

How to acquire images in NI Vision Builder AI from an uEye camera

The LabVIEW Module Version 8.2 or later offers the possibility to acquire images from the DirectShow interface.

As USB and GigE uEye cameras are compatible to DirectShow, this interface can be used to access USB and GigE uEye cameras from LabVIEW.

The application note **AN_AB.1.0025_Acquire_Images_In_LabView_From_DirectShow.pdf** shows which components and drivers have to be installed to acquire images in tools from National Instruments from the DirectShow interface. The application note also shows how to display images in the National Instruments "Measurement and Automation Explorer" (NI MAX).

This application note shows how to acquire images not with the NI MAX, but with the **NI Vision Builder AI**. This NI Vision Builder is not a free tool and needs to be activated with a paid NI license.

This application note should be used in addition to the application note **AN_AB.1.0025**.

1) Driver installation

Make sure the uEye camera driver, the uEye DirectShow driver and the LabVIEW DirectShow components have been installed correctly. For help on this, please see the application note **AN_AB.1.0025**.

2) Install the NI Vision Builder AI

Please make sure to install the NI Vision Builder for Automated Inspection (AI) completely. This piece of software can be downloaded at the official download portal from NI (<http://www.ni.com/vision/software/vbai/>). Please consider that this piece of software is not for free, you need a paid licence. Please contact National Instruments for this.

3) Start acquiring images - Run the DS device manager

Make sure that all connected cameras are registered in the uEye DirectShow interface. This should be done with the uEye DirectShow Device Manager (Start → Programs → IDS → uEye → DirectShow Device Manager (run as admin)).

4) Vision Builder AI

Run the Vision Builder AI e.g. by clicking the icon on your desktop (see Figure 1).

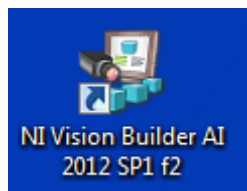


Figure 1: Run the Vision Builder AI

When the NI Vision Builder – Welcome screen opens, select as target: My computer (see Figure 2).

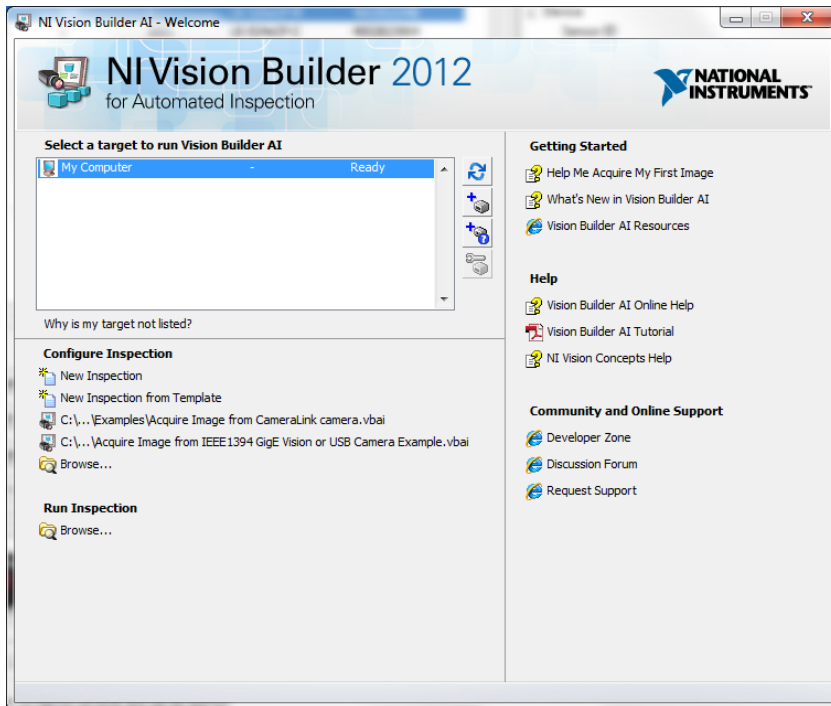


Figure 2: Select "My Computer" as target

The NI Vision Builder interface will be opened (see Figure 3).

