Allied Vision

GigE Vision Cameras

GigE Features Reference

V5.3.2

Allied Vision Technologies GmbH // Taschenweg 2a, 07646 Stadtroda / Germany

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Read this reference carefully

Read this reference to fully understand your camera’s features.

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Introduction

This chapter includes:

- About this document
- Document history
- Layout styles and symbols used in this reference

About this document

This document describes the standard and advanced camera controls for Allied Vision GigE cameras as seen from the Vimba Viewer.

This document applies to the GigE Vision camera families listed below and describes their features.

Bigeye G	Prosilica GB	Prosilica GS
Mako G	Prosilica GC	Prosilica GT
Manta	Prosilica GE	Prosilica GX

Further information available online

For more information about Allied Vision Cameras, see:

https://www.alliedvision.com/en/products/cameras

Some features are not available for all camera models.

Example:

- White balance is not available for monochrome cameras.

Some features are implemented in the cameras, but are not always available.

Examples:

- Color correction features are implemented in Manta, Mako G, and Prosilica GT color cameras, but not the Prosilica GB, GC, GE, GS, GX cameras.
- Color correction is supported in Manta, Mako G, and Prosilica GT. It is not available in color cameras if they are operated with Bayer pixel formats, but works if debayering is done within the camera.

GigE IR and scientific camera and driver features chapter has been moved to the Goldeye G/CL Features Reference.

Document history

Version	Date	Remarks
V1.0.0	2013-Jul-04	New Reference- Release status
V1.0.1	2013-Sep-06	Added the EF lens features Added `ReverseX` feature Updated `DefectMaskPixelEnable` feature Updated controls in the `Statistics` feature Updated controls in the `DeviceStatus` feature
V2.0.0	2014-Jul-22	Created GigE camera and driver features chapter by merging camera controls and driver controls chapters of V1.0.1 of this document Added `BufferHandlingControl` and `StreamInformation` categories, applicable for Vimba version 1.3 or higher Replaced `GVCPHBInterval` with `GevHeartbeatTimeout` and `GevHeartbeatInterval`, applicable for Vimba version 1.3 or higher Updated the following in GigE camera and driver features chapter • Updated `PixelFormat`, `Hue`, `Saturation`, and `ColorTransformationControl` • For Vimba Viewer V1.1.1 or higher, `GevDeviceMACAddress` is moved under `Info` • Updated `ChunkModeActive`, and `AcquisitionFrameRateAbs` • Added note on binning in `BinningHorizontal` and `BinningVertical` • Removed the EF lens controls from the document until the camera samples are available • Removed *`FrameTrigger`* from `SyncOutSource` on page 100
V2.0.1	2014-Aug-15	Removed EF lens information from the `ChunkModeActive` control
V2.0.2	2014-Oct-08	Following changes are made in the GigE camera and driver features chapter: • Updated `ChunkModeActive`, `BinningHorizontal`, `BinningVertical`, `DecimationHorizontal`, `DecimationVertical`, `PTP`, and `LUTControl` • Moved `ReverseX` under `ImageMode` category • Added `ReverseY` • Removed `GainRaw` • Updated `ExposureTimeAbs`, `GainAuto`, and `Gain` • Added `ExposureTimeIncrement` • Removed the *`other`* option from `ExposureAuto` • Added *`TriggerWidth`* option for `ExposureMode`

Table 1: Document history

Version	Date	Remarks
V3.0.0	2015-Jan-15	Updated Allied Vision logo Updated `Statistics` category in GigE camera and driver features chapter Renamed: • Chapter 'AVT GigE camera and driver features' to GigE camera and driver features Following changes are made in the GigE camera and driver features chapter: • Added `SensorShutterMode`, `BinningVerticalMode`, `BinningHorizontalMode`, and `DefectMaskEnable` • Updated `BinningHorizontal` and `BinningVertical` • Added *`PieceWiseLinearHDR`* option in `ExposureMode` • Added `ExposureTimePWL1`, `ExposureTimePWL1`, `ThresholdPWL1`, and `ThresholdPWL1` • Updated `ExposureTimeAbs`, `ExposureAuto`, `AcquisitionFrameRateAbs`, `GainAuto`, `IrisMode`, and `BalanceWhiteAuto`
V3.1.0	2015-Mar-10	Added `EFLensControl` Updated `DefectMaskEnable`, `PtpMode`, and `PtpStatus` Updated `ChunkModeActive` and `SensorShutterMode`
V3.2.0	2015-Mar-20	Replaced old links with new Allied Vision website links Changed this documents name from 'GigE Camera and Driver Features' to 'GigE Features Reference'
V4.0.0	2015-Aug-25	Updated the document according to Allied Vision's new layout and brand guidelines Added `GevIPConfigurationApply` feature in GigE camera and driver features chapter
V5.0.0	2016-May-10	Moved the GigE IR and scientific camera and driver features chapter to the new Goldeye G/CL Features Reference. Added `EventExposureStart` event. When enabled, will send an event from the camera when the exposure start event occurs. Event ID: 40019 Added affected features to tables Defined `EventIDs` Added `SensorDigitizationTaps` and `SensorTaps` features Added `Fpnc` feature Various minor updates and edits
V5.1.0	2016-July-08	Added new `ActionControl` category of features.
V5.2.0	2016-Oct-12	Added `SensorReadoutMode` feature Added breadcrumbs to map feature location in Vimba user interface Added GenICam Standard Feature Naming Convention (SFNC) identifiers Added visibility row. Visibility identifiers including beginner, expert, and guru are in-line with GenICam classification Updated Trigger over Ethernet Action Command description

Table 1: Document history (Continued)

Version	Date	Remarks
V5.3.0	2016-Nov-10	Removed breadcrumbs but added Category field to tables Corrected formula to convert DN to F-Stop value in Chunk Data. Added little-endian/big-endian comments to table under ChunkModeActive.
V5.3.1	2017-Jan-27	Corrected Action Command access level to Write only.
V5.3.2	2017-Mar-17	Updated Action Command descriptions and supported Vimba version

Table 1: Document history (Continued)

Reference conventions

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

Styles

Style	Function	Example
Emphasis	Program names, UI elements, highlighting important information	**control**
Courier New	Feature names	`Input`
Courier New Italics	Feature values	*`Mode`*
Blue	Cross references, web page links, email links	Link

Access

Abbreviation	Meaning
R/W	Feature is read/write.
R/(W)	Feature is read only. It may be read/write depending upon the user privilege level
R/C	Feature is read only and the value is constant.
R	Feature is read and the value may change.
W	Feature is write only.

Visibility

Level	Meaning
Beginner	Basic features.
Expert	Features that require a more in-depth knowledge of the camera functionality. This is the preferred visibility level for all advanced features in the cameras.
Guru	Advanced features that might bring the cameras into a state where it will not work properly anymore if it is set incorrectly for the cameras current mode of operation.

Symbols

Practical hint

This symbol highlights a practical hint that helps to better understand the camera‘s features and functions, and to make better use of it.

Safety-related instructions to avoid malfunctions

This symbol indicates important or specific instructions or procedures that are related to product safety. You have to follow these instructions to avoid malfunctions.

Further information available online

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

https://www.alliedvision.com

Additional information

Allied Vision software

Allied Vision provides a number of software packages, all of which are free of charge and contain the following components:

- Drivers
- Software Development Kit (SDK) for camera control and image acquisition
- Examples based on the provided APIs of the SDK
- Documentation and release notes

- Viewer application to operate/configure the cameras

All software packages (including documentation and release notes) provided by Allied Vision can be downloaded at:

https://www.alliedvision.com/en/support/software-downloads

Third-party software

In general, third-party software provides increased functionality such as image processing and video recording. Vimba SDK is based on the GenICam SFNC standard. GenICam-based third-party software automatically connect with Vimba's transport layers. Additionally, Vimba includes the Cognex Adapter for VisionPro.

Allied Vision cameras can be easily used with third party image-processing libraries. Allied Vision partners with all major software providers to ensure full compatibility of our SDK and easy integration of our cameras into your system. For more information see:

https://www.alliedvision.com/en/products/software/third-party-libraries.html

Please note: Allied Vision does not endorse one product or vendor rather than the other nor provide technical support for third-party solutions. Please contact the respective software vendor for assistance.

Prosilica GT, GC, Manta, and Mako G camera families are GenICam SFNC version 1.2.1 compliant. Bigeye G cameras are GenICam SFNC version 1.0 compliant.

GigE camera and driver features

This chapter lists standard and advanced camera and driver controls, as seen from the Vimba Viewer.

Acquisition

This category includes all features related to image acquisition, including trigger and exposure control. It describes the basic model for acquisition and the typical behavior of the camera.

AcquisitionAbort

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Command
Access	Write
Visibility	Beginner
Affected features	`AcquisitionStart`, `AcquisitionStop`
Category	`/Acquisition`

Software command to stop the camera from receiving frame triggers and abort the current acquisition. A partially transferred image is completed. If no acquisition is in progress, the command is ignored.

AcquisitionFrameCount

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	*1* to *65535*
Default	*1*
Unit	Frames
Affected features	n/a
Category	`/Acquisition`

Defines the number of frames to capture in a limited sequence of images. Used with `AcquisitionMode` = *`MultiFrame`* or *`Recorder`*. In *`Recorder`* mode, `AcquisitionFrameCount` cannot exceed `StreamHoldCapacity`.

AcquisitionFrameRateAbs

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Float
Access	Read/Write
Visibility	Beginner
Range	Camera dependent
Unit	Frames per second
Affected features	`ExposureTimeAbs`, `AcquisitionFrameRateLimit`
Category	`/Acquisition`

If `TriggerSelector` = *`FrameStart`* and either `TriggerMode` = *`Off`* or `TriggerSource` = *`FixedRate`*, this control specifies the frame rate. Depending on the exposure duration, the camera may not achieve the frame rate set here.

If `ExposureMode` = *`Timed`*	Ensure [1/`ExposureTimeAbs`*] > `AcquisitionFrameRateAbs` to achieve target frame rate
If `ExposureMode` = *`TriggerWidth`*	Ensure [1/(external trigger pulse width)] > `AcquisitionFrameRateAbs` to achieve target frame rate
If `ExposureMode` = *`PieceWiseLinearHDR`*	Ensure the [1/`ExposureTimeAbs`*] > `AcquisitionFrameRateAbs` to achieve target frame rate
* `ExposureTimeAbs` in seconds	

AcquisitionFrameRateLimit

Origin of feature	Camera
Feature type	Float
Access	Read only
Visibility	Beginner
Range	Camera dependent
Unit	Frames per second
Affected features	n/a
Category	`/Acquisition`

The maximum frame rate possible for the current exposure duration pixel format.

AcquisitionMode

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	*Continuous*, *SingleFrame*, *MultiFrame*, *Recorder*
Default	*Continuous*
Affected features	n/a
Category	/Acquisition

Determines the behavior of the camera if acquisition start is triggered.

Value	Description
Continuous	After an acquisition start event, the camera will continuously receive frame trigger events. See TriggerSelector and TriggerSource for more information.
SingleFrame	The camera will only deliver a single frame trigger event. Further trigger events are ignored until acquisition is stopped and restarted.
MultiFrame	The camera will acquire the number of images specified by AcquisitionFrameCount. Further trigger events are ignored until acquisition is stopped and restarted.
Recorder	The camera will continuously record images into the camera on-board FIFO image buffer, but will not send them to the host until an *AcquisitionRecord* trigger signal is received. Further *AcquisitionRecord* trigger events are ignored until acquisition is stopped and restarted. Combined with the RecorderPreEventCount control, this feature is useful for returning any number of frames before a trigger event. If *AcquisitionRecord* trigger is received, the currently imaging/acquiring image will complete as normal, and then at least one more image is taken. The FIFO volatile image memory is a circular buffer, that starts rewriting images once it is full. Its size is determined by AcquisitionFrameCount.

AcquisitionStart

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Command
Access	Write
Visibility	Beginner
Affected features	`AcquisitionStop`, `AcquisitionAbort`
Category	`/Acquisition`

Software command to start the camera receiving frame triggers. Valid if `TriggerMode` = *`Off`*. See `TriggerSelector` = *`FrameStart`* trigger.

AcquisitionStop

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Command
Access	Write
Visibility	Beginner
Affected features	`AcquisitionStart`, `AcquisitionAbort`
Category	`/Acquisition`

Software command to stop the camera from receiving frame triggers. Valid if `TriggerMode` = *`Off`*. See `TriggerSelector` = *`FrameStart`* trigger.

RecorderPreEventCount

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	*1* to *65535*
Default	*0*
Unit	Frames
Affected features	n/a
Category	`/Acquisition`

Valid if `AcquisitionMode` = *`Recorder`*. The number of frames returned before the *`AcquisitionRecord`* trigger event, with `AcquisitionFrameCount` `minus` `RecorderPreEventCount` frames being returned after the *`AcquisitionRecord`* trigger event.

At least one image must be captured after the *`AcquisitionRecord`* trigger event, for instance, you cannot set `RecorderPreEventCount` = *1*, and `AcquisitionFrameCount` = *1*.

