

Basler Components



Interfacing Basler GigE Vision Cameras with National Instruments Vision 8.2.1 Acquisition Software

APPLICATION NOTES

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1 Introduction

This document explains how to interface a Basler GigE Vision camera with NI Vision 8.2.1 Acquisition Software using a standard Gigabit Ethernet card.

2 Steps

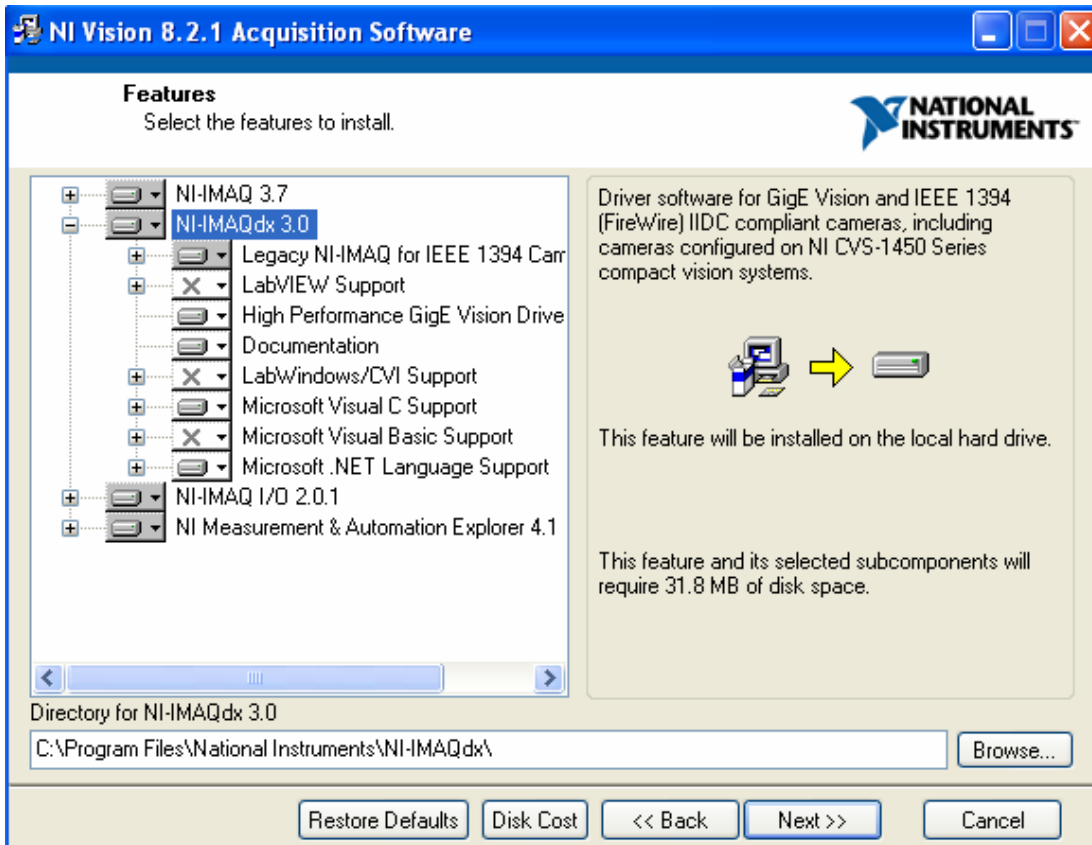
Step 1: Hardware requirements

In addition to the Basler camera and its power supply, you will need an Ethernet cable (Cat 6 or higher) and your PC must be equipped with a Gigabit Ethernet network adapter card (also called a Network Interface Controller or NIC).

We strongly recommend using a network adapter from the Intel Pro 1000 family or an adapter with a comparable chipset. When the NI GigE driver tries to optimize some of the GigE relevant camera settings, it relies on the characteristics of the chipset used on the Intel Pro 1000 adapters. With other adapters, this optimization may fail and may result in a situation where images can't be grabbed without corruption.