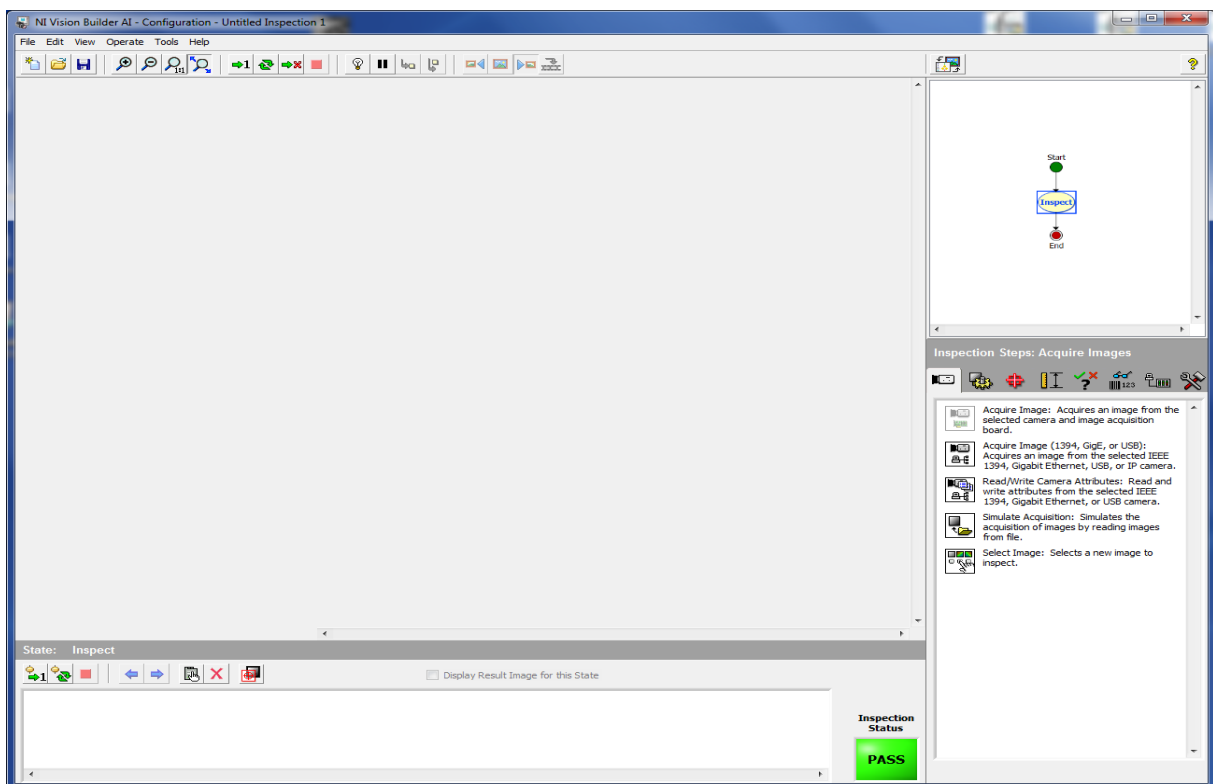


Figure 3: NI Vision Builder user interface

At the right side of this user interface you will find a tool box called “Inspection Steps: Acquire Images” (see Figure 4). Please call the 2nd option to acquire images from a GigE or USB uEye camera (via DirectShow interface).

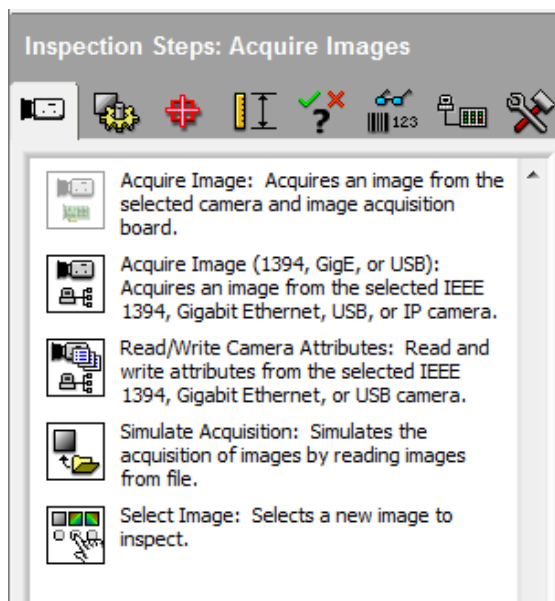


Figure 4: Select an option to acquire images

By double clicking on the 2nd option, the acquire images setup will appear (see Figure 5).

Select a connected device (the uEye camera) and wait for a short time until the camera has been initialized.

Then click the “Acquire Images” button (either continuous or single).

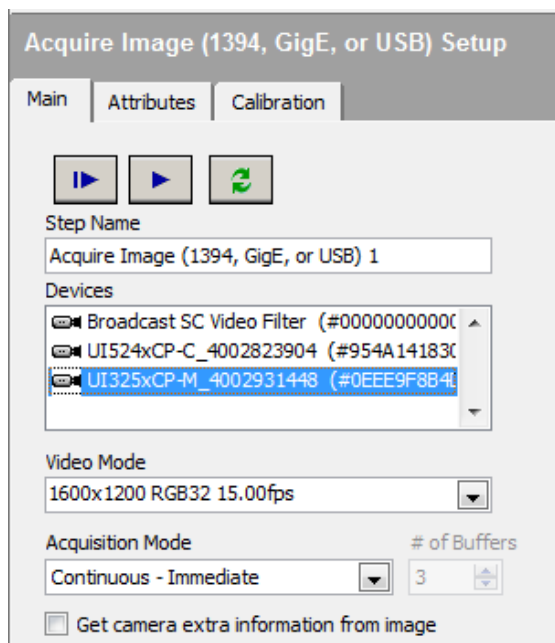


Figure 5: Initialize a camera and acquire images

You can now see that the NI Vision Builder acquires images from the specified uEye device.

It is also possible to set some camera specific parameters. For doing this just select the register “attributes” to change e.g. the exposure time (see Figure 6).



Figure 6: Change parameters

5) Setting camera specific parameters which are not available in the NI Vision Builder

The opportunities to set camera specific parameters in NI Vision Builder are limited.

The reason for this is that the NI Vision Builder can only access functions which are implemented in the DirectShow standard. Unfortunately the uEye DirectShow property pages are not supported. This means, you cannot change e.g. the frame rate of the sensor, because this function is not implemented in the DirectShow standard, but in the uEye DirectShow interface. But you cannot access the uEye DirectShow interface from the NI Vision Builder (unequal to other DirectShow applications like AMCap, WMCap).

What can be done to change camera settings? You can change the camera parameters on initialization.

This means, you can save the desired camera parameters in uEye Cockpit to the camera's non-volatile camera memory (uEye Cockpit: File → Save Parameters → to Parameter set). In the IDS Camera Manager there's a button called "Additional functions". Here, you can determine that on

camera initialization, the cameras parameters will automatically be loaded into the camera from the non-volatile camera memory.

You can use this option to set the parameters for opening the camera in NI Vision Builder.

6) What to do if the image is upside down?

Open the Windows Registration Editor (run in command line: "regedit") and go to the following key:

```
HKLM\Software\IDS\uEye\DirectShow
```

Add the following DWORD Key: "FlipImageVertical" and set its value to "1" for error handling.