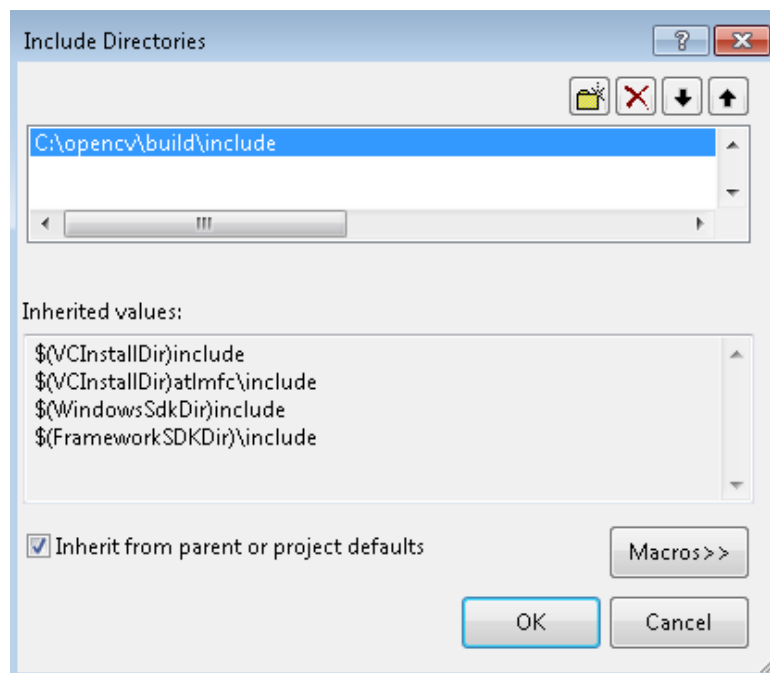
1. Download and install FlyCapture2 SDK available from <http://www.ptgrey.com/support/downloads>.
2. Open one of the example source code solutions in Visual Studio. This document uses FlyCapture2Test with Visual Studio 2010 as an example.
3. Ensure Debug is selected in the Solution Explorer's configuration.
4. Right-click on the project and select Build.



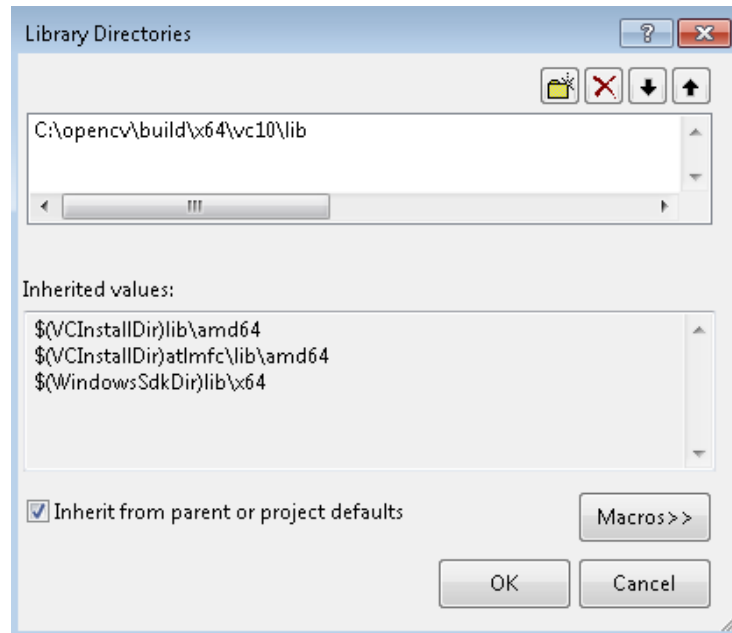
5. Right-click on FlyCapture2Test and select Properties.
6. In the Property Pages window, select VC++ Directories and from the Include Directories drop-down select Edit.



