



Vimba Cognex Adapter User Guide

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1 Contacting Allied Vision Technologies

Note



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2 Introduction

2.1 Document history

Version	Date	Changes
1.0	2013-06-18	Initial version
1.1	2014-07-09	Clarified chapters Installation and Getting Started

2.2 Conventions used in this manual

To give this manual an easily understood layout and to emphasize important information, the following typographical styles and symbols are used:

2.2.1 Styles

Style	Function	Example
Bold	Programs, inputs or highlighting important things	bold
Courier	Code listings etc.	Input
Upper case	Constants	CONSTANT
Italics	Modes, fields, features	<i>Mode</i>
Blue and/or parentheses	Links	(Link)

2.2.2 Symbols

Note



This symbol highlights important information.

Caution



This symbol highlights important instructions. You have to follow these instructions to avoid malfunctions.

www



This symbol highlights URLs for further information. The URL itself is shown in blue.

Example: <http://www.alliedvisiontec.com>

3 General aspects of the Vimba Cognex Adapter

The purpose of the Vimba Cognex Adapter is to make all AVT cameras easily available in Cognex VisionPro, regardless of their physical interface. This is achieved by using the different transport layers supplied by the Vimba package. Camera features are made available as custom properties. The adapter was developed and built using the Cognex Acquisition Integration Kit (AIK) version 1.2.

This document describes how to use the Vimba Cognex Adapter. For any further information, please refer to the Cognex VisionPro documentation.

4 Requirements

- Cognex VisionPro 6.0 or higher (32-bit or 64-bit)
- Vimba SDK 1.2.0 or higher
- Windows XP (only 32-bit), Windows 7 (32-bit and 64-bit), Windows 8 (32-bit and 64-bit)
- 2 GB RAM or more
- AVT 1394 or AVT GigE Vision camera. AVT USB3 cameras will be supported soon.

5 Installation and Troubleshooting

The adapter library is optionally installed via the Vimba setup. If you are using a camera and experiencing problems, for example the camera not being visible or VisionPro not responding, please check the following:

- Make sure that the QuickBuild application runs with administrator rights.
 1. Locate the QuickBuild link on your desktop/start menu or the `Cognex.VisionPro.QuickBuild.exe` application in the `bin` subdirectory within your VisionPro installation.
 2. Open the properties window of the file and ensure that **Run this program as an administrator** is checked.

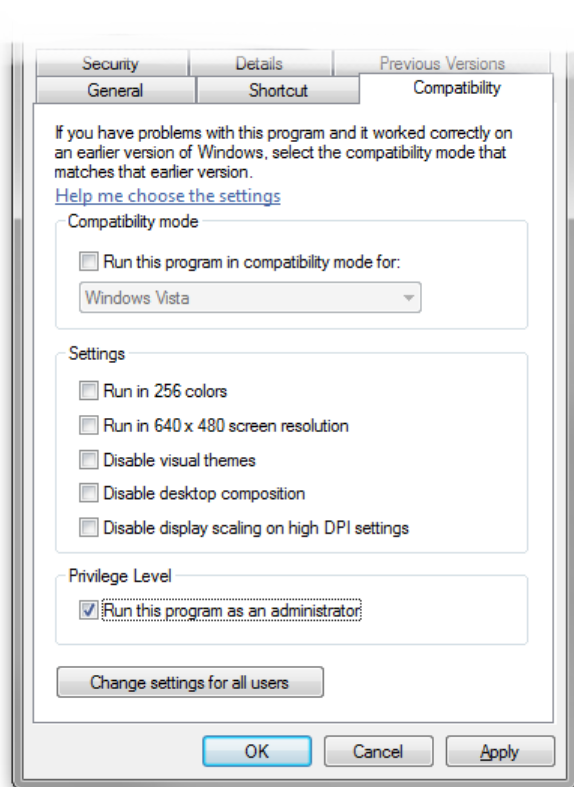


Figure 1: Setting administrator rights in the File Properties

- Make sure that the `aikserver` is also executed with administrator rights.
 1. Locate the `aikserver.exe` or `aikserver_x64.exe` applications in the `bin` subdirectory within your VisionPro installation.
 2. Open the properties window of the file and ensure that **Run this program as an administrator** is checked.