SensorShutterMode

Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Possible values	*Global*, *Rolling*, *GlobalReset*
Default	*Global*
Affected features	ExposureTimeAbs, AcquisitionFrameRateLimit, AcquisitionFrameRateAbs, ExposureAutoMin, ExposureAutoMax
Category	/Acquisition

Feature type of the shutter. The following figure illustrates the different sensor shutter modes.

Value	Description
Global	All pixels reset and start exposure at same time. All pixels are shifted to readout at same time. All pixels have the same ExposureTimeAbs.
Rolling	Each row is reset, exposed, and read out in succession from top to bottom of image. All pixels have the same ExposureTimeAbs. This mode is susceptible to motion blur; however, this mode offers enhanced SNR/dynamic range.
GlobalReset	All pixels reset and start exposure at same time. Pixels are shifted to readout one line at a time from top to bottom of image. This mode does not allow overlapped exposure and readout. In this mode, ExposureTimeAbs is the time from global reset to start of readout of top row. Subsequent rows will have a longer exposure time ExposureTimeAbs + (row readout time × row number). This mode offers enhanced SNR/dynamic range with no motion blur, which is useful for strobe applications.

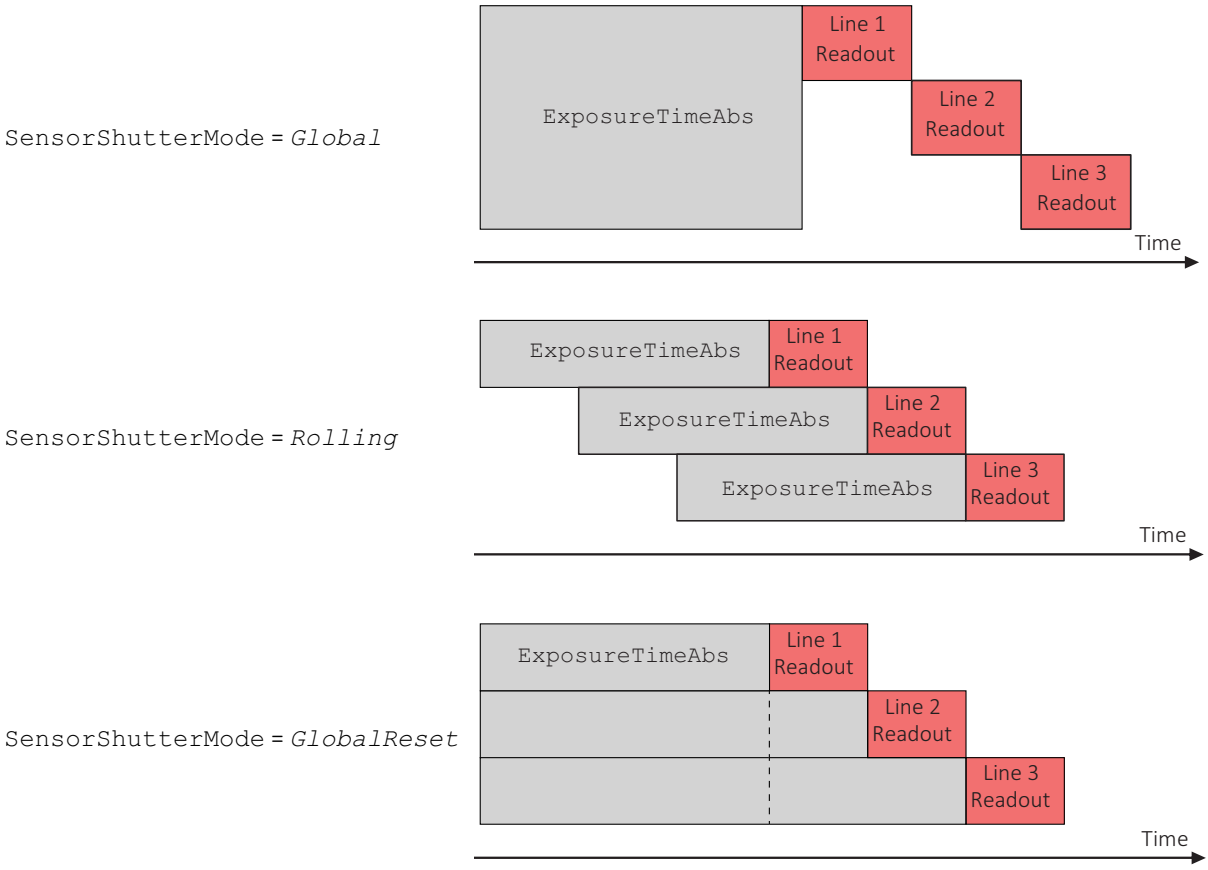

Figure 1: Illustration showing different sensor shutter modes

Trigger

This category relates to how an image frame is initiated or triggered.

TriggerActivation

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	*RisingEdge*, *FallingEdge*, *AnyEdge*, *LevelHigh*, *LevelLow*
Default	*RisingEdge*
Affected features	n/a
Category	/Acquisition/Trigger

Feature type of activation, for hardware triggers. This feature controls edge/level and polarity sensitivities.

Value	Description
RisingEdge	Resets the encoder on the Rising Edge of the signal.
FallingEdge	Resets the encoder on the Falling Edge of the signal.
AnyEdge	Resets the encoder on the Falling or rising Edge of the selected signal.
LevelHigh	Resets the encoder as long as the selected signal level is High.
LevelLow	Resets the encoder as long as the selected signal level is Low.

TriggerDelayAbs

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Float
Access	Read/Write
Visibility	Beginner
Range	Camera dependent
Default	*0*
Unit	µs
Affected features	n/a
Category	`/Acquisition/Trigger`

Start-of-image can be delayed to begin some time after a trigger event is received by the camera. This feature is valid only if `TriggerSource` is set to external trigger (i.e. *`Line1`*, *`Line2`*). This control is a commonly used trigger to synchronize with a strobe lighting source, which will inherently have some fixed setup time.

TriggerMode

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	*`Off`*, *`On`*
Default	*`On`*
Affected features	n/a
Category	`/Acquisition/Trigger`

Controls the trigger set in `TriggerSelector`.

If `TriggerMode` = *`Off`* and `TriggerSelector` = *`FrameStart`*, images triggered in *`FixedRate`* at `AcquisitionFrameRateAbs`.

TriggerOverlap

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	*Off*, *PreviousFrame*
Default	*Off*
Affected features	n/a
Category	/Acquisition/Trigger

Permitted window of trigger activation, relative to previous frame. Does not work with software triggering. Only external triggering.

Value	Description
Off	Any external trigger received before a high *FrameTriggerReady* signal is ignored.
PreviousFrame	Any external trigger received before *FrameTriggerReady* is latched and used to trigger the next frame.

TriggerSelector

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	*FrameStart*, *AcquisitionStart*, *AcquisitionEnd*, *AcquisitionRecord*
Default	*FrameStart*
Affected features	TriggerMode, TriggerSoftware, TriggerSource, TriggerActivation, TriggerOverlap, TriggerDelayAbs
Category	/Acquisition/Trigger

Select a trigger, then use the controls {TriggerMode, TriggerSoftware, TriggerSource, TriggerActivation, TriggerOverlap, TriggerDelayAbs} to setup and read the trigger features.

Value	Description
FrameStart	The trigger which starts each image (if acquisition is running).
AcquisitionStart	The trigger which starts the acquisition process.
AcquisitionEnd	The trigger which ends the acquisition process.
AcquisitionRecord	The trigger which initiates the sending of AcquisitionFrameCount number of recorded images from the camera on-board memory to the host.

TriggerSoftware

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Command
Access	Write
Visibility	Beginner
Affected features	n/a
Category	/Acquisition/Trigger

Triggers an image. Valid if TriggerSource = *Software*.

TriggerSource

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	*Freerun*, *Line1*, *Line2*, *Line3*, *Line4*, *FixedRate*, *Software*, *Action0*, *Action1* The number of external trigger lines is camera dependent.
Default	*Freerun*
Affected features	n/a
Category	/Acquisition/Trigger

Determines how an image frame is initiated within an acquisition stream. This might be a hardware trigger, a fixed rate generator, or software trigger only.

An acquisition stream must be started in order to trigger/receive individual frames. For *Freerun* and *FixedRate* the first frame is synchronized to *AcquisitionStart* trigger.

Value	Description
Freerun	Camera runs at maximum supported frame rate depending on the exposure time and region of interest size.
Line1	External trigger *Line1*
Line2	External trigger *Line2*
Line3	External trigger *Line3*
Line4	External trigger *Line4*
FixedRate	Camera self-triggers at a fixed frame rate defined by AcquisitionFrameRateAbs.
Software	Software initiated image capture.
Action0	Select Action0 or Action1. For use with Trigger over Ethernet (ToE) Action Commands.
Action1	Select Action0 or Action1. For use with Trigger over Ethernet (ToE) Action Commands.

To use a Trigger over Ethernet (ToE) Action Command, the trigger source must be set to *Action0* or *Action1*.

ActionControl

Triggering an action in multiple devices at roughly the same time can be accomplished through the action command (`ACTION_CMD`) message. Each action command message contains information for the device to validate the requested operation:

- `ActionDeviceKey`: Provides the device key that allows the device to check the validity of action commands. `ActionDeviceKey` must be equal on the camera and on the host PC. Before a camera accepts an Action Command, it verifies if the received key is identical with its configured key.
- `ActionSelector`: Selects to which Action Signal further Action settings apply.
- `ActionGroupKey`: Provides the key that the device will use to validate the action on reception of the action protocol message. Each camera can be assigned to exactly one group and all grouped cameras perform an action at the same time.
- `ActionGroupMask`: Provides the mask that the device will use to validate the action on reception of the action protocol message. `ActionGroupMask` serves as filter that specifies which cameras within a group react on an Action Command.

To use an Action Command, `TriggerMode` must be set to *`On`* and `TriggerSource` must be set to *`Action0`* or *`Action1`*.

If you use an Ethernet router, make sure all cameras are in the same subnet. Using a switch does not affect Action Commands.

Trigger over Ethernet is a synchronous image acquisition which is created by sending an Action Command through the Ethernet host. The Action Command is an Ethernet packet that can be unicast or broadcast to a device or devices in order to synchronously trigger an action on the camera(s). This command can be sent by Vimba, a trigger device connected to the network or just a program sent by a host PC connected to the network. The Ethernet packet uses the IPv4 User Datagram Protocol (UDP, Port: 3956) and conforms to the GigE Vision Control Protocol (GVCP).

The following controls must be configured for each camera that you want to control with an Action Command.

ActionDeviceKey

Standard	GenICam Standard Feature Naming Convention (SFNC)
Display name	Action Device Key
Origin of feature	Camera
Feature type	Integer
Access	Write
Visibility	Guru
Range	0 to 4294967295 (camera and host PC)
Default	0
Vimba version	Vimba version 2.1 or later
Affected features	n/a
Category	`/ActionControl`

Provides the device key that allows the device to check the validity of action commands. The device internal assertion of an action signal is only authorized if the `ActionDeviceKey` and the action device key value in the protocol message are equal. When an Action Command is received, the `ActionDeviceKey` is the first control checked. The device key is a 32-bit value. Only a valid device key can trigger the Action Command event on the camera.

`ActionDeviceKey` must be configured on the camera(s) and on the host PC.

`ActionDeviceKey` must be set each time the camera is opened.

ActionSelector

Standard	GenICam Standard Feature Naming Convention (SFNC)
Display name	Action Selector
Origin of feature	Camera
Feature type	Integer
Access	Write
Visibility	Guru
Range	0 to 1
Default	0
Vimba version	Vimba version 2.1 or later
Affected features	`ActionGroupMask`, `ActionGroupKey`
Category	`/ActionControl`

Selects to which action signal further action settings apply. Allied Vision cameras support two Action Commands: *`Action0`* and *`Action1`*.

`ActionDeviceKey` must be configured on the camera(s) and on the host PC.

ActionGroupKey

Standard	GenICam Standard Feature Naming Convention (SFNC)
Display name	Action Group Key
Origin of feature	Camera
Feature type	Integer
Access	Write
Visibility	Guru
Range	0 to 4294967295 (camera and host PC)
Default	0
Vimba version	Vimba version 2.1 or later
Affected features	n/a
Category	`/ActionControl`

Provides the key that the device will use to validate the action on reception of the action protocol message. This enables an Action Command to be applied to specific subsets devices. The group key is a 32-bit value.

`ActionGroupKey` must be configured on the camera(s) and on the host PC.

ActionGroupMask

Standard	GenICam Standard Feature Naming Convention (SFNC)
Display name	Action Group Mask
Origin of feature	Camera
Feature type	Integer
Access	Write
Visibility	Guru
Range	0 to 4294967295 (camera) 1 to 4294967295 (host PC)
Default	0
Vimba version	Vimba version 2.1 or later
Affected features	n/a
Category	`/ActionControl`

Provides the mask that the device will use to validate the action on reception of the action protocol message. Once the `ActionGroupKey` is validated, the group mask is checked against the `ActionGroupMask`. Once the group key and group mask are validated, the related function is activated. The group mask is a 32-bit value.

Executing the API feature `ActionCommand` sends the `ActionControl` parameters to the cameras and triggers the assigned action, for example, image acquisition.

