

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

The LabView Module Version 8.2 or later offers the possibility to acquire images from the Direct Show interface.

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

The application note

AN_AB.1.0025_Acquire_Images_In_LabView_From_DirectShow.pdf

shows one, 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" (MAX).

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

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

1) Driver installations

Make sure the uEye 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 (Step 1 + Step 2).

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/vbai.htm>). Please consider that this piece of software is not for free, one needs a valid 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 DS interface. This should be done with the uEye DS Device Manager (Start → Programs → IDS → uEye → uEye DS 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).

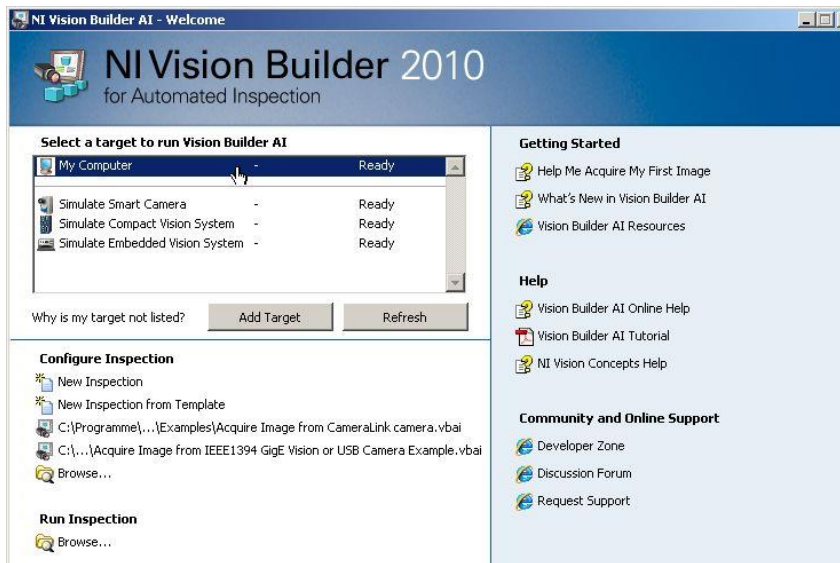


Figure 2: Select "My Computer" as target

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

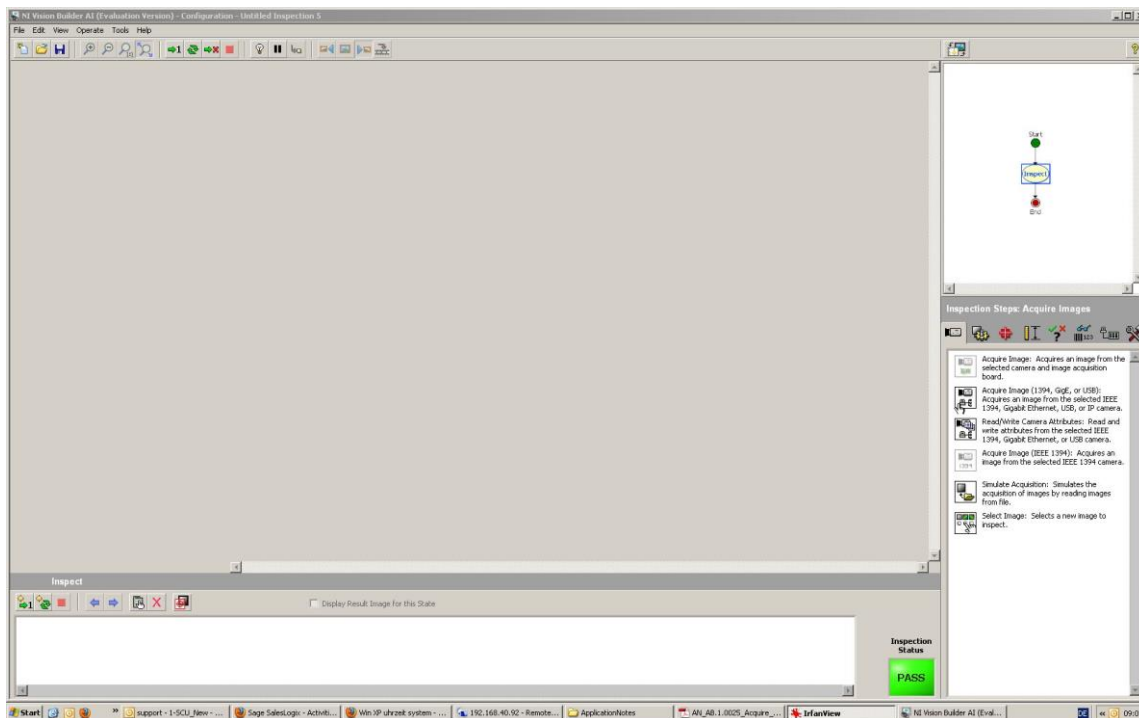


Figure 3: NI Vision Builder user interface

At the right hand side of this user interface one 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 camera (via DS interface).