If your camera still does not show up, you might need to adjust the memory settings for the adapter library. In order to do that, modify the Windows registry:

- In the Windows Start menu, select Run
- Type `regedit` and press RETURN
- Search for the key: `HKEY_LOCAL_MACHINE\SOFTWARE\cognex\AIK\AdapterAVTVimba`
- Edit the `PoolSize` property. By default it is set to `0x14000000 (335544320)`. For configurations with large image size cameras, you may have to increase this value. Change it and restart QuickBuild to verify if the new value is functional.

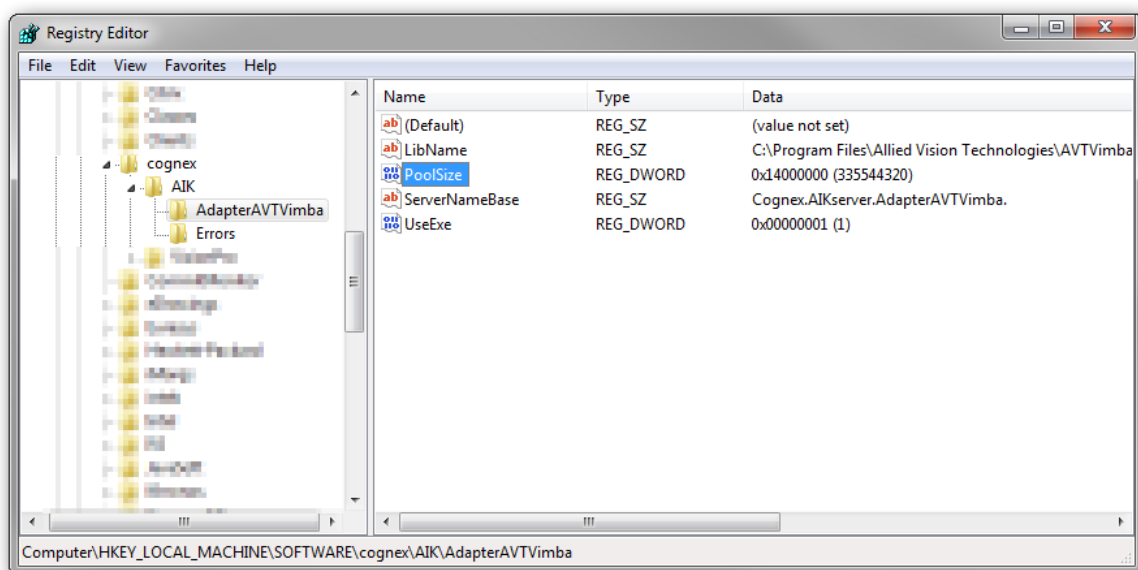


Figure 2: Advanced registry settings

6 Getting Started

Once the adapter is properly installed, all connected AVT cameras appear as imaging devices in the Cognex QuickBuild application. To start using a camera, follow these basic steps:

1. Connect your camera physically and make sure it is powered.
2. Make sure no other application uses the camera.
3. Launch the QuickBuild application, open the **Image Source** dialog, and select your AVT camera from the drop-down list of available cameras.

Click the **Initialize Acquisition** button to establish a connection to the camera. The cameras listed in the drop-down list are being discovered while QuickBuild starts.

Note



GigE Vision cameras appear in two variants: **GigE Vision:** and **Device:**. Use the **Device:** variant to access the camera via the adapter library.