`ActionGroupMask` must be configured on the camera(s) and on the host PC.

On the host PC, the range of `ActionGroupMask` is 1 to 4294967295. Sending an Action Command with `ActionGroupMask 0` to the camera results in an error.

BufferHandlingControl

StreamAnnounceBufferMinimum

Display name	Stream Announce Buffer Minimum
Origin of feature	Driver
Feature type	Integer
Access	Read only (Constant)
Visibility	Beginner
Vimba version	Vimba version 1.3 or later
Affected features	n/a
Category	`/BufferHandlingControl`

The minimal number of buffers to announce to enable selected acquisition mode.

StreamAnnouncedBufferCount

Display name	Stream Announced Buffer Count
Origin of feature	Driver
Feature type	Integer
Access	Read only
Visibility	Beginner
Vimba version	Vimba version 1.3 or later
Affected features	n/a
Category	`/BufferHandlingControl`

The number of announced (known) buffers on this stream.

StreamBufferHandlingMode

Display name	Stream Buffer Handling Mode
Origin of feature	Driver
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Default	Default
Vimba version	Vimba version 1.3 or later
Affected feature	`StreamAcquisitionModeSelector`
Category	`/BufferHandlingControl`

Available buffer handling modes of this stream.

Controls

BlackLevelControl

BlackLevel

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Float
Access	Read/Write
Visibility	Beginner
Range	0 to Camera dependent
Default	*0*
Affected features	n/a
Category	`/Controls/BlackLevelControl`

The black level value. Setting the `Gain` does not change the `BlackLevel`.

BlackLevelSelector

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Default	*All*
Affected features	n/a
Category	`/Controls/BlackLevelControl`

If set to *ALL*, `BlackLevel` is applied to all channels or taps.

CCDTemperatureOK

Origin of feature	Camera
Feature type	Integer
Access	Read only
Default	*0*
Affected features	n/a
Category	`/Controls`

The current temperature status of the CCD sensor. Indicates if CCD sensor has desired cooling temperature.

Value	Description
0	The CCD sensor may be too hot. Acquired image data may have higher noise than expected or contain erroneous pixels at long exposure times.
1	The CCD sensor temperature is in the desired temperature range. Acquired image data are OK.

ColorTransformationControl

This section describes features related to color transformations in Allied Vision GigE color cameras. The following controls are only valid if using on-camera interpolated pixel formats.

The color transformation is a linear operation taking as input the triplet R_{in}, G_{in}, B_{in} for an RGB color pixel. This triplet is multiplied by a 3x3 matrix. This color transformation allows to change the coefficients of the 3x3 matrix.

$$\begin{bmatrix} R_{out} \\ G_{out} \\ B_{out} \end{bmatrix} = \begin{bmatrix} Gain00 & Gain01 & Gain02 \\ Gain10 & Gain11 & Gain12 \\ Gain20 & Gain21 & Gain22 \end{bmatrix} \times \begin{bmatrix} R_{in} \\ G_{in} \\ B_{in} \end{bmatrix}$$

ColorTransformationMode

Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	*Off*, *Manual*, *Temp6500K*
Default	*Off*
Affected feature	ColorTransformationValue
Category	/Controls/ColorTransformationControl

Selects the mode for the color transformation.

Value	Description
Off	No color transformation.
Manual	Manually set ColorTransformationValue matrix coefficients.
Temp6500K	Colors optimized for a surrounding color temperature of 6500 K.

ColorTransformationSelector

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible value	*RGBtoRGB*
Affected feature	ColorTransformationValue
Category	/Controls/ColorTransformationControl

Selects which color transformation module is controlled by the various color transformation features.

ColorTransformationValue

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Float
Access	Read/Write
Visibility	Beginner
Range	-2 to 2
Default	*1*
Affected features	n/a
Category	`/Controls/ColorTransformationControl`

Represents the value of the selected gain factor or offset inside the transformation matrix.

ColorTransformationValueSelector

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	*Gain00*, *Gain01*, *Gain02*, *Gain10*, *Gain11*, *Gain12*, *Gain20*, *Gain21*, *Gain22*
Default	*Gain00*
Affected feature	`ColorTransformationValue`
Category	`/Controls/ColorTransformationControl`

Selects the gain factor or offset of the transformation matrix if `ColorTransformationMode` = *Manual*.

Value	Description
Gain00	Red contribution to the red pixel (multiplicative factor).
Gain01	Green contribution to the red pixel (multiplicative factor).
Gain02	Blue contribution to the red pixel (multiplicative factor).
Gain10	Red contribution to the green pixel (multiplicative factor).
Gain11	Green contribution to the green pixel (multiplicative factor).
Gain12	Blue contribution to the green pixel (multiplicative factor).
Gain20	Red contribution to the blue pixel (multiplicative factor).
Gain21	Green contribution to the blue pixel (multiplicative factor).
Gain22	Blue contribution to the blue pixel (multiplicative factor).

DSPSubregion

The automatic exposure, gain, white balance, and iris features can be configured to respond only to a subregion within the image scene. This feature can be used to choose a subregion that will 'meter' the rest of the image. This feature works like the region metering on a photographic camera.

DSPSubregionBottom

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	0 to sensor height
Default	*Sensor height*
Affected features	n/a
Category	/Controls/DSPSubregion

Defines the bottom edge of the DSP subregion.

The DSP subregion is the area of the image used for measurements in "auto" functions such as auto-exposure and auto-gain. DSPSubregionLeft is the bottom row, relative to the current image region. For convenience, this value may be higher than the maximum height.

DSPSubregionLeft

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	0 to sensor width
Default	*0*
Affected features	n/a
Category	/Controls/DSPSubregion

Defines the left edge of the DSP subregion.

DSPSubregionRight

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	0 to sensor width
Default	*Sensor width*
Affected features	n/a
Category	/Controls/DSPSubregion

Defines the right edge of the DSP subregion.

For convenience, this value may be higher than the maximum width.

DSPSubregionTop

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	0 to sensor height
Default	*0*
Affected features	n/a
Category	/Controls/DSPSubregion

Defines the top edge of the DSP subregion.

EdgeFilter

Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Possible values	*Smooth2*, *Smooth1*, *Off*, *Sharpen1*, *Sharpen2*
Default	*Off*
Affected features	n/a
Category	/Controls

Image sharpness/blur. Applied post Bayer interpolation. Only available on color pixel formats noted with on-camera interpolation.

Value	Description
Smooth2	Most blur
Smooth1	Slight blur
Off	No blur or sharpness applied
Sharpen1	Slight sharp
Sharpen2	Most sharp

EdgeFilter feature is applicable only to color models and Manta cameras except dual-tap camera models.

DefectMaskEnable

Origin of feature	Camera
Feature type	Boolean
Access	Read/Write
Visibility	Beginner
Possible values	*true*, *false*
Default	*true*
Affected features	n/a
Category	/Controls

Control defective pixel masking. Defective pixels are replaced with averaged values from neighboring pixels. This feature either enables or disables defect masking.

If BinningHorizontal, BinningVertical, DecimationHorizontal, or DecimationVertical is set greater than *1*, DefectMaskEnable is set to *False*.

For more information on the Defect Mask Loader and defect masking process, see the Defect Masking application note at:

https://www.alliedvision.com/en/support/technical-papers-knowledge-base.html

DefectMask

Some larger format sensors may contain defective columns. Class 1 and Class 0 sensors are available with no defective columns.

See the Modular Concept document, or contact your Allied Vision sales team for more information.

https://www.alliedvision.com/en/support/technical-documentation.html

DefectMaskColumnEnable

Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	*`Enabled`*, *`Disabled`*
Default	*`Enabled`*
Affected feature	n/a
Category	`/Controls/DefectMask`

Defect masking replaces defective columns with interpolated values based on neighboring columns. Defective columns are detected and recorded at the factory. This feature either enables or disables masking of defective columns.

For more information on the `Loaddefects` application and column defect masking process, see the Defect Masking application note at:

https://www.alliedvision.com/en/support/technical-papers-knowledge-base.html

DefectMaskPixelEnable

Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Possible values	*Enabled*, *Disabled*
Default	*Enabled*
Affected feature	n/a
Category	/Controls/DefectMask

Controls defective pixel masking.

EFLensControl

The section describes features related to EF lens control in Allied Vision GigE cameras with integrated EF-Mount.

The features listed under EFLensControl are not available for cameras with Birger EF-Mount option.

EFLensFStop

EFLensFStopCurrent

Origin of feature	Camera
Feature type	Float
Access	Read/Write
Visibility	Beginner
Range	EFLensFStopMin to EFLensFStopMax
Unit	µs
Affected features	n/a
Category	/Controls/EFLensControl/EFLensFStop

The current F-stop number or aperture of the EF lens.

EFLensFStopDecrease

Origin of feature	Camera
Feature type	Command
Access	Write
Visibility	Beginner
Affected feature	`EFLensFStopCurrent`
Category	`/Controls/EFLensControl/EFLensFStop`

Decrease F-stop number, i. e., increase lens aperture by the `EFLensFStopStepSize`.

EFLensFStopIncrease

Origin of feature	Camera
Feature type	Command
Access	Write
Visibility	Beginner
Affected feature	`EFLensFStopCurrent`
Category	`/Controls/EFLensControl/EFLensFStop`

Increase F-stop number, i. e., reduce lens aperture by the `EFLensFStopStepSize`.

EFLensFStopMax

Origin of feature	Camera
Feature type	Float
Access	Read only
Visibility	Beginner
Default	*`Lens dependent`*
Unit	F-Stop
Affected feature	`EFLensFStopCurrent`
Category	`/Controls/EFLensControl/EFLensFStop`

The maximum possible F-stop setting or the smallest possible aperture for the EF lens based on current zoom setting.

EFLensFStopMin

Origin of feature	Camera
Feature type	Float
Access	Read only
Visibility	Beginner
Default	*Lens dependent*
Unit	F-Stop
Affected feature	`EFLensFStopCurrent`
Category	`/Controls/EFLensControl/EFLensFStop`

The minimum possible F-stop setting or the largest possible aperture for the EF lens based on current zoom setting.

EFLensFStopStepSize

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	1 to 8
Unit	F-Stop/8
Affected features	n/a
Category	`/Controls/EFLensControl/EFLensFStop`

Size of increments/decrements in `EFLensFStopCurrent` if using `EFLensFStopIncrease` and `EFLensFStopDecrease` commands, respectively.

EFLensFocus

EFLensFocusCurrent

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	`EFLensFocusMin` to `EFLensFocusMax`
Affected feature	n/a
Category	`/Controls/EFLensControl/EFLensFocus`

The current focus setting.

EFLensFocusDecrease

Origin of feature	Camera
Feature type	Command
Access	Write
Visibility	Beginner
Affected feature	`EFLensFocusCurrent`
Category	`/Controls/EFLensControl/EFLensFocus`

Decrease/shorten focus distance by `EFLensFocusStepSize`.

EFLensFocusIncrease

Origin of feature	Camera
Feature type	Command
Access	Write
Visibility	Beginner
Affected feature	`EFLensFocusCurrent`
Category	`/Controls/EFLensControl/EFLensFocus`

Increase/lengthen focus distance by `EFLensFocusStepSize`.

EFLensFocusMax

Origin of feature	Camera
Feature type	Integer
Access	Read only
Visibility	Beginner
Default	*`Lens dependent`*
Affected feature	`EFLensFocusCurrent`
Category	`/Controls/EFLensControl/EFLensFocus`

The maximum/farthest possible focus setting.

EFLensFocusMin

Origin of feature	Camera
Feature type	Integer
Access	Read only
Visibility	Beginner
Default	*Lens dependent*
Affected feature	`EFLensFocusCurrent`
Category	`/Controls/EFLensControl/EFLensFocus`

The minimum/nearest possible focus setting.

EFLensFocusStepSize

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	Lens dependent
Default	*10*
Affected features	n/a
Category	`/Controls/EFLensControl/EFLensFocus`

Size of increments/decrements in `EFLensFocusCurrent` if using `EFLensFocusIncrease` and `EFLensFocusDecrease` commands, respectively.

EFLensFocusSwitch

Origin of feature	Camera
Feature type	Enumeration
Access	Read only
Visibility	Beginner
Possible values	*AutoFocus*, *ManualFocus*
Affected features	n/a
Category	`/Controls/EFLensControl/EFLensFocus`

The current position of lens AF/MF switch.

Value	Description
AutoFocus	Switch is in auto focus (AF) position
ManualFocus	Switch is in manual focus (MF) position

All controls under `EFLensFocus` become read-only if the lens AF/MF switch is set to manual focus (MF).

EFLensInitialize

Origin of feature	Camera
Feature type	Command
Access	Write
Visibility	Beginner
Affected features	`EFLensFStopCurrent`, `EFLensFStopMax`, `EFLensFStopMin`, `EFLensFocusSwitch`, `EFLensFocusCurrent`, `EFLensID`, `EFLensLastError`, `EFLensState`, `EFLensZoomCurrent`, `EFLensZoomMax`, `EFLensZoomMin`
Category	`/Controls/EFLensControl`

Initializes the EF lens. This command is automatically executed on power up and/or if lens is attached to camera.