Step 2: Software installation requirements

During the installation of the NI Vision 8.2.1 Acquisition Software, it is important that you enable installation of the NI IMAQdx 3.0 High Performance GigE Vision Driver as shown below:



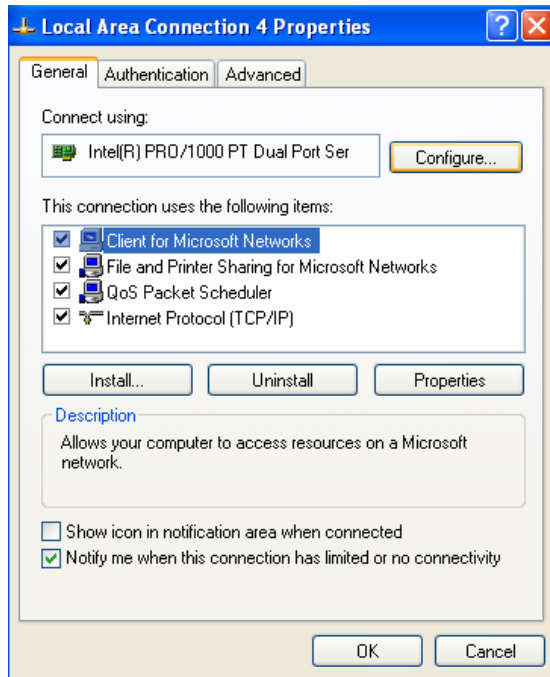
If the NI Vision 8.2.1 Acquisition Software does not include a high performance GigE Vision driver, Basler's Performance GigE Vision driver or Filter GigE Vision driver can also be used to interface a Basler GigE Vision camera. In this case, please download and install the latest version of Basler's pylon Runtime Package. You will find the package at this location on our website:

http://www.baslerweb.com/indizes/beitrag_index_en_21277.html

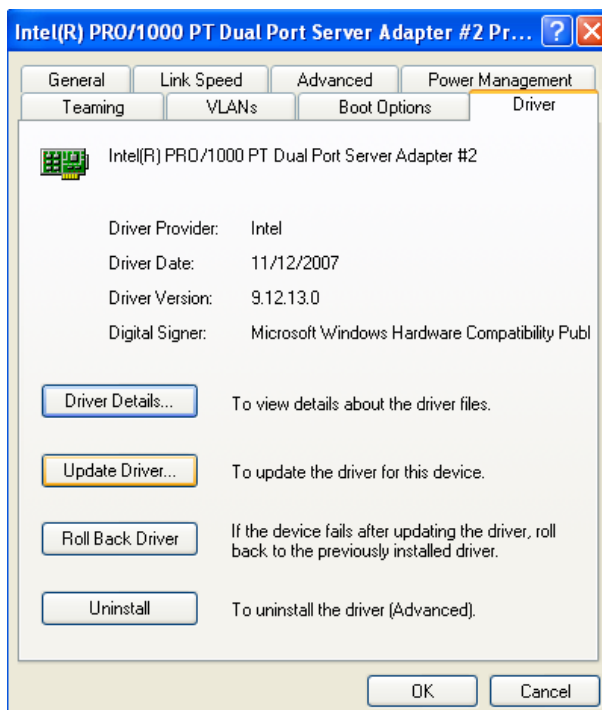
If you decide to use a Basler GigE Vision driver, please skip step 3 and go on to step 4 of this application note.

Step 3: Configuring the network adapter

Open a **Network Connections** window, right click on the name of the network adapter you want to configure, and select **Properties** from the drop down menu that appears. You'll see the following **Properties** window:



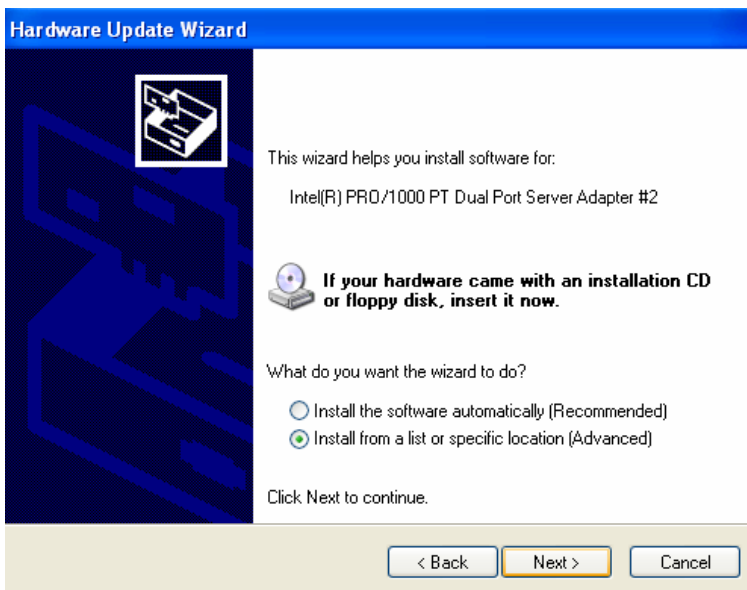
Click on the **Configure** button and a configuration window for the adapter will open. Select the **Driver** tab and click the **Update Driver** button:



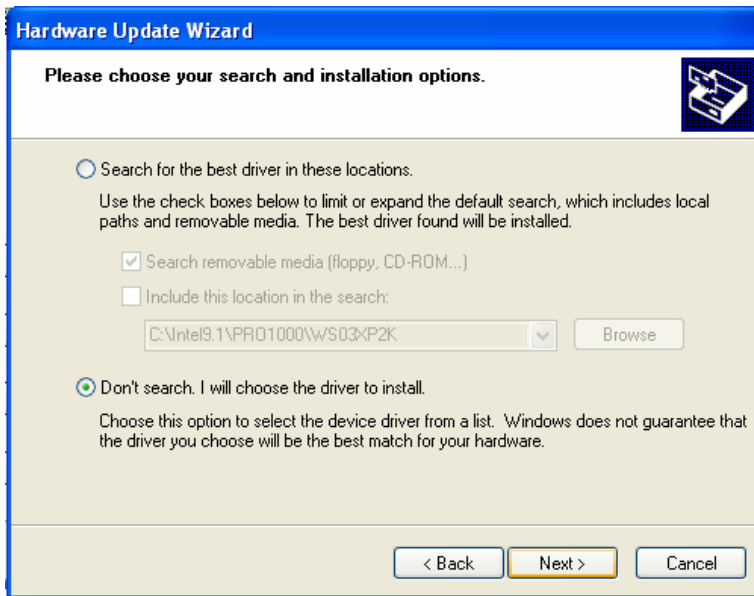
Select **No, not this time** and click the **Next** button:



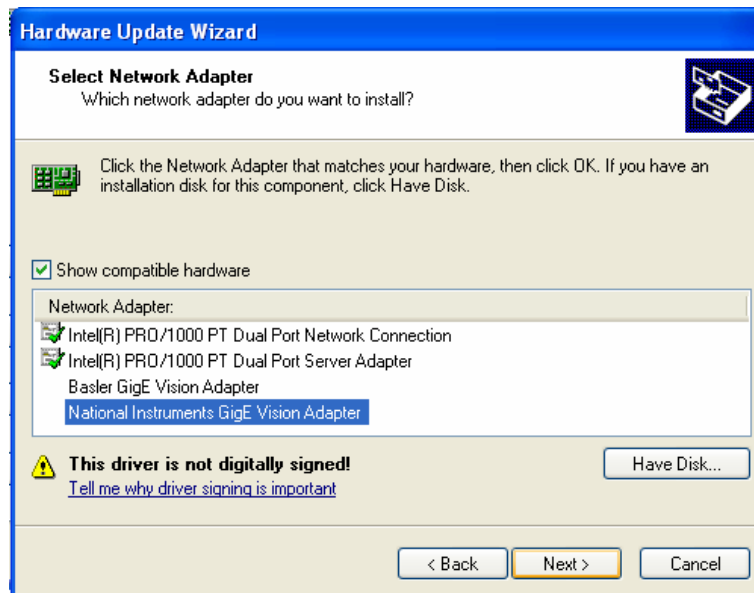
Select **Install from a list or specific location** and click the **Next** button:



Select **Don't search. I will choose the driver to install** and click the **Next** button:



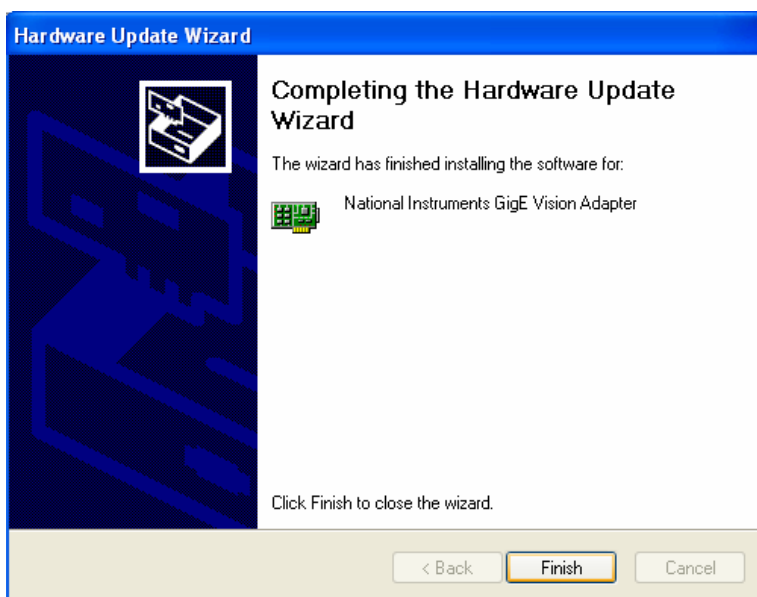
From the list of available network adapters, choose the **National Instruments GigE Vision Adapter** and click the **Next** button:



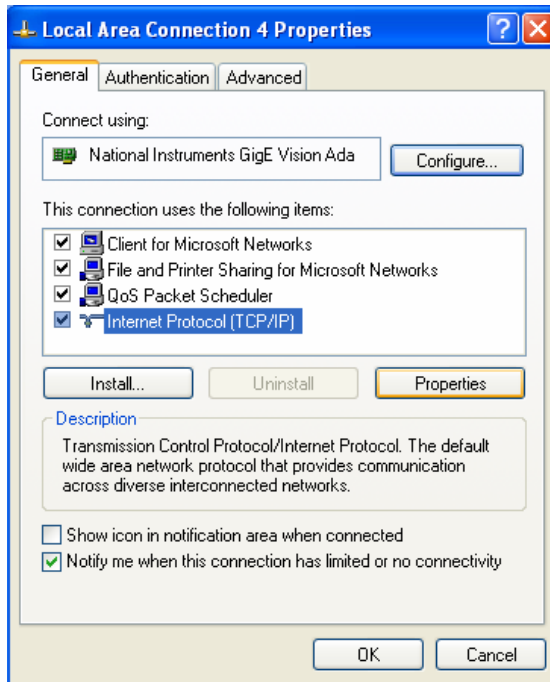
During the driver association, you may get messages like the one shown below. Click the **Continue Anyway** button:



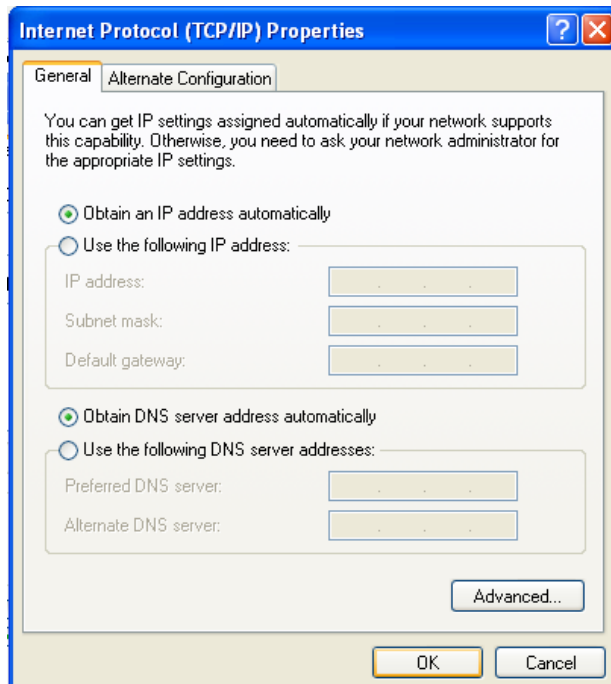
Finally select **Finish** to complete the driver update process:



By default, Basler GigE Vision cameras are configured to obtain an IP address automatically (i.e., not for a static IP address). We recommend that you also configure the network adapter to obtain an IP address automatically. To do this, select **Internet Protocol (TCP/IP)** and click the **Properties** button:



Select **Obtain an IP address automatically** as shown below and click the **OK** button to confirm:



Step 4: Setting the camera's IP configuration

In step three, the Basler camera and the network adapter card were set so that they would each obtain an IP address automatically. This is the default configuration, and it will work well if your camera does not need to be configured for a static IP address. If you so desire, your camera can be configured for a static IP address. Remember that if you set the camera for a static IP address, you must also configure the network adapter card for a static address in the same subnet used by the camera.

The NI High Performance GigE Vision Driver and the NI Vision 8.2.1 Acquisition Software only provide limited access to the Basler camera's IP configuration settings. However, sometimes it could be useful to have full manual control over camera's IP address, subnet mask, usage of persistent / automatic IP addresses etc. In this case, we recommend that download and install the latest version of Basler's pylon Runtime Package. You will find the package at this location on our website:

http://www.baslerweb.com/beitraege/beitrag_en_71708.html

The pylon runtime package can be installed side-by-side with the NI software. The package contains an IP configuration tool that lets you determine a Basler camera's current IP configuration and lets you set the configuration manually.



Note

If you have an Intel Pro 1000 network adapter (or an adapter with a comparable chipset) and you install the pylon software, the driver for your network adapter will automatically be changed to the Basler GigE Vision Adapter. After you finish the pylon software installation, you should redo step 3 in this application note to change the driver for the network adapter back to the NI GigE Vision Adapter.

Step 5: Firewall configuration

Any application using the GigE Vision network protocol must be able to accept data from the camera on several different UDP ports. On systems equipped with a firewall, you should disable the firewall for the network adapter to which your camera is connected.

If you are using the Windows Firewall on your system, you can disable the firewall on a specific network adapter by doing the following:

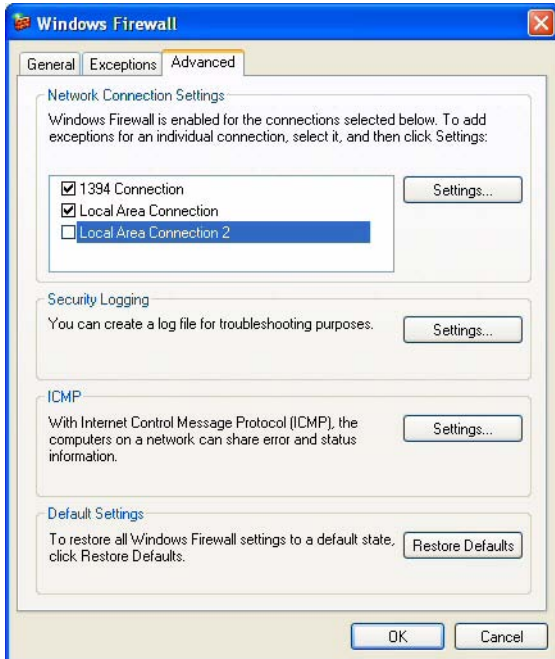
Click **Start**, click **Control Panel**, and double click **Windows Firewall**.

A **Windows Firewall** window will open as shown below. Click the **Advanced** tab.



A list of network adapter names will appear in the **Advanced** tab. Find the adapter to which your camera is connected and uncheck the box next to the adapter name.

