Allied Vision

Vimba

Vimba

Vimba Features Manual

1.5

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2 Document history and conventions

This chapter includes:

2.1 Document history

Version	Date	Changes
1.0	2013-02-20	Initial version
1.1	2013-03-07	Different document generation, small changes
1.2	2013-06-13	Small corrections, layout changes
1.3	2014-08-06	Rework of the whole document
1.4	2015-11-09	Added USB compatibility, renamed several Vimba components and documents ("AVT" no longer in use), links to new Allied Vision website
1.5	2016-Feb-29	Added Camera Link compatibility, new document layout

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
Emphasis	Programs, or highlighting important things	**Emphasis**
Publication title	Publication titles	*Title*
Web reference	Links to web pages	Link
Document reference	Links to other documents	Document
Output	Outputs from software GUI	**Output**
Input	Input commands, modes	*Input*
Feature	Feature names	`Feature`

2.2.2 Symbols

Practical Tip

Safety-related instructions to avoid malfunctions
Instructions to avoid malfunctions

Further information available online

3 Vimba - Feature Overview

Vimba provides additional functionality that is not directly covered by API functions with GenICam Features. These Features can only be accessed via certain entities within Vimba. According to the API Entity Model described in the Vimba Manual, the entities providing Feature access are:

- The **Vimba System**, which includes functionality for managing interfaces and cameras.
- The **Interface**, which allows configuration of hardware interfaces (e.g. a GigE port).
- The **Camera**, which allows access to all features provided by camera device, data transport features, and some driver features.
- The **AncillaryData** for each Frame.

Features are described in the following documents:

- Vimba System features are described in chapter Vimba System in this document.
- GigE, USB, 1394, or Camera Link Interface features are handled by the Transport Layer, see chapter "Interface Features" in the Vimba GigE TL Features Manual, the Vimba USB TL Features Manual, the Vimba 1394 TL Features Manual and the Vimba CL Config TL Features Manual.
- Camera features for **GigE or USB cameras** are listed in the GigE Features Reference or USB Features Reference. **1394 camera** features are listed in the Vimba 1394 TL Manual. See chapters "Camera Features", "Device Features" and "DataStream Features".
- Ancillary Data features are described in chapter Ancillary Data Features in this document.

For the latest version of GigE or USB camera features, download the corresponding Features Reference manual: http://www.alliedvision.com/en/support/technical-documentation.html.

4 Vimba System

This chapter includes:

This chapter lists features that are potentially available in this module. Some features are only available under certain circumstances.

The following categories can be found below the Root category:

- Info
- Discovery
- ForceIP

4.1 Info [Allied Vision]

4.1.1 Elapsed [Allied Vision]

Name	Elapsed
Interface	IFloat
Access	Read
Visibility	Beginner
Values	0.0..

Elapsed time since the API was initialized.

4.1.2 GeVTLIsPresent [Allied Vision]

Name	GeV TL Is Present
Interface	IBoolean
Access	Read
Visibility	Beginner

The GigE Vision Transport Layer is present and working.

4.1.3 FiWTLIsPresent [Allied Vision]

Name	FiW TL Is Present
Interface	IBoolean
Access	Read
Visibility	Beginner

The FireWire Transport Layer is present and working.

4.1.4 UsbTLIsPresent [Allied Vision]

Name	Usb TL Is Present
Interface	IBoolean
Access	Read
Visibility	Beginner

The USB Transport Layer is present and working.

4.1.5 CLTLIsPresent [Allied Vision]

Name	CL TL Is Present
Interface	IBoolean
Access	Read
Visibility	Beginner

The CL Transport Layer is present and working.

4.2 Discovery [Allied Vision]

This category contains **features for camera and interface discovery** with Vimba, for example:

- Camera availability
- Notifications about camera availability
- Discovery process for GigE devices

The description below applies to the C API. For more information, see Vimba C Manual, Vimba CPP Manual, or Vimba .NET Manual.

Discovery of GigE cameras

The discovery process of GigE cameras usually takes some time, especially if multiple cameras are connected. Many applications open only one camera directly By its ID, IP address or MAC address. Consequently, Vimba initially does not discover devices automatically.

- *GeVDiscoveryAllOnce* starts the discovery once to get a complete camera list.
- *GeVDiscoveryAllAuto* detects GigE cameras permanently, which consumes a considerable amount of bandwidth.
- Both commands wait for *GeVDiscoveryDuration* milliseconds before returning. This allows you to directly get the list of cameras afterwards.
- *GeVDiscoveryAllOff* stops automatic discovery.

Notifications

Notifications about camera discovery and interface discovery work with the same mechanism:

- *DiscoveryCameraEvent* notifies about changes to the overall camera list and changes of the accessibility status of the cameras. During a notification, querying *DiscoveryCameraIdent* returns the camera change that caused the notification.
- *DiscoveryInterfaceEvent* notifies about interface-related changes, and querying *DiscoveryInterfaceIdent* returns the interface identifier.

For more information, see chapter Using Event in the API manuals.

4.2.1 GeVDiscoveryAllOff [Allied Vision]

Name	GeV Discovery All Off
Interface	ICommand
Access	Read/Write
Visibility	Beginner

Turns devices discovery OFF for all GigE interfaces.