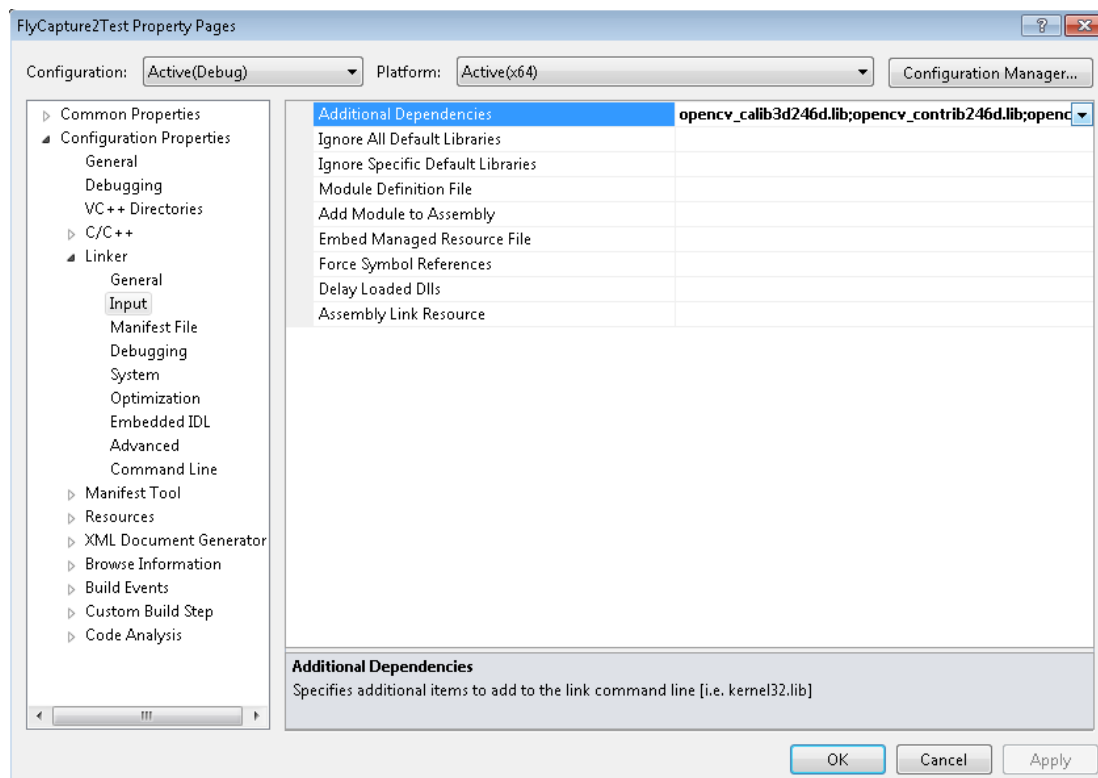
7. Add C:\opencv\build\include and click OK.



8. From the Property Pages window, from the Library Directories drop-down select Edit.
9. Add C:\opencv\build\x64\vc10\lib and click OK.
Note: For 32-bit systems, replace x64 with x86.



10. From the Property Pages window, select Linker→Input, and from the Additional Dependencies drop-down select Edit.



11. Add the following library files and click OK.

```
opencv_calib3d246.lib
opencv_contrib246.lib
opencv_core246.lib
opencv_features2d246.lib
opencv_flann246.lib
opencv_gpu246.lib
opencv_highgui246.lib
opencv_imgproc246.lib
opencv_legacy246.lib
opencv_ml246.lib
opencv_nonfree246.lib
opencv_objdetect246.lib
opencv_photo246.lib
opencv_stitching246.lib
opencv_ts246.lib
opencv_video246.lib
opencv_videostab246.lib
```

Note: If you are using a different OpenCV version, replace 246 with your version.

12. Click OK to save all project settings.

13. Open FlyCapture2Test.cpp and add #include "cv.h."

You can now add you own OpenCV code in FlyCapture2Test.cpp.

1.7. Sample Code for OpenCV

These [examples](#) demonstrate how to convert images from FlyCapture, FlyCapture2, and Triclops to OpenCV images.

FlyCapture

FlyCap_to_IplImage.cpp provides the function to convert from FlyCaptureImage to IplImage.

Applicable: All Point Grey cameras except Gazelle and Cricket.

FlyCapture2

FlyCap2_to_IplImage.cpp provides the function to grab images from your camera and convert them to IplImage using FlyCapture2 SDK.

FlyCap2_to_MatImage.cpp provides the function to grab images from your camera and convert them to Mat Image using FlyCapture2 SDK.

Applicable: All Point Grey cameras except Gazelle and Cricket.

Triclops

Triclops_to_IplImage.cpp provides the function to convert from TriclopsImage to IplImage.

Applicable: All Point Grey Stereo cameras.

1.8. Additional Downloads and Support

Point Grey endeavors to provide the highest level of technical support possible to our customers. Most support resources can be accessed through the Support section of our website.

Creating a Customer Login Account

The first step in accessing our technical support resources is to obtain a Customer Login Account. This requires a valid name and e-mail address. To apply for a Customer Login Account go to the [Downloads](#) page.

Knowledge Base

Our [Knowledge Base](#) contains answers to some of the most common support questions. It is constantly updated, expanded, and refined to ensure that our customers have access to the latest information.

Product Downloads

Customers with a Customer Login Account can access the latest software and firmware for their cameras from our [Downloads](#) page. We encourage our customers to keep their software and firmware up-to-date by downloading and installing the latest versions.

Contacting Technical Support

Before contacting Technical Support, have you:

1. *Read the product documentation and user manual?*
2. *Searched the Knowledge Base?*
3. *Downloaded and installed the latest version of software and/or firmware?*

If you have done all the above and still can't find an answer to your question, contact our [Technical Support](#) team.