



# **Vimba**

## **Features Manual**

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## 2 Introduction

### 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	2015-11-10	Added USB compatibility, renamed several Vimba components and documents ("AVT" no longer in use), links to new Allied Vision website

### 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	<b>bold</b>
Courier	Code listings etc.	Input
Upper case	Constants	CONSTANT
Italics	Modes, fields, features	<i>Mode</i>
Blue and/or parentheses	Links	( <a href="#">Link</a> )

#### 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.alliedvision.com>

## 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 or 1394 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](#) and the [Vimba 1394 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.

**www**



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 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]

<b>Name</b>	Elapsed
<b>Interface</b>	IFloat
<b>Access</b>	Read
<b>Visibility</b>	Beginner
<b>Values</b>	0.0..

Elapsed time since the API was initialized.

#### 4.1.2 GeVTLIsPresent [Allied Vision]

<b>Name</b>	GeV TL Is Present
<b>Interface</b>	IBoolean
<b>Access</b>	Read
<b>Visibility</b>	Beginner

The GigE Vision Transport Layer is present and working.

#### 4.1.3 FiWTLIsPresent [Allied Vision]

<b>Name</b>	FiW TL Is Present
<b>Interface</b>	IBoolean
<b>Access</b>	Read
<b>Visibility</b>	Beginner

The FireWire Transport Layer is present and working.

#### 4.1.4 UsbTLIsPresent [Allied Vision]

<b>Name</b>	Usb TL Is Present
<b>Interface</b>	IBoolean
<b>Access</b>	Read
<b>Visibility</b>	Beginner

The USB 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

### Note



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.

### Note



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

### 4.2.1 GeVDiscoveryAllOff [Allied Vision]

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

Turns devices discovery OFF for all GigE interfaces.

### 4.2.2 GeVDiscoveryAllAuto [Allied Vision]

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

Turns devices discovery ON for all GigE interfaces.

### 4.2.3 GeVDiscoveryAllOnce [Allied Vision]

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

Turns devices discovery temporary ON for all GigE interfaces.

### 4.2.4 GeVDiscoveryAllDuration [Allied Vision]

<b>Name</b>	GeV Discovery Duration
<b>Interface</b>	IInteger
<b>Access</b>	Read/Write
<b>Visibility</b>	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]

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

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

### 4.2.6 DiscoveryCameraEvent [Allied Vision]

<b>Name</b>	Discovery Camera Event
<b>Interface</b>	IEnumeration
<b>Access</b>	Read/Write
<b>Visibility</b>	Beginner
<b>Values</b>	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]

<b>Name</b>	Discovery Interface Ident
<b>Interface</b>	IString
<b>Access</b>	Read/Write
<b>Visibility</b>	Beginner

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

### 4.2.8 DiscoveryInterfaceEvent [Allied Vision]

<b>Name</b>	Discovery Interface Event
<b>Interface</b>	IEnumeration
<b>Access</b>	Read/Write
<b>Visibility</b>	Beginner
<b>Values</b>	Unavailable Available

Indicates the last interface discovery event.

## 4.3 ForcelP [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]

<b>Name</b>	Camera MAC Address
<b>Interface</b>	IIInteger
<b>Access</b>	Read/Write
<b>Visibility</b>	Expert

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

### 4.3.2 GeVForceIPAddressIP [Allied Vision]

<b>Name</b>	Camera's desired IP Address
<b>Interface</b>	IIInteger
<b>Access</b>	Read/Write
<b>Visibility</b>	Expert

IP address of the camera to be forced to

### 4.3.3 GeVForceIPAddressSubnetMask [Allied Vision]

<b>Name</b>	Camera's desired subnet mask
<b>Interface</b>	IIInteger
<b>Access</b>	Read/Write
<b>Visibility</b>	Expert

Subnet mask of the camera to be forced to

### 4.3.4 GeVForceIPAddressGateway [Allied Vision]

<b>Name</b>	Camera's desired gateway
<b>Interface</b>	IIInteger
<b>Access</b>	Read/Write
<b>Visibility</b>	Expert

Gateway of the camera to be forced to

### 4.3.5 GeVForceIPAddressSend [Allied Vision]

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

Send the force address command on all interfaces

## 5 Ancillary Data Features

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 by default. To enable transfer of Ancillary Data, set *ChunkModeActive* to "True".

#### 5.1.1 ChunkAcquisitionFrameCount [Allied Vision]

<b>Name</b>	Chunk Acquisition Frame Count
<b>Interface</b>	IInteger
<b>Access</b>	Read
<b>Visibility</b>	Beginner

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

#### 5.1.2 ChunkUserValue [Allied Vision]

<b>Name</b>	Chunk User Value
<b>Interface</b>	IInteger
<b>Access</b>	Read
<b>Visibility</b>	Beginner

User value

#### 5.1.3 ChunkExposureTime [Allied Vision]

<b>Name</b>	Chunk Exposure Time
<b>Interface</b>	IFloat
<b>Access</b>	Read
<b>Visibility</b>	Beginner

Exposure duration, in microseconds.

### 5.1.4 ChunkGain [Allied Vision]

<b>Name</b>	Chunk Gain
<b>Interface</b>	IFloat
<b>Access</b>	Read/Write
<b>Visibility</b>	Beginner

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

### 5.1.5 ChunkSyncInLevels [Allied Vision]

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

Momentary logic levels of the hardware line inputs.

### 5.1.6 ChunkSyncOutLevels [Allied Vision]

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

Output levels of hardware sync outputs, for output(s) in GP0 mode.