4.2.2 GeVDiscoveryAllAuto [Allied Vision]

Name	GeV Discovery All Auto
Interface	ICommand
Access	Read/Write
Visibility	Beginner

Turns devices discovery ON for all GigE interfaces.

4.2.3 GeVDiscoveryAllOnce [Allied Vision]

Name	GeV Discovery All Once
Interface	ICommand
Access	Read/Write
Visibility	Beginner

Turns devices discovery temporary ON for all GigE interfaces.

4.2.4 GeVDiscoveryAllDuration [Allied Vision]

Name	GeV Discovery Duration
Interface	IInteger
Access	Read/Write
Visibility	Beginner

The time in ms to wait for response from any device after device discovery was started in mode "Once" or "Auto".
Defaults to 150 ms.

4.2.5 DiscoveryCameraIdent [Allied Vision]

Name	Discovery Camera Ident
Interface	IString
Access	Read/Write
Visibility	Beginner

Identifier of the camera that triggered the last camera discovery event.

4.2.6 DiscoveryCameraEvent [Allied Vision]

Name	Discovery Camera Event
Interface	IEnumeration
Access	Read/Write
Visibility	Beginner
Values	Missing, Detected, Reachable, Unreachable

Indicates the last camera discovery event.
Possible values:

- Missing: The camera is missing.
- Detected: The camera was detected.
- Reachable: The camera is reachable (can be talked to).
- Unreachable: The camera is unreachable (cannot be talked to).

4.2.7 DiscoveryInterfaceIdent [Allied Vision]

Name	Discovery Interface Ident
Interface	IString
Access	Read/Write
Visibility	Beginner

Identifier of the interface that triggered the last interface discovery event.

4.2.8 DiscoveryInterfaceEvent [Allied Vision]

Name	Discovery Interface Event
Interface	IEnumeration
Access	Read/Write
Visibility	Beginner
Values	Unavailable, Available

Indicates the last interface discovery event.

4.3 ForceIP [Allied Vision]

This category contains features to force port features of a camera that would otherwise be inaccessible via Vimba.

1. Set the MAC address of the used camera in feature *GeVForceIPAddressMAC*
2. Set the required values of *GeVForceIPAddressIP*, *GeVForceIPAddressSubnetMask*, or *GeVForceIPAddressGateway*
3. To send these values to the camera, run *GeVForceIPAddressSend*.

4.3.1 GeVForceIPAddressMAC [Allied Vision]

Name	Camera MAC Address
Interface	IInteger
Access	Read/Write
Visibility	Expert

48-bit MAC address of the camera to force IP setup

4.3.2 GeVForceIPAddressIP [Allied Vision]

Name	Camera's desired IP Address
Interface	IInteger
Access	Read/Write
Visibility	Expert

IP address of the camera to be forced to

4.3.3 GeVForceIPAddressSubnetMask [Allied Vision]

Name	Camera's desired subnet mask
Interface	IInteger
Access	Read/Write
Visibility	Expert

Subnet mask of the camera to be forced to

4.3.4 GeVForceIPAddressGateway [Allied Vision]

Name	Camera's desired gateway
Interface	IInteger
Access	Read/Write
Visibility	Expert

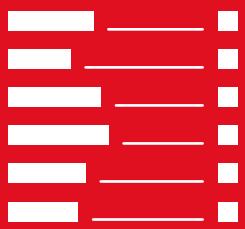
Gateway of the camera to be forced to

4.3.5 GeVForceIPAddressSend [Allied Vision]

Name	Send camera force address
Interface	ICommand
Access	Read/Write
Visibility	Expert

Send the force address command on all interfaces

5 Ancillary Data Features



This chapter includes:

This chapter lists the available features for Ancillary Data.

The following categories can be found below the Root category:

- ChunkData

5.1 ChunkData [Allied Vision]

Ancillary Data are non-image data that are part of the camera transfers. It relates to GenICam's Chunk Data.

Allied Vision GigE cameras usually don't expose the layout of their Ancillary Data via camera features, but the layout is the same for all cameras. Instead, they only provide feature *ChunkModeActive*, which is disabled be default. To enable transfer of Ancillary Data, set *ChunkModeActive* to "True".

5.1.1 ChunkAcquisitionFrameCount [Allied Vision]

Name	**Chunk Acquisition Frame Count**
Interface	IInteger
Access	Read
Visibility	Beginner

This is the number of the frame during the current acquisition.

5.1.2 ChunkUserValue [Allied Vision]

Name	**Chunk User Value**
Interface	IInteger
Access	Read
Visibility	Beginner

User value

5.1.3 ChunkExposureTime [Allied Vision]

Name	Chunk Exposure Time
Interface	IFloat
Access	Read
Visibility	Beginner

Exposure duration, in microseconds.

5.1.4 ChunkGain [Allied Vision]

Name	Chunk Gain
Interface	IFloat
Access	Read/Write
Visibility	Beginner

Gain value of analog A/D stage.
Units are usually in dB.

5.1.5 ChunkSyncInLevels [Allied Vision]

Name	Chunk Sync In Levels
Interface	IInteger
Access	Read/Write
Visibility	Beginner

Momentary logic levels of the hardware line inputs.

5.1.6 ChunkSyncOutLevels [Allied Vision]

Name	Chunk Sync Out Levels
Interface	IInteger
Access	Read/Write
Visibility	Beginner

Output levels of hardware sync outputs, for output(s) in GPO mode.