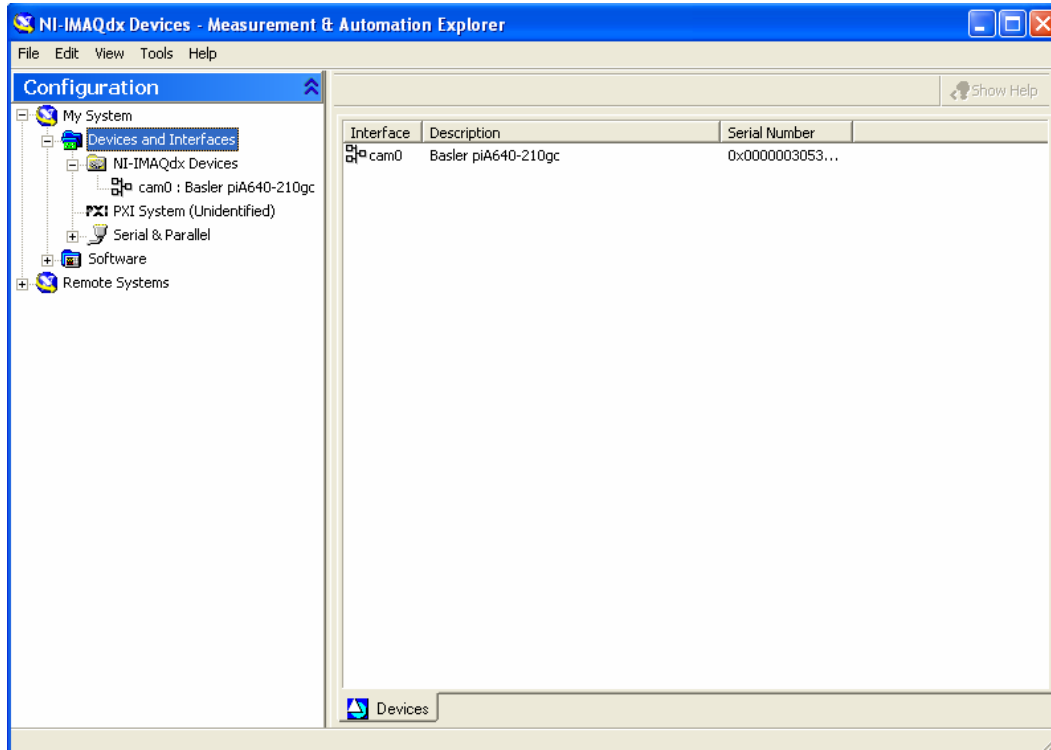
For example, if your camera is connected to a network adapter named "Local Area Connection 2", you would uncheck the box next to this name as shown below.



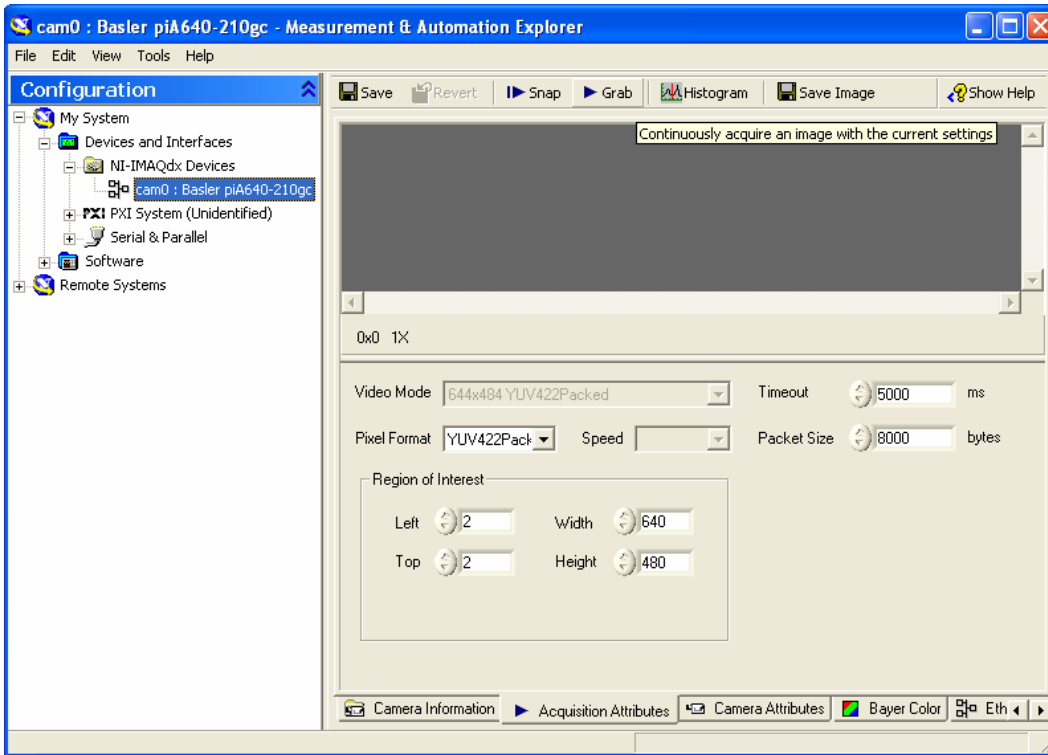
Click the **OK** button.