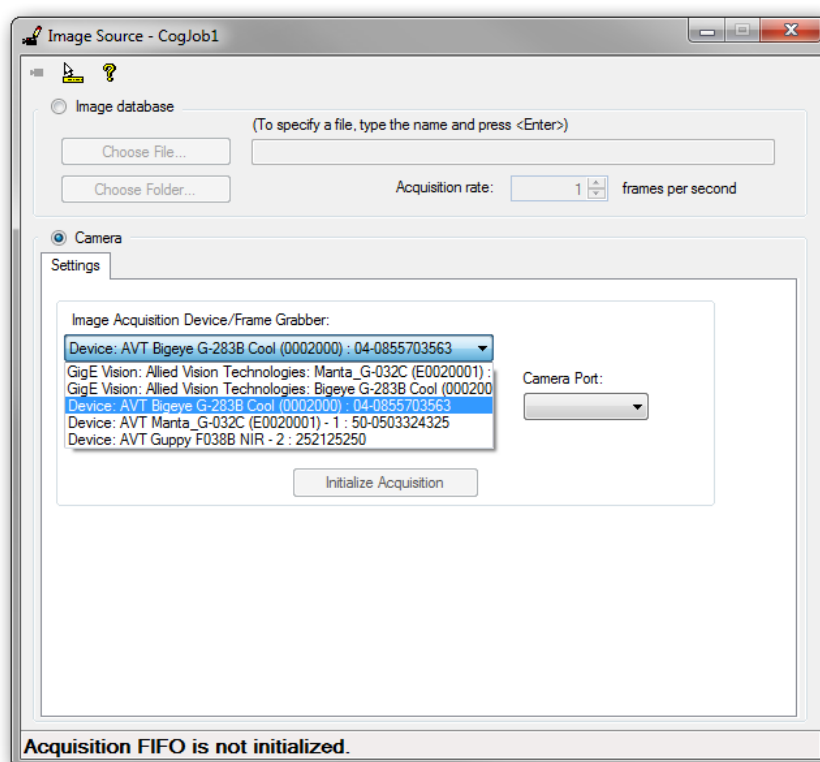


Figure 3: QuickBuild Image Source: Settings tab

4. Go to the **Strobe & Trigger** tab and select the **Free Run** mode. The **Free Run** mode is the most common trigger mode supported by all cameras. Other trigger options are not necessarily supported by every camera model. Please consider the AVT camera manual for further information on trigger modes. The VisionPro trigger options are:

- **Manual:** Acquire an image manually without waiting for an external trigger signal. The image acquisition is initiated when a software command is sent to the adapter.
 - **Free Run:** Acquisitions start automatically as soon as the previous acquisition is completed (continuous acquisition).
 - **Hardware Auto:** Image acquisition starts when a transition on an external trigger line is detected.
 - **Hardware Semi-Auto:** Image acquisition is enabled via a software command and initiated by a transition on an external trigger line.
 - **Trigger Lo To High:** Changes the trigger signal polarity.
5. Make sure that the **Output Pixel Format** property on the **Image Properties** tab is set to **automatic**. In order to set a specific pixel format for a camera, go to the **Custom Properties** tab and add the *PixelFormat* feature to the list. The *PixelFormat* property lists every pixel format supported by the selected camera.


VisionPro works with the following pixel formats:

- MONO8
- MONO10
- MONO10PACKED
- MONO12
- MONO12PACKED
- MONO14
- MONO16
- RGBPLANAR8

Note



If a chosen camera pixel format is not compatible to VisionPro, the adapter library automatically converts it into the closest compatible one.


6. To start the image acquisition, click the **Show Live Display** icon:  A live preview window is opened.

7 Features


All compatible camera features can be accessed via the **Custom Properties** tab. Furthermore, a direct register access is available on the **Imaging Device** tab. The following feature types are compatible with VisionPro:



- Bool
- Command
- Enum
- Float
- Int
- String

7.1 Custom Properties

To add a camera feature, click the **Add New** icon: 

A list with all VisionPro compatible features is displayed. Click a feature to add it to the **Custom Properties** list. If a feature is changed subsequently in the list, the new value is transmitted to the camera by either pressing RETURN or clicking a different feature in the list.