EFLensStatus

EFLensID

Origin of feature	Camera
Feature type	Integer
Access	Read only
Visibility	Beginner
Affected features	n/a
Category	`/Controls/EFLensControl/EFLensStatus`

The identification value of the attached EF lens.

EFLensLastError

Origin of feature	Camera
Feature type	Enumeration
Access	Read only
Visibility	Beginner
Possible values	*EFLensErrNone*, *EFLensErrQuery*, *EFLensErrInternal1*, *EFLensErrInternal2*, *EFLensErrBusy*, *EFLensErrZeroStop*, *EFLensErrInfinityStop*
Affected features	n/a
Category	/Controls/EFLensControl/EFLensStatus

The most recently detected error.

Value	Description
EFLensErrNone	No error detected.
EFLensErrQuery	Lens failed query by camera.
EFLensErrInternal1	Lens communication error (can occur when removing lens).
EFLensErrInternal2	Lens communication error (can occur when removing lens).
EFLensErrBusy	Lens remained busy for longer than 10 seconds.
EFLensErrZeroStop	Lens focus “Zero Stop” not detected.
EFLensErrInfinityStop	Lens focus “Infinity Stop” not detected.

EFLensState

Origin of feature	Camera
Feature type	Enumeration
Access	Read only
Visibility	Beginner
Affected features	n/a
Category	/Controls/EFLensControl/EFLensStatus

The current EF lens state.

State	Description
EFLensIdle	No lens action in progress.
EFLensBusy	Lens is busy (changing focus or aperture).
EFLensWaiting	Camera is waiting for lens attachment.

State	Description
EFLensInitializing	Camera is initializing lens.
EFLensError	Lens Error detected. Error type is indicated by EFLensLastError. Remains in this state until EFLensInitialize is executed.

EFLensZoom

EFLensZoomCurrent

Origin of feature	Camera
Feature type	Integer
Access	Read only
Visibility	Beginner
Range	*EFLensZoomMin* to *EFLensZoomMax*
Units	mm
Affected features	n/a
Category	/Controls/EFLensControl/EFLensZoom

The current focal length of the EF lens.

EFLensZoomMax

Origin of feature	Camera
Feature type	Integer
Access	Read only
Visibility	Beginner
Default	Lens dependent
Units	mm
Affected features	n/a
Category	/Controls/EFLensControl/EFLensZoom

The maximum focal length of the EF lens.

EFLensZoomMin

Origin of feature	Camera
Feature type	Integer
Access	Read only
Visibility	Beginner
Default	`Lens dependent`
Units	mm
Affected features	n/a
Category	`/Controls/EFLensControl/EFLensZoom`

The minimum focal length of the EF lens.

Exposure

ExposureAuto

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	*`Off`*, *`Once`*, *`Continuous`*
Default	*`Off`*
Affected features	n/a
Category	`/Controls/Exposure`

Auto algorithms use information from the camera's current image and apply the following settings to the next image. Large changes in scene lighting may require several frames for the algorithm to stabilize.

Value	Description
`Off`	The automatic mode is *`Off`*.
`Once`	Valid if `ExposureMode` = *`Timed`* or `PieceWiseLinearHDR`. Auto-exposure occurs until target is achieved, then `ExposureAuto` returns to *`Off`*.
`Continuous`	Valid if `ExposureMode` = *`Timed`* or `PieceWiseLinearHDR`. The exposure time will vary continuously according to the scene illumination. The auto exposure function operates according to the `ExposureAuto` and `DSPSubregion` controls.

If using `ExposureAuto` = *`Continuous`*, and `GainAuto` = *`Continuous`* simultaneously, priority is given to changes in exposure until `ExposureAutoMax` is reached, at which point priority is given to changes in gain. Adding simultaneous `IrisMode` = *`Video/DCIris/PIrisAuto`* results in undefined, “race to target” behavior.

You can configure the auto exposure feature to respond only to a subregion within the image scene. This subregion can be configured with the `DSPSubregion` feature.

The camera must be acquiring images in order for the auto algorithm to update.

ExposureAutoControl

ExposureAutoAdjustTol

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	0 to 50
Default	*5*
Unit	Percent
Affected features	n/a
Category	`/Controls/Exposure/ExposureAutoControl`

Tolerance in variation from `ExposureAutoTarget` in which the auto exposure algorithm will not respond. It can be used to limit exposure setting changes to only larger variations in scene lighting.

ExposureAutoAlg

Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	*Mean*, *FitRange*
Default	*Mean*
Affected features	n/a
Category	/Controls/Exposure/ExposureAutoControl

The following algorithms can be used to calculate auto exposure.

Value	Description
Mean	The arithmetic mean of the histogram of the current image is compared to ExposureAutoTarget, and the next image adjusted in exposure time to meet this target. Bright areas are allowed to saturate.
FitRange	The histogram of the current image is measured, and the exposure time of the next image is adjusted so that bright areas are not saturated.

ExposureAutoMax

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	Camera dependent
Default	*500000*
Unit	µs
Affected features	n/a
Category	/Controls/Exposure/ExposureAutoControl

The upper bound to the exposure setting in auto exposure mode. This is useful in situations where frame rate is important. This value would normally be set to something less than (as a rough estimate)$1x10^6$/(desired frame rate).

ExposureAutoMin

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	Camera dependent
Default	*Camera dependent*
Unit	µs
Affected features	n/a
Category	`/Controls/Exposure/ExposureAutoControl`

The lower bound to the exposure setting in auto exposure mode.

ExposureAutoOutliers

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	0 to 1000
Default	*0*
Unit	0.01% i.e. 1000 = 10%
Affected features	n/a
Category	`/Controls/Exposure/ExposureAutoControl`

The total pixels from top of the distribution that are ignored by the auto exposure algorithm.

Number of upper outliers to discard before calculating exposure adjustments. This is in ten-thousandths of the number pixels in the image.

ExposureAutoRate

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	1 to 100; 1 (slowest) to 100 (fastest)
Default	*100*
Unit	Percent
Affected features	n/a
Category	`/Controls/Exposure/ExposureAutoControl`

The rate at which the auto exposure function changes the exposure setting. 100% is auto exposure adjustments running at full speed, and 50% is half speed.

ExposureAutoTarget

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	0 to 100; 0 being black, 100 being white
Default	*50*
Unit	Percent
Affected features	n/a
Category	`/Controls/Exposure/ExposureAutoControl`

The general lightness or darkness of the auto exposure feature; specifically the target mean histogram level of the image.

Higher values result in brighter images.

ExposureMode

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	*Timed*, *TriggerWidth*, *PieceWiseLinearHDR*
Default	*Timed*
Affected features	n/a
Category	/Controls/Exposure

The control for exposure duration.

Value	Description
Timed	Camera exposure time is set by ExposureTimeAbs
TriggerWidth	Camera exposure time is controlled by external trigger pulse on *Line1* or *Line2*. In order for this feature to work, TriggerSelector = *FrameStart* and TriggerSource must be set to *Line1* or *Line2*.
PieceWiseLinearHDR	Image dynamic range is increased in difficult lighting situations by clamping down bright pixels with light levels beyond ThresholdPWL limits. Overall camera exposure time is set by ExposureTimeAbs. HDR sub-exposures are set using ExposureTimePWL1 and ExposureTimePWL2.

ExposureTimeAbs

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Float
Access	Read/Write
Visibility	Beginner
Range	Camera dependent
Unit	µs
Affected features	`AcquisitionFrameRateLimit`, `AcquisitionFrameRateAbs`
Category	`/Controls/Exposure`

The sensor integration time. Values written to control are rounded to nearest multiple of `ExposureTimeIncrement`. Reading this control returns the used, rounded value.

`ExposureTimeAbs` depends on `ExposureMode` as follows:

If `ExposureMode` = *`Timed`*	Then `ExposureTimeAbs` is sensor integration time
If `ExposureMode` = *`TriggerWidth`*	Then `ExposureTimeAbs` is ignored
If `ExposureMode` = *`PieceWiseLinearHDR`*	Then `ExposureTimeAbs` is the full sensor integration time. See `ExposureTimePWL1` and `ExposureTimePWL2` for setting `ThresholdPWL` exposure durations.

ExposureTimeIncrement

Origin of feature	Camera
Feature type	Float
Access	Read only (Constant)
Visibility	Beginner
Range	Camera dependent
Unit	µs
Affected features	n/a
Category	`/Controls/Exposure`

Increment/resolution of the exposure time in microseconds.

ExposureTimePWL1

Origin of feature	Camera
Feature type	Float
Access	Read/Write
Visibility	Beginner
Range	Camera dependent
Unit	µs
Affected features	n/a
Category	`/Controls/Exposure`

Valid only if `ExposureMode` = *`PieceWiseLinearHDR`*. Exposure time after `ThresholdPWL1` is reached.

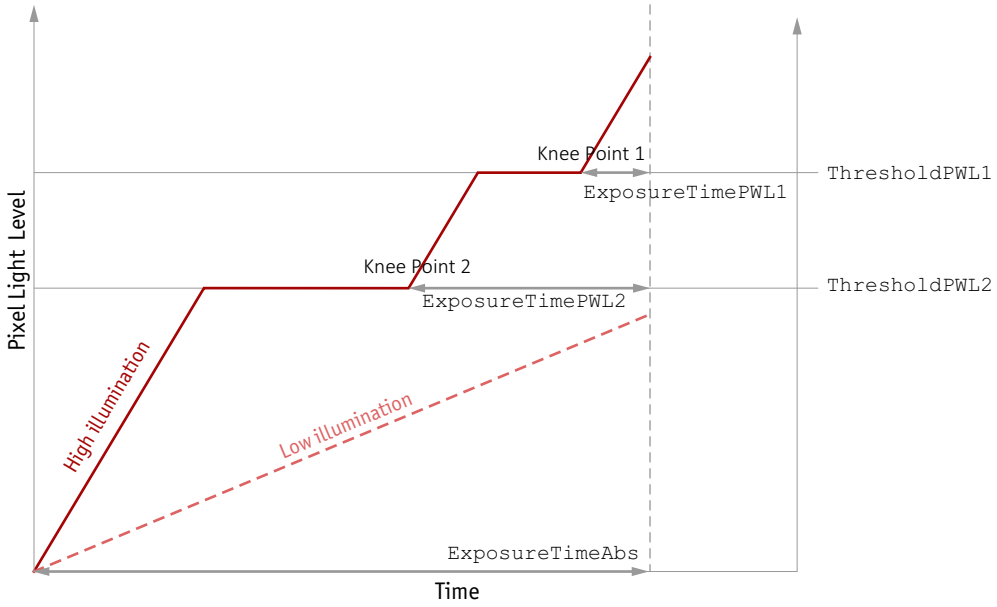

Figure 2: HDR sub exposures and thresholds if ExposureMode = PieceWiseLinearHDR

ExposureTimePWL2

Origin of feature	Camera
Feature type	Float
Access	Read/Write
Visibility	Beginner
Range	Camera dependent
Unit	µs
Affected features	n/a
Category	`/Controls/Exposure`

Valid only if `ExposureMode` = *`PieceWiseLinearHDR`*. Exposure time after `ThresholdPWL2` is reached.

If `ThresholdPWL2` is less than `ThresholdPWL1` (i.e. enabled), *`ExposureValuePWL2`* must be greater than *`ExposureValuePWL1`*.

ThresholdPWL1

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	0 to 63 *0* = no light in pixel, *63* = full pixel light capacity
Default	*63*
Affected features	n/a
Category	`/Controls/Exposure`

Valid only if `ExposureMode` = *`PieceWiseLinearHDR`*. The first and highest threshold level in *`PieceWiseLinearHDR`*.

Leaving `ThresholdPWL1` at *63* disables the first threshold of *`PieceWiseLinearHDR`* mode, effectively disabling HDR mode.

ThresholdPWL2

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	0 to 63 *0* = no light capacity, *63* = full pixel light capacity
Default	*63*
Affected features	n/a
Category	`/Controls/Exposure`

Valid only if `ExposureMode` = *`PieceWiseLinearHDR`*. The second and lowest threshold level in *`PieceWiseLinearHDR`*.

Setting `ThresholdPWL2` above `ThresholdPWL1` disables the second threshold of *`PieceWiseLinearHDR`* mode.

Shutter

Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Possible values	*`Off`*, *`On`*, *`SyncIn1`*, *`SyncIn2`*, *`SyncIn3`*, *`SyncIn4`*, *`SyncIn5`*
Default	*`On`*
Affected features	n/a
Category	`/Controls`

Control the mechanical shutter of Bigeye G-629B Cool cameras.

Value	Description
`Off`	Deactivate the mechanical shutter. Use this mode, if you operate the camera with pulsed light sources.
`On`	Activate the mechanical shutter. If activated, the mechanical shutter opens upon each exposure cycle and closes again, if the exposure is over. Use this mode, if you operate the camera with constant light sources, due to the full frame sensor.
`SyncIn1`	Controls the mechanical shutter dependent on the level of *`LineIn1`*.

Value	Description
SyncIn2	Controls the mechanical shutter dependent on the level of *LineIn2*.
SyncIn3	Controls the mechanical shutter dependent on the level of *LineIn3*.
SyncIn4	Controls the mechanical shutter dependent on the level of *LineIn4*.
SyncIn5	Controls the mechanical shutter dependent on the level of *LineIn5*.