Step 6: Configuring the camera and grabbing images with NI Vision 8.2.1 Acquisition Software

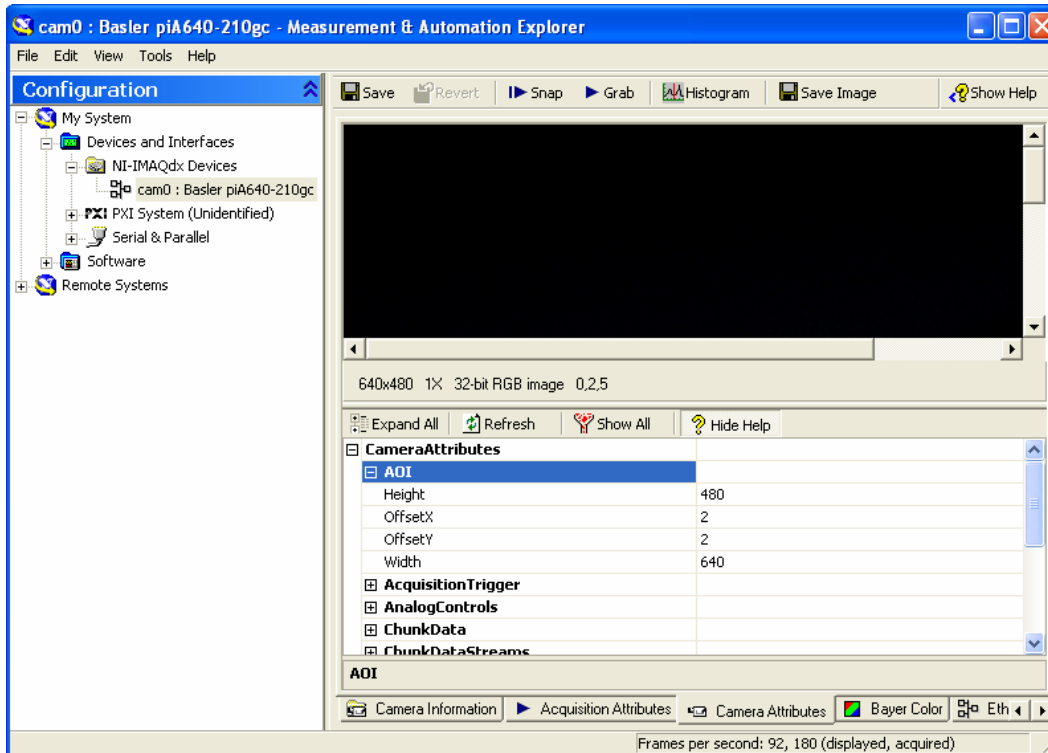
Now you are ready to interface a Basler GigE Vision camera with the NI Vision 8.2.1 Acquisition Software. Start the Measurement & Automation Explorer and locate the camera:



Double click on the camera's name to open the **Configuration and Acquisition** window:



You can now configure several camera parameters from the **Camera Attributes** tab or simply start grabbing images by clicking the **Grab** button.



Revision History

Doc. ID Number	Date	Changes
AW00064501000	1 Apr 2008	Initial release of this document.
AW00064502000	8 Apr 2008	Updated links to URLs.
AW00064503000	30 Jul 2008	Updated contact addresses and phone numbers.
AW00064504000	15 Jan 2009	Updated the firewall configuration information starting on page page 9 .