To remove a custom property from the list, click the **Delete** icon: 

To move a feature up or down in the list, use the corresponding icons:  

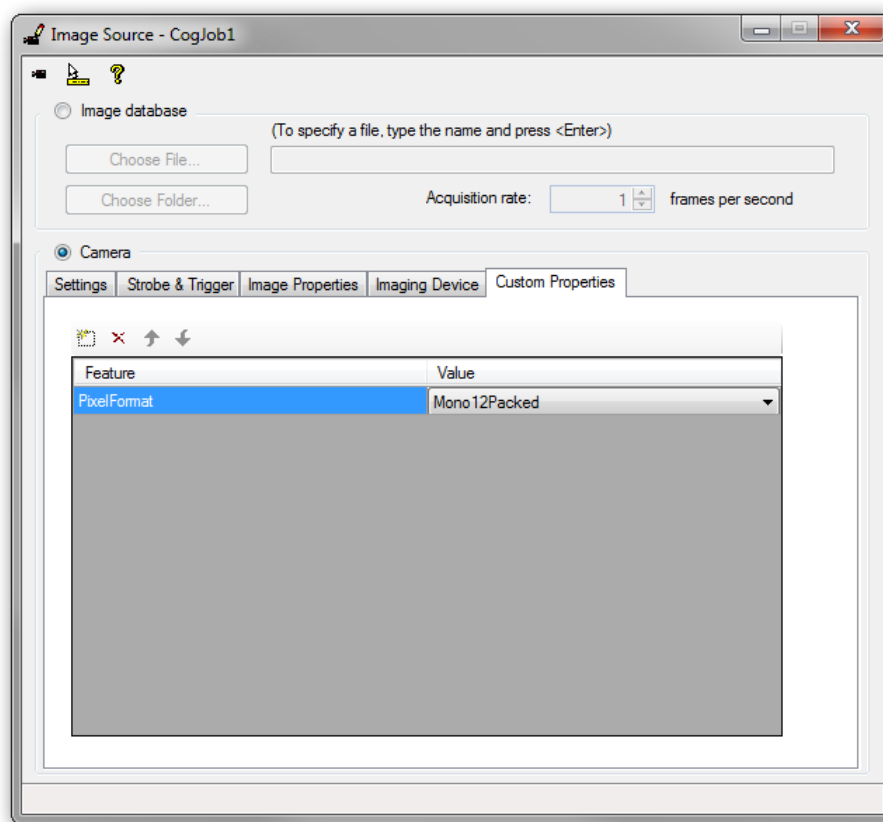


Figure 4: QuickBuild Image Source: Custom Properties tab

7.2 Direct Register Access

Camera features can also be accessed directly within the **Imaging Device** tab. Enter the feature name and click e.g. *Read* to read the current register content.