The shutter feature is intended to control the exposure by means of a mechanical shutter. It must not be confused with any other exposure control feature. The mechanical shutter is available only on the Bigeye G-629B Cool camera.

FpncEnable

Origin of feature	Camera
Feature type	Boolean
Access	Read/Write
Visibility	Beginner
Possible values	*true*, *false*
Default	*true*
Affected features	n/a
Category	/Controls

Control fixed pattern noise correction.

GainControl/Gain

This feature controls the gain settings applied to the sensor.

Gain

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Float
Access	Read/Write
Visibility	Beginner
Range	Camera dependent
Default	*0*
Unit	1 dB
Affected features	n/a
Category	`/Controls/GainControl`

$$G_{dB} = 20\log\left(\frac{V_{out}}{V_{in}}\right)$$

The gain setting applied to the sensor. For best image quality, the gain setting must be set to zero. However, in low-light situations, it may be necessary to increase the gain setting.

GainAuto

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	*Off*, *Once*, *Continuous*
Default	*Off*
Affected features	n/a
Category	`/Controls/GainControl`

Auto algorithms use information from the camera's current image and apply the following settings to the next image. Large changes in scene lighting may require two to three frames for the algorithm to stabilize.

Auto algorithm adjusts using 1 dB gain steps. The camera must be acquiring images in order for the auto algorithm to update.

Value	Description
Off	The automatic mode is *Off*.
Once	Valid if ExposureMode = *Timed* or PieceWiseLinearHDR. Auto-gain occurs until target is achieved, then GainAuto returns to *Off*.
Continuous	Valid if ExposureMode = *Timed* or PieceWiseLinearHDR. The gain will vary continuously according to the scene illumination. The auto exposure function operates according to the ExposureAutoControl and DSPSubregion controls.

If using ExposureAuto = *Continuous* and GainAuto = *Continuous* simultaneously, priority is given to changes in exposure until ExposureAutoMax is reached, at which point priority is given to changes in gain. Adding simultaneous IrisMode = *Video/DCIris/PIrisAuto* results in undefined, “race to target” behavior.

You can configure the auto gain feature to respond only to a subregion within the image scene. This subregion can be configured with the DSPSubregion feature.

GainAutoControl

GainAutoAdjustTol

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	0 to 50
Default	*5*
Unit	Percent
Affected features	n/a
Category	/Controls/GainControl/GainAutoControl

Tolerance in variation from GainAutoTarget in which the auto exposure algorithm will not respond. This feature is used to limit auto gain changes to only larger variations in scene lighting.

This prevents needless small adjustments from occurring each image.

GainAutoMax

Origin of feature	Camera
Feature type	Float
Access	Read/Write
Visibility	Beginner
Range	Camera dependent
Unit	dB
Affected features	n/a
Category	`/Controls/GainControl/GainAutoControl`

The upper bound to the gain setting in auto gain mode.

GainAutoMin

Origin of feature	Camera
Feature type	Float
Access	Read/Write
Visibility	Beginner
Range	Camera dependent
Default	*0*
Unit	dB
Affected features	n/a
Category	`/Controls/GainControl/GainAutoControl`

The lower bound to the gain setting in auto gain mode.

GainAutoOutliers

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	0 to 1000
Default	*0*
Unit	0.01%, i.e. 1000 = 10%
Affected features	n/a
Category	`/Controls/GainControl/GainAutoControl`

The total pixels from top of the distribution that are ignored by the auto gain algorithm.

Number of upper outliers to discard before calculating gain adjustments. This is in ten-thousandths of the number pixels in the image.

GainAutoRate

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	1 to 100 1 (slowest) to 100 (fastest)
Default	*100*
Unit	Percent
Affected features	n/a
Category	`/Controls/GainControl/GainAutoControl`

The rate at which the auto gain function changes. A percentage of the maximum rate.

Use this control to slow down the auto-gain adjustments.

GainAutoTarget

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	0 to 100
Default	*50*
Unit	Percent
Affected features	n/a
Category	`/Controls/GainControl/GainAutoControl`

The general lightness or darkness of the auto gain feature. A percentage of maximum brightness.

GainSelector

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible value	*All*
Default	*All*
Affected features	`GainRaw`, `GainAuto`
Category	`/Controls/GainControl`

Gain is applied to all channels or taps.

Gamma

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Float
Access	Read/Write
Visibility	Beginner
Range	Camera dependent
Default	*1.00*
Unit	Output = (Input)^{Gamma}
Affected features	n/a
Category	/Controls

Gamma controls the mode for automatic white balancing between the color channels. The white balancing ratios are automatically adjusted. Controls the gamma correction of pixel intensity. This is typically used to compensate for non-linearity of the display system (Nonlinear brightness control). Applies gamma value to the raw sensor signal (via look-up table).

Value	Description
1.00	Gamma OFF (no Gamma correction)
Values other than *1.00*	Gamma ON

Manta type A

If Gamma is *ON*, LUT 1 is used to do the gamma transform. The original look-up table values are stored temporarily. If Gamma is *ON*, and you read out LUT1: you only get stored look-up table values but not Gamma values. In general, Gamma values cannot be read out.

If Gamma is *OFF*, LUT position 1 contains optional user defined look-up table values.

Manta type B, Mako G, and Prosilica GT cameras have a standalone gamma function which does not share resources with look-up tables.

Hue

Origin of feature	Camera
Feature type	Float
Access	Read/Write
Visibility	Beginner
Range	Camera dependent
Default	*0.00*
Unit	Degrees
Affected features	n/a
Category	`/Controls`

Alters color of image without altering white balance. Takes float input, although rounds to integer. Only valid if using on-camera interpolated pixel formats.

Hue turns the color vectors in the U/V plane. It is 1 degree per step.

IODMode

Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Possible values	*Continuous*, *IOD*, *LineIn1*, *LineIn2*, *LineIn3*, *LineIn4*, *LineIn5*
Default	*IOD*
Affected features	n/a
Category	/Controls

Set camera to continuous or Image on Demand (IOD) mode.

Value	Description
Continuous	The camera requires no external exposure signal. The camera generates a constant exposure time independently. The exposure time is equal to frame readout time and cannot be adjusted. Bigeye G-132B Cool, Bigeye G-283B Cool, and Bigeye G-1100B Cool achieve maximum frame rate in continuous mode only.
IOD	Controls IOD mode. In this mode the camera needs an external trigger signal or a timer driven internal exposure signal.
LineIn1	The camera is switched between *IOD* and *Continuous* mode, dependent on the level of *LineIn1*.
LineIn2	The camera is switched between *IOD* and *Continuous* mode, dependent on the level of *LineIn2*.
LineIn3	The camera is switched between *IOD* and *Continuous* mode, dependent on the level of *LineIn3*.
LineIn4	The camera is switched between *IOD* and *Continuous* mode, dependent on the level of *LineIn4*.
LineIn5	The camera is switched between *IOD* and *Continuous* mode, dependent on the level of *LineIn5*.

If *Continuous* mode is activated, no external exposure signal is allowed. Set TriggerSelector to *FrameStart* and TriggerSource to an unused external trigger Line.

Iris

Auto iris lens support. Supported auto iris lens types (camera dependent): video, DC, and P-Iris. GT series detects lens type on power up. DC settings will not apply if P-Iris lens connected. P-Iris settings will not apply if DC-Iris lens connected.

The auto iris algorithm calculates `IrisAutoTarget` based on information of the current image, and applies this to the next image. Large changes in scene lighting may require two to three frames for the algorithm to stabilize. Adding simultaneous `GainAuto` = *`Continuous`*, or `ExposureAuto` = *`Continuous`*, to `IrisMode` = *`Video/DCIris/PIrisAuto`* results in undefined, “race to target” behavior.

The camera must be acquiring images in order for the auto algorithm to update.

IrisAutoTarget

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	0 to 100 0 being black, 100 being white
Default	*50*
Unit	Percent
Affected features	n/a
Category	`/Controls/Iris`

Controls the general lightness or darkness of the auto iris feature; specifically the target mean histogram level of the image.

IrisMode

Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	*Disabled*, *Video*, *VideoOpen*, *VideoClose*, *PIrisAuto*, *PIrisManual*, *DCIris*
Default	*Disabled*
Affected features	n/a
Category	/Controls/Iris

Sets the auto iris mode. Valid if ExposureMode = *Timed* or PieceWiseLinearHDR.

Value	Description
Disabled	Disable auto iris.
Video	Enable video iris. Video-type lenses only.
VideoOpen	Fully open a video iris. Video-type lenses only.
VideoClose	Full close a video iris. Video-type lenses only.
PIrisAuto	Enable precise auto iris. P-Iris lenses only.
PIrisManual	Manually control iris via LensPIrisPosition feature. P-Iris lenses only.
DCIris	Enable DC auto iris. DC-Iris lenses only.

IrisVideoLevel

Origin of feature	Camera
Feature type	Integer
Access	Read only
Visibility	Beginner
Range	0 to 150
Default	*0*
Unit	mV pp
Affected features	n/a
Category	`/Controls/Iris`

The current video iris level, which is the strength of the video signal coming from the camera. Dependent on lens type. If calibrating a video lens, this value must fall between `IrisVideoLevelMin` and `IrisVideoLevelMax`.

Lens type	Range	Description
Video-type lenses	0 to 150	Reference voltage. This value must fall between `IrisVideoLevelMin` and `IrisVideoLevelMax`
P-Iris lenses	0 to 100	Attempts to match `IrisAutoTarget`
DC-Iris lenses	0 to 100	Attempts to match `IrisAutoTarget`

IrisVideoLevelMax

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	0 to 150
Default	`Camera dependent`
Unit	10 mV; Manta: 13.2 mV
Affected features	n/a
Category	`/Controls/Iris`

Video-type lenses only. Limits the maximum driving voltage for closing the lens iris. Typically, this is 150; however, it may vary depending on the lens reference voltage. A lower minimum value slows the adjustment time but prevents excessive overshoot.

IrisVideoLevelMin

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	0 to 150
Default	Camera dependent
Unit	10 mV; Manta: 13.2 mV
Affected features	n/a
Category	`/Controls/Iris`

Video-type lenses only. Limits the minimum driving voltage for opening the lens iris. A higher minimum value slows the adjustment time but prevents excessive overshoot.

LensDCIris

DC-Iris lenses only.

LensDCDriveStrength

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	0 to 50
Default	*10*
Affected features	n/a
Category	`/Controls/Iris/LensDCIris`

Lens drive voltage. Altering this value changes the speed at which a DC-Iris lens operates. The lower the value, the slower the lens operates. A higher value may result in iris oscillation. The optimal value is lens dependent. Larger lenses typically require a larger drive voltage.

LensPIris

P-Iris lenses only. P-Iris allows discrete iris positions using an internal lens stepping motor.

For a list of P-Iris supported lenses, see the P-Iris Lenses Supported by Prosilica GT Cameras application note:

https://www.alliedvision.com/en/support/technical-papers-knowledge-base.html

LensPIrisFrequency

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	0 to 1000
Default	*100*
Unit	Hz
Affected features	n/a
Category	`/Controls/Iris/LensPIris`

The stepping motor drive rate. Lens dependent. Use the value defined in *Prosilica GT Technical Manual*, or contact the lens manufacturer.

LensPIrisNumSteps

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	1 to 1023
Default	*50*
Affected features	n/a
Category	`/Controls/Iris/LensPIris`

Maximum number of discrete iris/aperture positions. Use the value defined in *Prosilica GT Technical Manual*, or contact the lens manufacturer.

LensPIrisPosition

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	0 to 1022
Default	*50*
Affected features	n/a
Category	`/Controls/Iris/LensPIris`

Iris/aperture position. Manually control iris in *`PIrisManual`* mode, or read back iris position in *`PIrisAuto`* mode. *0* represents fully open and *1022* represents fully closed position. Values greater than `LensPIrisNumSteps` are ignored/not written.

LensDrive

Open loop DC 3 axis lens control.

LensDriveCommand

Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	*Stop*, *IrisTimedOpen*, *IrisTimedClose*, *FocusTimedNear*, *FocusTimedFar*, *ZoomTimedIn*, *ZoomTimedOut*
Affected features	n/a
Category	/Controls/LensDrive

Setting to any non-Stop value will execute the function for LensDriveDuration and then return to *Stop*.

Value	Description
Stop	No action
IrisTimedOpen	Open lens iris
IrisTimedClose	Close lens iris
FocusTimedNear	Shorten working distance
FocusTimedFar	Lengthen working distance
ZoomTimedIn	Zoom in
ZoomTimedOut	Zoom out

LensDriveDuration

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	0 to 5000
Default	*0*
Unit	ms
Affected features	n/a
Category	/Controls/LensDrive

The duration of timed lens commands.

LensVoltage

Origin of feature	Camera
Feature type	Integer
Access	Read only
Visibility	Beginner
Range	0 to 12000
Default	*0*
Unit	mV
Affected features	n/a
Category	`/Controls/LensDrive`

Reports the lens power supply voltage.