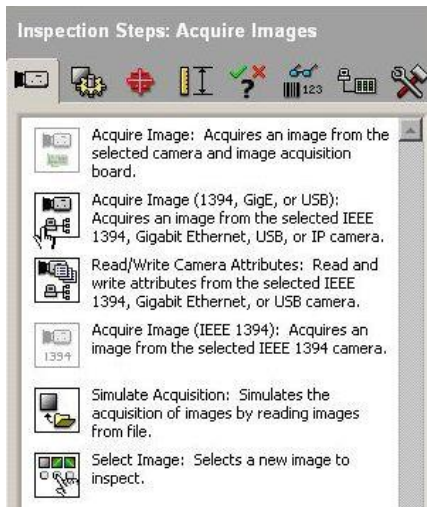


Figure 4: Select an option to acquire images

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

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

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

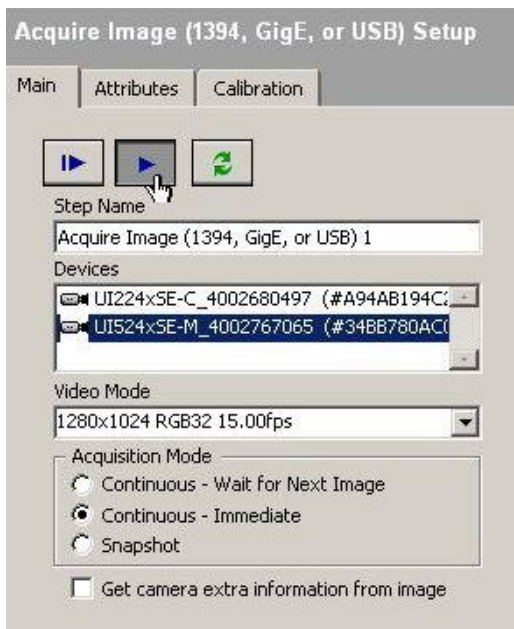


Figure 5: Initialize a camera and acquire images

One can now see that the NI Vision Builder acquires images from a 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).

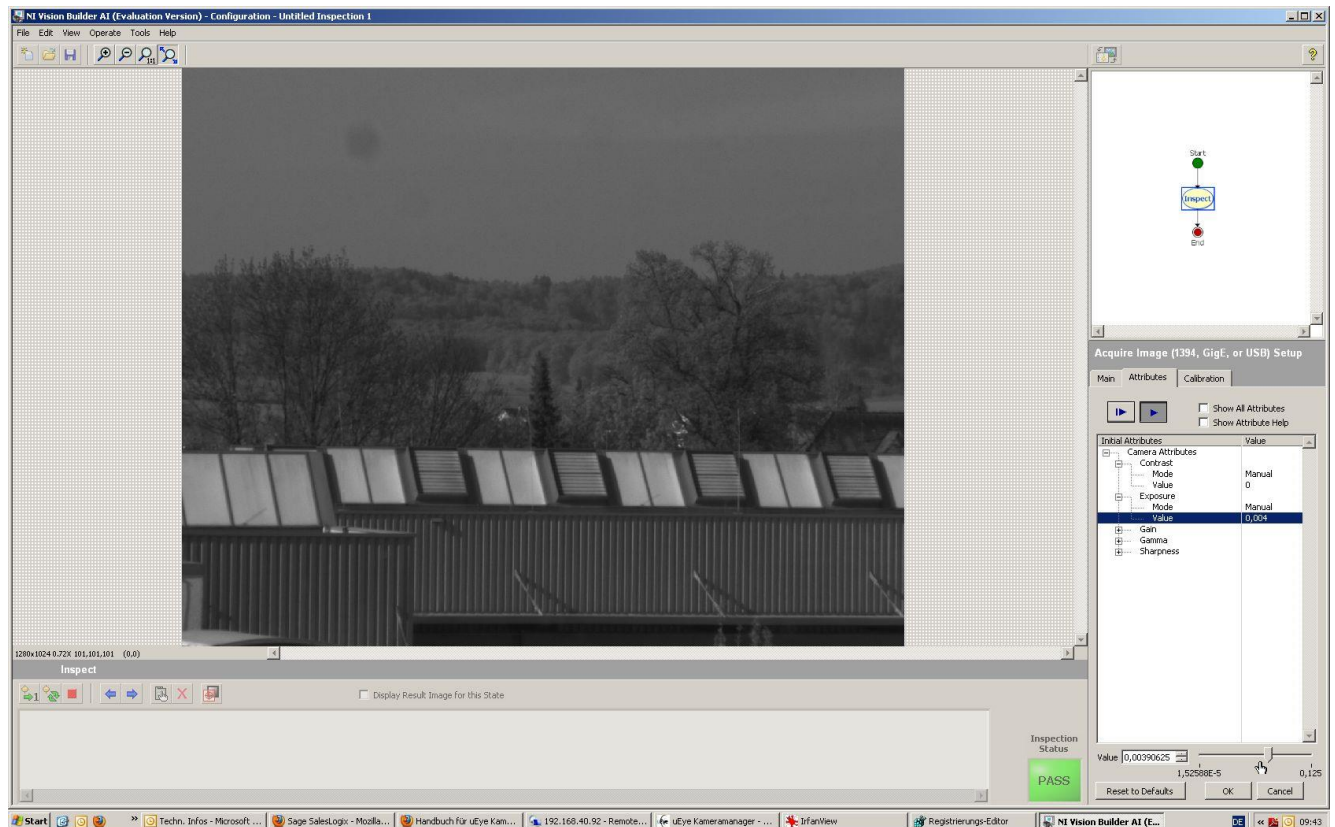


Figure 6: Change parameters

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

What can be done to change camera settings is to change the camera parameters on initialize.

This means, one can save the desired camera parameters in uEye Cockpit to the cameras EEPROM (uEye Cockpit: File → Save Parameters → to Parameter set). In the uEye Cameramanager there's a button called "additional functions" with which one can determine that with the init of the camera, the cameras parameters from the EEPROM will automatically be loaded into the camera.

One could use this option to determine, with which parameters the camera will be opened in NI Vision Builder.

Please consider that this option is only available with **uEye driver versions 3.82** and later.

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

Open the Registration – Editor (run: 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.