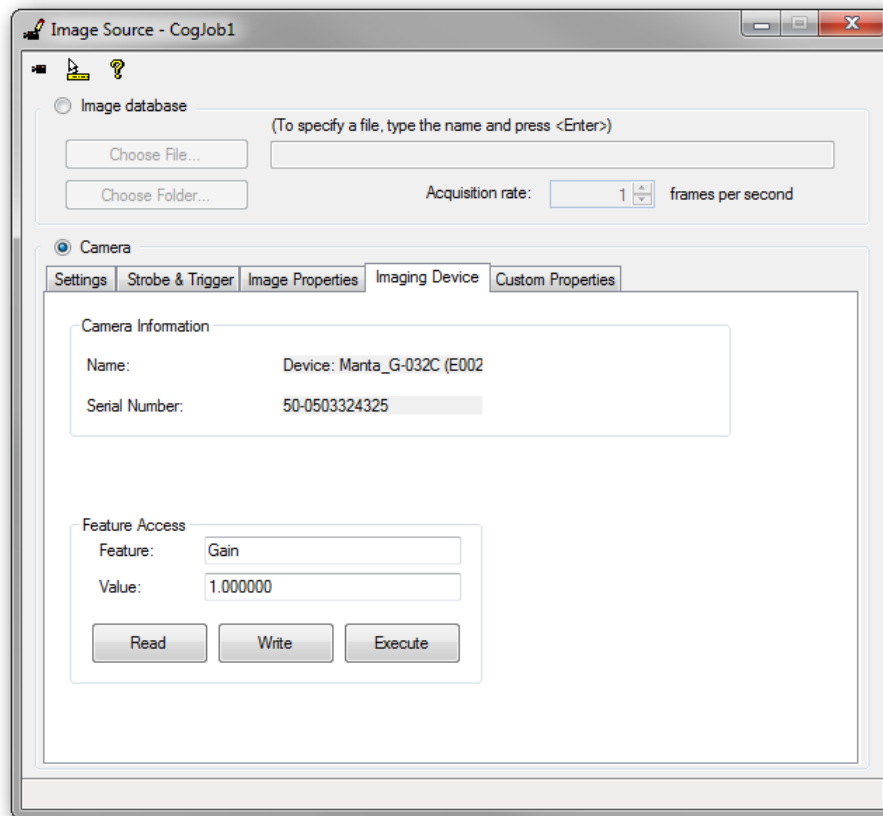


Figure 5: QuickBuild Image Source: Imaging Device tab

7.3 Region Of Interest (ROI)

On the *Image Properties* tab, a (hardware) region of interest can be specified. The parameters set here are transferred to the camera. Most cameras reach a higher speed when a smaller ROI is applied.

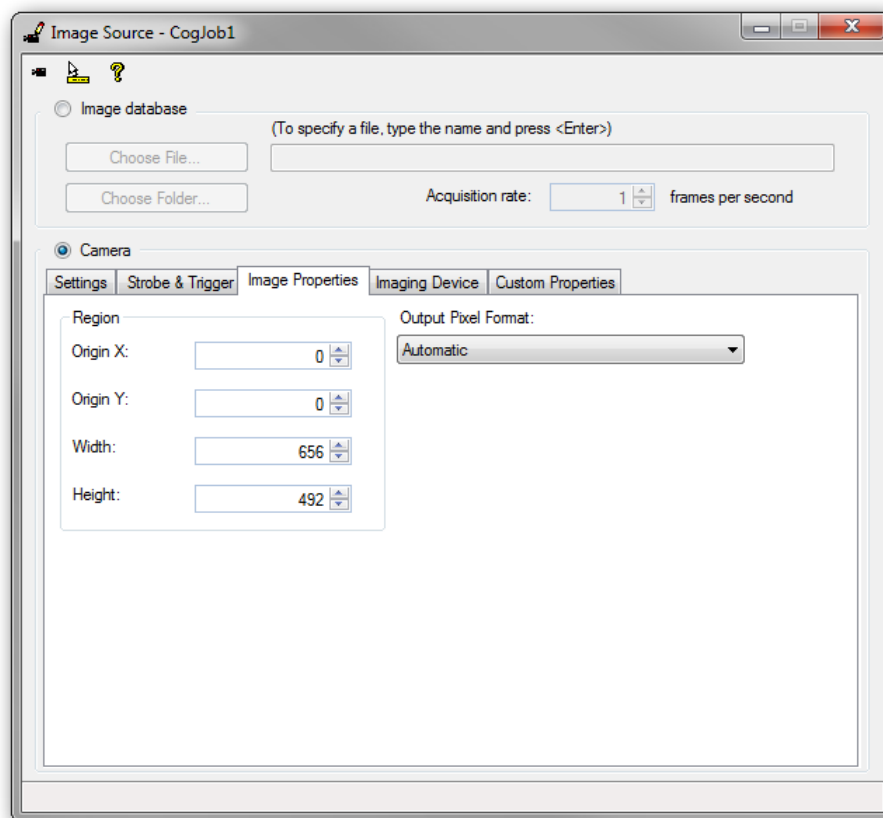


Figure 6: QuickBuild Image Source: Image Properties tab