LensVoltageControl

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	0 to 12000
Default	*0*
Unit	mV * 100001
Affected feature	`LensVoltage`
Category	`/Controls/LensDrive`

Lens power supply voltage control. See lens documentation for appropriate voltage level. Set desired lens voltage in mV*100001. This is done to prevent users inadvertently setting an inappropriate voltage, possibly damaging the lens. If a bad value is written this control resets to *0*.

LUTControl

Use of a look-up table allows any function (in the form `Output` = F(Input)) to be stored in the camera's memory and to be applied on the individual pixels of an image at runtime.

Color cameras only

`LUTControl` with single color panes will not work if binning is enabled, due to loss of color information.

LUTEnable

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Boolean
Access	Read/Write
Visibility	Expert
Possible values	*true*, *false*
Default	*false*
Affected features	n/a
Category	`/Controls/LUTControl`

Controls the selected look-up table.

LUTIndex

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Guru
Range	0 to ($2^{\text{LUTBitDepthIn}} - 1$)
Default	*0*
Affected feature	`LUTValue`
Category	`/Controls/LUTControl`

Controls the index (offset) of coefficient to access in the selected look-up table.

LUTInfo

This control provides active look-up table information.

LUTAddress

Origin of feature	Camera
Feature type	Integer
Access	Read only (Constant)
Visibility	Guru
Affected features	n/a
Category	`/Controls/LUTControl/LUTInfo`

Indicates location of memory, if a look-up table is loaded.

LUTBitDepthIn

Display name	LUTBitLengthIn
Origin of feature	Camera
Feature type	Integer
Access	Read only (Constant)
Visibility	Guru
Affected features	n/a
Category	`/Controls/LUTControl/LUTInfo`

The bit depth of the input value of the look-up table block.

LUTBitDepthOut

Display name	LUTBitLengthOut
Origin of feature	Camera
Feature type	Integer
Access	Read only (Constant)
Visibility	Guru
Affected features	n/a
Category	`/Controls/LUTControl/LUTInfo`

The bit depth of the output value of the look-up table block.

LUTSizeBytes

Display name	LUTSize
Origin of feature	Camera
Feature type	Integer
Access	Read only (Constant)
Visibility	Guru
Affected features	n/a
Category	`/Controls/LUTControl/LUTInfo`

The memory size of the active look-up table.

LUTLoadAll / LUTLoad

Origin of feature	Camera
Feature type	Command
Access	Write
Visibility	Beginner
Affected feature	`LUTSaveAll`
Category	`/Controls/LUTControl`

Loads the look-up table from flash memory into volatile memory of the camera.

LUTMode

Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Expert
Possible values	*`Luminance`*, *`Red`*, *`Green`*, *`Blue`*
Default	*`Luminance`*
Affected features	n/a
Category	`/Controls/LUTControl`

Selects on which pixels the selected look-up table (depending on `LUTSelector`) is applied.

Value	Description
`Luminance`	Look-up table is applied on all pixels.
`Red`	Look-up table is applied on red pixels only.
`Green`	Look-up table is applied on green pixels only.
`Blue`	Look-up table is applied on blue pixels only.

To avoid confusion, especially with color cameras, we recommend the following steps:

1. Configure the look-up table modes.
2. Enable the look-up table.

LUTSaveAll / LUTSave

Origin of feature	Camera
Feature type	Command
Access	Write
Visibility	Beginner
Affected feature	`LUTLoadAll`
Category	`/Controls/LUTControl`

Saves the look-up table from volatile memory into flash memory of the camera.

With `UserSets` control (`UserSetSave` command) you cannot save the contents of the look-up table.

LUTSelector

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Expert
Possible values	*`LUT1`*, *`LUT2`*, *`LUT3`*
Default	*`LUT1`*
Affected features	`LUTMode`, `LUTEnable`, `LUTIndex`, `LUTValue`, `LUTBitDepthIn`, `LUTBitDepthOut`, `LUTAddress`, `LUTSizeBytes`
Category	`/Controls/LUTControl`

Selects which look-up table is used. These look-up tables are camera specific.

LUTValue

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Guru
Range	0 to ($2^{LUTBitDepthOut}$ - 1)
Default	*4095*
Affected features	n/a
Category	`/Controls/LUTControl`

Returns or sets the value at entry `LUTIndex`.

NirMode

Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Possible values	*Off*, *On_HighQuality*, *On_Fast*
Default	*Off*
Affected features	n/a
Category	`/Controls`

Select three different NIR modes. The modes differ in quantum efficiency, frame rates, and anti-blooming characteristics

Value	Description
Off	`NirMode` set off. Acquire and readout image at same time. **NIR sensitivity**: No increased sensitivity in NIR range **Anti-blooming characteristics**: As specified by sensor manufacturer **Usage**: Best suited if you need very long exposure time

Value	Description
On_HighQuality	Cannot acquire and readout image at same time. The exposure time will always influence frame rate directly. NIR sensitivity: Increased NIR sensitivity, except for a very small portion of the exposure time, which is: $t_{NormalQE}$ = MIN(4300 µs, ExposureTimeAbs/4) Anti-blooming characteristics: Very good if, ExposureAuto = *Off* Adaptively reduced if, ExposureTimeAbs < 13200 µs or ExposureAuto = *other* Usage: Best suited for medium length exposure times and high-dynamic range (HDR) light conditions
On_Fast	Acquire and readout image at same time. NIR sensitivity: Increased NIR sensitivity during total exposure time Anti-blooming characteristics: Reduced anti-blooming characteristics Usage: Best suited for low-light applications and small exposure times, if a high frame rate is desired

Saturation

Origin of feature	Camera
Feature type	Float
Access	Read/Write
Visibility	Beginner
Range	0.00 to 2
Default	*1*
Affected features	n/a
Category	/Controls

Alters color intensity. Only valid if using on-camera interpolated pixel formats.

Value	Description
0	Monochrome
1	Default saturation
2	Maximum possible saturation that can be applied

Saturation puts gain to the color vectors in the U/V plane.

SubstrateVoltage

VsubValue

Origin of feature	Camera
Feature type	Integer
Access	Read only
Visibility	Beginner
Range	Camera dependent
Unit	mV
Affected features	n/a
Category	`/Controls/SubstrateVoltage`

CCD substrate voltage. Optimized by Allied Vision for each sensor.

Whitebalance

BalanceRatioAbs

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Float
Access	Read/Write
Visibility	Beginner
Range	0.8 to 3
Affected features	n/a
Category	`/Controls/Whitebalance/`

Adjusts the gain of the channel selected in the `BalanceRatioSelector`. `BalanceRatioAbs` = *1* means no gain is applied.

The green channel gain is always *1*, as this is the luminance/reference channel. To increase/decrease green, decrease/increase red and blue accordingly.

BalanceRatioSelector

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	*Red*, *Blue*
Default	*Red*
Affected feature	`BalanceRatioAbs`
Category	`/Controls/Whitebalance/`

Select the red or blue channel to adjust with `BalanceRatioAbs`.

BalanceWhiteAuto

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	*Off*, *Once*, *Continuous*
Default	*Off*
Affected features	n/a
Category	`/Controls/Whitebalance/`

Auto algorithms use information from the camera's current image and apply the following settings to the next image; for instance, the camera must be acquiring images in order for the auto algorithm to update. Large changes in scene lighting may require two to three frames for the algorithm to stabilize.

You can configure the auto white balance feature to respond only to a subregion within the image scene. This subregion can be configured with the `DSPSubregion` feature.

Value	Description
Off	Auto white balance is off. White balance can be adjusted directly by changing the `BalanceRatioSelector` and `BalanceRatioAbs`.

Value	Description
Once	Valid if ExposureMode = *Timed* or *PieceWiseLinearHDR*. A single iteration of the auto white balance algorithm is run, and then BalanceWhiteAuto returns to *Off*. The *Once* value operates according to the ExposureAuto and DSPSubregion controls.
Continuous	Valid if ExposureMode = *Timed* or *PieceWiseLinearHDR*. White balance will continuously adjust according to the current scene. The *continuous* function operates according to the ExposureAuto and DSPSubregion controls.

BalanceWhiteAutoControl

BalanceWhiteAutoAdjustTol

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	0 to 50
Default	*5*
Unit	Percent
Affected features	n/a
Category	/Controls/Whitebalance/ BalanceWhiteAutoControl

Tolerance allowed from the ideal white balance values, within which the auto white balance does not run. It is used to limit white balance setting changes to only larger variations in color.

This prevents needless small adjustments from occurring each image.

BalanceWhiteAutoRate

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	1 to 100 1 (slowest) to 100 (fastest)
Default	*100*
Unit	Percent
Affected features	n/a
Category	`/Controls/Whitebalance/BalanceWhiteAutoControl`

The rate of white balance adjustments. It is used to slow the rate of color balance change so that only longer period fluctuations affect color.

DeviceStatus

DeviceTemperature

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Float
Access	Read only
Visibility	Beginner
Unit	Degree Celsius
Resolution	0.031
Accuracy	±1 °C
Affected features	n/a
Category	`/DeviceStatus`

Reports the temperature that is defined by `DeviceTemperatureSelector`.

DeviceTemperatureSelector

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	*`Main`*, *`Sensor`*
Affected feature	`DeviceTemperature`
Category	`/DeviceStatus`

Selects one of the built-in temperature sensors within the camera. Not all cameras support main board and sensor support. See the camera technical manuals to find out more information on main board and sensor temperature support.

EventControl

This chapter describes how to control the generation of events to the host application. An event is a message that is sent to the host application to notify it of the occurrence of an internal event.

EventData

Origin of feature	Camera
Visibility	Beginner
Feature type	Integer
Access	Read only (Constant)
Category	`/EventControl/EventData`

The following table lists all the events supported by the camera.

Event	Event
`EventAcquisitionEndFrameID`	`EventLine1RisingEdgeFrameID`
`EventAcquisitionEndTimestamp`	`EventLine1RisingEdgeTimestamp`
`EventAcquisitionRecordTriggerFrameID`	`EventLine2FallingEdgeFrameID`
`EventAcquisitionRecordTriggerTimestamp`	`EventLine2FallingEdgeTimestamp`
`EventAcquisitionStartFrameID`	`EventLine2RisingEdgeFrameID`
`EventAcquisitionStartTimestamp`	`EventLine2RisingEdgeTimestamp`
`EventAction0FrameID`	`EventLine3FallingEdgeFrameID`
`EventAction0Timestamp`	`EventLine3FallingEdgeTimestamp`
`EventAction1FrameID`	`EventLine3RisingEdgeFrameID`
`EventAction1Timestamp`	`EventLine3RisingEdgeTimestamp`
`EventErrorFrameID`	`EventLine4FallingEdgeFrameID`
`EventErrorTimestamp`	`EventLine4FallingEdgeTimestamp`
`EventExposureEndFrameID`	`EventLine4RisingEdgeFrameID`
`EventExposureEndTimestamp`	`EventLine4RisingEdgeTimestamp`
`EventExposureStartFrameID`	`EventOverflowFrameID`
`EventExposureStartTimestamp`	`EventOverflowTimestamp`
`EventFrameTriggerFrameID`	`EventPtpSyncLockedFrameID`
`EventFrameTriggerTimestamp`	`EventPtpSyncLockedTimestamp`
`EventLine1FallingEdgeFrameID`	`EventPtpSyncLostFrameID`
`EventLine1FallingEdgeTimestamp`	`EventPtpSyncLostTimestamp`

EventID

EventAcquisitionEnd

Origin of feature	Camera
Feature type	Integer
Access	Read only (Constant)
Visibility	Beginner
Value	*40001*
Affected features	`EventAcquisitionEndTimestamp`, `EventAcquisitionEndFrameID`
Category	`/EventControl/EventID`

ID value of event.

EventAcquisitionRecordTrigger

Origin of feature	Camera
Feature type	Integer
Access	Read only (Constant)
Visibility	Beginner
Value	*40004*
Affected features	`EventAcquisitionRecordTriggerTimestamp`, `EventAcquisitionRecordTriggerFrameID`
Category	`/EventControl/EventID`

ID value of event.

EventAcquisitionStart

Origin of feature	Camera
Feature type	Integer
Access	Read only (Constant)
Visibility	Beginner
Value	*40000*
Affected features	`EventAcquisitionStartTimestamp`, `EventAcquisitionStartFrameID`
Category	`/EventControl/EventID`

ID value of event.

EventAction0

Origin of feature	Camera
Feature type	Integer
Access	Read only (Constant)
Visibility	Beginner
Value	*40020*
Affected features	`EventAction0Timestamp`, `EventAction0FrameID`
Category	`/EventControl/EventID`

ID value of event.

EventAction1

Origin of feature	Camera
Feature type	Integer
Access	Read only (Constant)
Visibility	Beginner
Value	*40021*
Affected features	`EventAction1Timestamp`, `EventAction1FrameID`
Category	`/EventControl/EventID`

ID value of event.

EventError

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Integer
Access	Read only (Constant)
Visibility	Beginner
Value	*65535*
Affected features	`EventErrorTimestamp`, `EventErrorFrameID`
Category	`/EventControl/EventID`

The error event occurs if there is a problem on the camera; this event should be reported to technical support. If you use the message channel for event notification, you are always subscribed to this event.

EventExposureEnd

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Integer
Access	Read only (Constant)
Visibility	Beginner
Value	*40003*
Affected features	`EventExposureEndTimestamp`, `EventExposureEndFrameID`
Category	`/EventControl/EventID`

ID value of event.

EventExposureStart

Origin of feature	Camera
Feature type	Integer
Access	Read only (Constant)
Visibility	Beginner
Value	*40019*
Vimba version	Vimba version 1.4 or later
Affected features	`EventExposureStartTimestamp`, `EventExposureStartFrameID`
Category	`/EventControl/EventID`

The Exposure Start event occurs if the exposure start event occurs.

EventFrameTrigger

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Integer
Access	Read only (Constant)
Visibility	Beginner
Value	*40002*
Affected features	`EventFrameTriggerTimestamp`, `EventFrameTriggerFrameID`
Category	`/EventControl/EventID`

ID value of event.

EventFrameTriggerReady

Origin of feature	Camera
Feature type	Integer
Access	R/C
Visibility	Beginner
Value	*40018*
Affected features	`EventFrameTriggerReadyTimestamp`, `EventFrameTriggerReadyFrameID`
Category	`/EventControl/EventID`

The Frame Trigger event occurs if the camera is ready for another frame acquisition.

EventLine1FallingEdge

Origin of feature	Camera
Feature type	Integer
Access	Read only (Constant)
Visibility	Beginner
Value	*40011*
Affected features	`EventLine1FallingEdgeTimestamp`, `EventLine1FallingEdgeFrameID`
Category	`/EventControl/EventID`

ID value of event.

EventLine1RisingEdge

Origin of feature	Camera
Feature type	Integer
Access	Read only (Constant)
Visibility	Beginner
Value	*40010*
Affected features	`EventLine1RisingEdgeTimestamp`, `EventLine1RisingEdgeFrameID`
Category	`/EventControl/EventID`

ID value of event.

EventLine2FallingEdge

Origin of feature	Camera
Feature type	Integer
Access	Read only (Constant)
Visibility	Beginner
Value	*40013*
Affected features	`EventLine2FallingEdgeTimestamp`, `EventLine2FallingEdgeFrameID`
Category	`/EventControl/EventID`

ID value of event.

EventLine2RisingEdge

Origin of feature	Camera
Feature type	Integer
Access	Read only (Constant)
Visibility	Beginner
Value	*40012*
Affected features	`EventLine2RisingEdgeTimestamp`, `EventLine2RisingEdgeFrameID`
Category	`/EventControl/EventID`

ID value of event.

EventLine3FallingEdge

Origin of feature	Camera
Feature type	Integer
Access	Read only (Constant)
Visibility	Beginner
Value	*40015*
Affected features	`EventLine3FallingEdgeTimestamp`, `EventLine3FallingEdgeFrameID`
Category	`/EventControl/EventID`

ID value of event.

EventLine3RisingEdge

Origin of feature	Camera
Feature type	Integer
Access	Read only (Constant)
Visibility	Beginner
Value	*40014*
Affected features	`EventLine3RisingEdgeTimestamp`, `EventLine3RisingEdgeFrameID`
Category	`/EventControl/EventID`

ID value of event.

EventLine4FallingEdge

Origin of feature	Camera
Feature type	Integer
Access	Read only (Constant)
Visibility	Beginner
Value	*40017*
Affected features	`EventLine4FallingEdgeTimestamp`, `EventLine4FallingEdgeFrameID`
Category	`/EventControl/EventID`

ID value of event.

EventLine4RisingEdge

Origin of feature	Camera
Feature type	Integer
Access	Read only (Constant)
Visibility	Beginner
Value	*40016*
Affected features	`EventLine4RisingEdgeTimestamp`, `EventLine4RisingEdgeFrameID`
Category	`/EventControl/EventID`

ID value of event.

EventOverflow

Origin of feature	Camera
Feature type	Integer
Access	Read only (Constant)
Visibility	Beginner
Value	*65534*
Affected features	`EventOverflowTimestamp, EventOverflowFrameID`
Category	`/EventControl/EventID`

The overflow event occurs if one or more notification events are lost on the camera. If you use the message channel for event notification, you are always subscribed to this event.

EventPtpSyncLocked

Origin of feature	Camera
Feature type	Integer
Access	Read only (Constant)
Visibility	Beginner
Value	*40006*
Affected features	`EventPtpSyncLockedTimestamp, EventPtpSyncLockedFrameID`
Category	`/EventControl/EventID`

The camera has acquired synchronization to the master clock.

EventPtpSyncLost

Origin of feature	Camera
Feature type	Integer
Access	Read only (Constant)
Visibility	Beginner
Value	*40005*
Affected features	`EventPtpSyncLostTimestamp, EventPtpSyncLostFrameID`
Category	`/EventControl/EventID`

The camera has lost synchronization to the master clock.

If you use the message channel for event notification, you are always subscribed to *`EventOverflow`* and *`EventError`* events.

There is no mechanism to detect the loss of events during transportation. If misconfigured, cameras may produce lots of events; more than a PC can handle.

EventNotification

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	*On*, *Off*
Default	*Off*
Affected feature	EventsEnable1
Category	/EventControl

Activates event notification on the GigE Vision message channel.

EventSelector

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	*AcquisitionStart*, *AcquisitionEnd*, *AcquisitionRecordTrigger*, ExposureStart, *ExposureEnd*, *FrameTrigger*, *FrameTriggerReady*, *PtpSyncLocked*, *PtpSyncLost*, *Line1FallingEdge*, *Line2FallingEdge*, *Line3FallingEdge*, *Line4FallingEdge*, *Line1RisingEdge*, *Line2RisingEdge*, *Line3RisingEdge*, *Line4RisingEdge*
Default	*AcquisitionStart*
Affected features	EventNotification, EventsEnable1
Category	/EventControl

Selects a specific event to be enabled or disabled using EventNotification.

EventsEnable1

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	0 to 4294967295
Default	*0*
Affected feature	`EventNotification`
Category	`/EventControl`

Bit field of all events. For example:

Bit 1	`EventAcquisitionStart`
Bit 2	`EventAcquisitionEnd`
Bit 3	`EventFrameTrigger`
Bit 19	`EventFrameTriggerReady`

This is an alternative to setting each event individually using the `EventNotification` and `EventSelector` method.

Activate event-notification on the GigE Vision message channel. For programmers, see register documentation.

GigE

BandwidthControlMode

Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	*StreamBytesPerSecond*, *SCPD*, *Both*
Default	*StreamBytesPerSecond*
Affected features	n/a
Category	/GigE

Selects the desired mode of bandwidth control.

Value	Description
StreamBytesPerSecond	See the StreamBytesPerSecond feature for more information
SCPD	Stream channel packet delay expressed in timestamp counter units. This mode may be used to limit the rate of data from the camera to the host. It works by inserting a delay between successive stream channel packets, e.g., the longer the delay, the slower the data rate. This mode is NOT recommended
Both	Implements a combination of control modes.This mode is NOT recommended

Bandwidth allocation can be controlled by StreamBytesPerSecond, or by register SCPD0. If you do not understand SCPD0 and how this driver uses this register, leave this set to StreamBytesPerSecond.

ChunkModeActive

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Boolean
Access	Read/Write
Visibility	Expert
Possible values	`true`, `false`
Default	`false`
Affected features	`PayloadSize`, `NonImagePayloadSize`
Category	`/GigE`

Enables camera to send GigE Vision Standard Protocol chunk data with an image. `ChunkModeActive` is read-only during acquisition.

The currently implemented chunk data.

Byte	Description
Bytes 1 to 4	Acquisition count Big-endian
Byte 5	These eight bits indicate the following EF lens settings: • *Bit 7 (Error):* If this bit is set to 1, the EF lens is in an error state, bits 2 to 5 indicate enumerated value of last error, and all other bits and bytes is 0. • *Bit 6 (Lens attached)*: If this bit is set to 1, an EF lens is attached to camera. • *Bit 5 (Auto focus)*: If this bit is set to 1, the EF lens manual/auto focus switch is set to the auto focus position. • *Bits 2 to 4 (Last error)*: Enumerated error value: - 0: No error detected - 1: Lens failed query by camera - 2: Lens communication error (can occur when removing lens) - 3: Lens communication error (can occur when removing lens) - 4: Lens remained busy for longer than 10 seconds - 5: Lens focus “Zero Stop” not detected - 6: Lens focus “Infinity Stop” not detected • *Bits 0 to 1*: Upper 2 bits of focus percentage value (see Byte 6). Big-endian
Byte 6	These eight bits in conjunction with bits 0 to 1 of Byte 5, indicate the current focus position of the EF lens in (percentage of maximum focus range) * 10 (i.e. 1000 = 100 percent = Infinity Stop). If the lens manual/auto focus switch is in the manual position these bits is 0. Big-endian

Byte	Description
Byte7	These eight bits indicate the current aperture position of the EF lens in Dn. To convert Dn to F-Stop value, use formula: F-Stop = $2^{[(Dn-8)/16]}$. Big-endian
Byte 8	These eight bits indicate the current focal length of the EF lens in mm. Big-endian
Bytes 9 to 12	Exposure value in µs. Big-endian
Bytes 13 to 16	Gain value in dB. For Prosilica GT1930, GT1930C, GT1930L and GT1930LC cameras: Gain value in tenths of dB (i.e. 201 represents 20.1 dB) Big-endian
Bytes 17 to 18	Sync-in levels. A bit field. Bit 0 is sync-in 0, bit 1 is sync-in 1, etc. A bit value of 1 = level high, and a bit value of 0 = level low. Big-endian
Bytes 19 to 20	Sync-out levels. A bit field. Bit 0 is sync-out 0, bit 1 is sync-out 1, etc. A bit value of 1 = level high, and a bit value of 0 = level low. Big-endian
Bytes 21 to 24	Reserved. 0 Big-endian
Bytes 25 to 28	Reserved. 0 Big-endian
Bytes 29 to 32	Reserved. 0 Big-endian
Bytes 33 to 36	Reserved. 0 Big-endian
Bytes 37 to 40	Reserved. 0 Big-endian
Bytes 41 to 44	Chunk ID. 1000 Little-endian
Bytes 45 to 48	Chunk length Little-endian

Configuration

GevIPConfigurationApply

Display name	IP Configuration Apply
Origin of feature	Driver
Feature type	Command
Access	Write
Affected features	n/a
Category	`/GigE/Configuration`

Apply the IP configuration mode selected by `GevIPConfigurationMode`.

GevIPConfigurationMode

Display name	IP Configuration Mode
Origin of feature	Driver
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	*`LLA`*, *`DHCP`*, *`Persistent`*
Affected features	n/a
Category	`/GigE/Configuration`

The current IP configuration mode.

Current

GevCurrentDefaultGateway

Standard	GenICam Standard Feature Naming Convention (SFNC)
Display name	Current Default Gateway
Origin of feature	Driver
Feature type	Integer
Access	Read only
Visibility	Beginner
Affected features	n/a
Category	`/GigE/Current`

The IP address of the default gateway of the camera.

GevCurrentIPAddress

Standard	GenICam Standard Feature Naming Convention (SFNC)
Display name	Current IP Address
Origin of feature	Driver
Feature type	Integer
Access	Read only
Visibility	Beginner
Affected features	n/a
Category	`/GigE/Current`

The current IP address of the camera.

GevCurrentSubnetMask

Standard	GenICam Standard Feature Naming Convention (SFNC)
Display name	Current Subnet Mask
Origin of feature	Driver
Feature type	Integer
Access	Read only
Visibility	Beginner
Affected features	n/a
Category	`/GigE/Current`

The current subnet mask of the camera.

GVCP

GigE Vision Control Protocol (GVCP): GVCP is an interface standard for machine vision cameras. Runs on the UDP protocol.

Allied Vision GigE cameras have a sophisticated real time resend mechanism that ensures a high degree of data integrity.

GVCPCmdRetries

Display name	Command Retries
Origin of feature	Driver
Feature type	Integer
Access	Read/Write
Visibility	Expert
Range	1 to 9
Default	*5*
Affected features	`GevHeartbeatTimeout`, `GevHeartbeatInterval`, `GVCPHBInterval`
Category	`/GigE/GVCP`

Controls the maximum number of resend requests that the host will attempt when trying to recover a lost packet.

GVCPCmdTimeout

Display name	Command Timeout
Origin of feature	Driver
Feature type	Integer
Access	Read/Write
Visibility	Expert
Range	100 to 1000
Default	*250*
Unit	ms
Affected features	`GevHeartbeatTimeout`, `GevHeartbeatInterval`, `GVCPHBInterval`
Category	`/GigE/GVCP`

The timeout waiting for an answer from the camera.

GevHeartbeatInterval

Display name	Heartbeat Interval
Origin of feature	Driver
Feature type	Integer
Access	Read/Write
Visibility	Expert
Range	200 to 1450
Default	*1450*
Unit	ms
Vimba version	Vimba version 1.3 or later
Affected feature	`GVCPHBInterval`
Category	`/GigE/GVCP`

The driver sends heartbeat packets to the camera every `GevHeartbeatInterval` milliseconds.

GevHeartbeatTimeout

Standard	GenICam Standard Feature Naming Convention (SFNC)
Display name	Heartbeat Timeout
Origin of feature	Driver
Feature type	Integer
Access	Read/Write
Visibility	Expert
Range	500 to 10000
Default	*3000*
Unit	ms
Vimba version	Vimba version 1.3 or later
Affected features	`GevHeartbeatInterval`, `GVCPHBInterval`
Category	`/GigE/GVCP`

The driver sends heartbeat packets to the camera. If a heartbeat packet is not received within `GevHeartbeatTimeout`, the camera assumes the host has closed its controlling application or is dead, and closes its stream and control channel.

This parameter may need to be increased if stepping through code in a debugger, as this prevents the driver from sending heartbeat packets.

GVCPHBInterval

Display name	Heartbeat Interval
Origin of feature	Driver
Feature type	Integer
Access	Read/Write
Range	500 to 5000
Default	*3000*
Unit	ms
Vimba version	Up to Vimba V1.2.1
Affected features	n/a
Category	`/GigE/GVCP`

The driver sends a heartbeat request packet to the camera every `GVCPHBInterval` milliseconds. If the camera fails to respond to the heartbeat request, a retry is sent `GVCPCmdTimeout` ms later. After `GVCPCmdRetries` retries with no response, a camera unplugged event is returned by the driver.

This parameter can be increased significantly to bypass problems if debugging applications.

GevSCPSPacketSize

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Expert
Range	Camera dependent
Default	`Camera dependent`
Unit	Bytes
Affected features	`StreamBytesPerSecond`, `AcquisitionFrameRateAbs`, `ExposureTimeAbs`, `AcquisitionFrameRateLimit`, `StreamHoldCapacity`, `GVSPPacketSize`
Category	`/GigE`

This parameter determines the Ethernet packet size. Generally, this number must be set to as large as the network card (or other involved active networking components) will allow. If this number is reduced, then CPU loading will increase. These large packet sizes (>1500) are called jumbo packets/frames in Ethernet terminology. If your GigE network card does not support jumbo packets/frames of at least 8228 bytes (the camera default on power up), then you will need to reduce

the GevSCPSPacketSize parameter of the camera to match the maximum jumbo packet size supported by your GigE interface. A GevSCPSPacketSize of 1500 is a safe setting which all GigE network cards support.

If you see all black images, or all frames reported as StatFrameDropped and zero images reported as StatFrameDelivered, you will likely need to decrease this parameter.

NonImagePayloadSize

Origin of feature	Camera
Feature type	Integer
Access	Read only
Visibility	Beginner
Range	0 to 4294967295
Unit	Bytes
Affected features	n/a
Category	/GigE

The maximum size of chunk data, not including the image chunk, in the image block payload. If ChunkModeActive = *false* then NonImagePayloadSize = *0*.

PTP

Precision Time Protocol (PTP) manages clock synchronization of multiple devices across an Ethernet network, with ±1 µs tolerance. Once the clocks of the devices are synchronized, a synchronous software trigger can be sent to Allied Vision cameras via the `PtpAcquisitionGateTime` control. On Allied Vision GigE cameras, the device clock is represented by the camera `GevTimestampValue` feature.

For more information on PTP, see the IEEE 1588-2008 standard:

http://standards.ieee.org/findstds/standard/1588-2008.html

PtpAcquisitionGateTime

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	0 to (2^{63}-1)
Default	*0*
Unit	ns
Affected features	n/a
Category	`/GigE/PTP`

`PtpAcquisition` trigger time. Used to schedule a synchronized software trigger on multiple PTP synchronized device. `PtpAcquisitionGateTime` must be set beyond current camera `GevTimestampValue`, for instance `GevTimestampValue` ≥ `PtpAcquisitionGateTime`. If set below `GevTimestampValue`, image acquisition stalls. `PtpAcquisitionGateTime` resets to zero if `PtpMode` set to *`Off`*.

PtpMode

Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	*Off*, *Slave*, *Master*, *Auto*
Default	*Off*
Affected feature	PtpAcquisitionGateTime
Category	/GigE/PTP

Controls the PTP device behavior.

If using the camera event channel, a EventPtpSyncLost is sent if PtpMode is changed. EventPtpSyncLocked is sent once PTP synchronization is re-established.

Value	Description
Off	This camera's GevTimestampValue is not synchronized with any other device. PtpAcquisitionGateTime resets to zero.
Slave	This camera's GevTimestampValue is altered to align with a master device's clock.
Master	This camera's GevTimestampValue is the master clock. All other PTP enabled slave devices synchronize their clock to this camera.
Auto	This camera uses the IEEE 1588 best master clock algorithm to determine which camera is master, and which are slaves. It may be assigned as either. There may be several state transitions prior to synchronization.

PtpStatus

Origin of feature	Camera
Feature type	Enumeration
Access	Read only
Visibility	Beginner
Possible values	*Disabled*, *Initializing*, *Listening*, *Master*, *Passive*, *Uncalibrated*, *Slave*
Default	*Disabled*
Affected features	n/a
Category	/GigE/PTP

The state of the PTP operation.

Value	Description
Disabled	Camera PtpMode is set to *Off*.
Initializing	PTP is being initialized. If camera / PTP device is being initialized, all devices statuses are set to initializing. This state appears very briefly.
Listening	Device is listening for other PTP enabled devices. The purpose of this state is to determine which device will act as master.
Master	Device acting as master clock. If a better master clock is determined, device will go to *Listening*, *Uncalibrated*, and finally *Slave*.
Passive	If there are two or more devices with PtpMode = *Master*, this device has an inferior clock and is not synchronized to the master.
Uncalibrated	PTP synchronization not yet achieved. Slave(s) are synchronizing with master.
Slave	PTP synchronization between this device and master is achieved. Device is acting as a slave to another device‘s master clock.

PTP capable cameras with firmware < 1.54.11026 have PtpStatus = [*Off*, *Master*, *Syncing*, *Slave*, *Error*].

PayloadSize

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Integer
Access	Read only
Visibility	Beginner
Unit	Bytes
Affected features	n/a
Category	`/GigE`

The total size of image block payload.

If `ChunkModeActive` = *`true`*	Then `PayloadSize` = `ImageSize` + `NonImagePayloadSize` + `8`
If `ChunkModeActive` = *`false`*	Then `PayloadSize` = `ImageSize`

Persistent

GevPersistentDefaultGateway

Standard	GenICam Standard Feature Naming Convention (SFNC)
Display name	Persistent Default Gateway
Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Affected features	n/a
Category	`/GigE/Persistent`

The persistent default gateway of the camera.

GevPersistentIPAddress

Standard	GenICam Standard Feature Naming Convention (SFNC)
Display name	Persistent IP Address
Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Affected features	n/a
Category	`/GigE/Persistent`

The persistent IPv4 address of the camera.

GevPersistentSubnetMask

Standard	GenICam Standard Feature Naming Convention (SFNC)
Display name	Persistent Subnet Mask
Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Affected features	n/a
Category	`/GigE/Persistent`

The persistent subnet mask of the camera.

StreamBytesPerSecond

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	1,000,000 to 124,000,000 248,000,000 for Prosilica GX in LAG mode
Unit	Bytes/s
Affected features	`AcquisitionFrameRateAbs`, `ExposureTimeAbs`, `AcquisitionFrameRateLimit`
Category	`/GigE`

Moderates the data rate of the camera. This is particularly useful for slowing the camera down so that it can operate over slower links such as Fast Ethernet (100 Mb/s), or wireless networks. It is also an important control for multiple camera

situations. If multiple cameras are connected to a single GigE port (usually through a switch), `StreamBytesPerSecond` for each camera needs to be set to a value so that the sum of each camera's `StreamBytesPerSecond` parameter does not exceed the data rate of the GigE port. Setting the parameter in this way will ensure that multiple-camera situations work without packet collisions, for instance data loss.

To calculate the required minimum `StreamBytesPerSecond` setting for a camera in any image mode, use the following formula:

StreamBytesPerSecond = Height x Width x FrameRate x Bytes per Pixel

115,000,000 bytes/s is the typical maximum data rate for a GigE port. Beyond this setting, some network cards will drop packets.

If you are seeing occasional frames/packets reported as `StatFrameDropped` / `StatPacketMissed` you will likely need to decrease this parameter.

StreamFrameRateConstrain

Origin of feature	Camera
Feature type	Boolean
Access	Read/Write
Visibility	Beginner
Possible values	`true`, `false`
Default	*`true`*
Affected features	`AcquisitionFrameRateAbs`, `ExposureTimeAbs`, `AcquisitionFrameRateLimit`
Category	`/GigE`

If *`true`*, the camera automatically limits frame rate to bandwidth, determined by `StreamBytesPerSecond`, to prevent camera buffer overflows and dropped frames. If *`false`*, the frame rate is not limited to bandwidth (only sensor readout time). Latter case is useful for `AcquisitionMode` = *`Recorder`* or `StreamHoldEnable` = `On` modes, as these modes are not bandwidth limited.

StreamHold

Normally, the camera sends data to the host PC immediately after completion of exposure. Enabling `StreamHold` delays the transmission of data, storing it in on-camera memory, until `StreamHold` is disabled.

This feature can be useful to prevent GigE network flooding in situations where a large number of cameras connected to a single host PC are capturing a single event. Using the `StreamHold` function, each camera will hold the event image data until the host PC disables `StreamHold` for each camera in turn.

StreamHoldCapacity

Origin of feature	Camera
Feature type	Integer
Access	Read only
Visibility	Beginner
Unit	Frames
Affected features	n/a
Category	`/GigE/StreamHold`

The maximum number of images (for the current size and format), which can be stored on the camera if `StreamHold` is enabled. Used if `AcquisitionMode` = *`Recorder`*, or `StreamHoldEnable` = *`On`*. This value is different for each camera depending on the camera internal memory size and the `ImageSize`.

StreamHoldEnable

Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	*`On`*, *`Off`*
Default	*`Off`*
Affected features	n/a
Category	`/GigE/StreamHold`

Control on-camera image storage; this control is like a “pause” button for the image stream.

Value	Description
`On`	Images remain stored on the camera, and are not transmitted to the host.
`Off`	The image stream resumes, and any stored images are sent to the host.

Timestamp

Allied Vision GigE cameras have a very accurate `timestamp` function for timestamping images.

Use PTP for synchronizing cameras.

GevTimestampControlLatch

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Command
Access	Write
Visibility	Beginner
Affected feature	`GevTimestampControlReset`
Category	`/GigE/Timestamp`

Captures timestamp and stores it in `GevTimestampValue`.

GevTimestampControlReset

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Command
Access	Write
Visibility	Beginner
Affected feature	`GevTimestampControlLatch`
Category	`/GigE/Timestamp`

Resets the camera's timestamp to 0. This is not possible while PTP is enabled; if `PtpMode` is set to *`Master`* or *`Auto`*.

GevTimestampTickFrequency

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Integer
Access	Read only
Visibility	Beginner
Range	0 to 4294967295
Default	*`Camera dependent`*
Unit	Hz
Affected features	n/a
Category	`/GigE/Timestamp`

The frequency of the image timestamp. The image timestamp can be useful for determining whether images are missing from a sequence due to missing trigger events. Cameras offering clock synchronization via PTP will have a `GevTimestampTickFrequency` of 1,000,000,000.

GevTimestampValue

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Integer
Access	Read only
Visibility	Beginner
Unit	Camera clock ticks
Affected features	n/a
Category	`/GigE/Timestamp`

The value of timestamp, if latched by `GevTimestampControlLatch`.

IO

The control and readout of all camera inputs and outputs. The number of inputs and outputs is camera model dependent.

StatusLED

StatusLedLevels

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Range	0 to 4294967296
Default	*0*
Affected features	n/a
Category	`/IO/StatusLED`

Status LED levels in GPO mode.

`StatusLedPolarity` can invert these values.

StatusLedPolarity

Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Possible values	*`Normal`*, *`Invert`*
Affected features	n/a
Category	`/IO/StatusLED`

The polarity applied to the status LED specified by `StatusLedSelector`.

StatusLedSelector

Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Possible values	*StatusLed1*
Affected features	n/a
Category	/IO/StatusLED

Select the status LED to be controlled with StatusLedSource and StatusLedPolarity.

StatusLedSource

Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Possible values	*GPO*, *AcquisitionTriggerReady*, *FrameTriggerReady*, *FrameTrigger*, *Exposing*, *FrameReadout*, *Imaging*, *Acquiring*, *Line1*, *Line2*, *Line3*, *Line4*, *CCDTemperatureOK*, *Strobe1*
Default	*Exposing*
Affected features	n/a
Category	/IO/StatusLED

The signal source of the status LED specified by StatusLedSelector.

Value	Description
GPO	General purpose output.
AcquisitionTriggerReady	Active once the camera has been recognized by the host PC and is ready to start acquisition.
FrameTriggerReady	Becomes active if the camera is in a state that will accept the next frame trigger.
FrameTrigger	This is the logic trigger signal inside of the camera. It is initiated by an external trigger or software trigger.
Exposing	Exposure in progress.
FrameReadout	Becomes active at the start of frame readout.
Imaging	Exposing or frame readout. Active if the camera is exposing or reading out frame data.
Acquiring	Becomes active at the start of acquisition.
LineIn1/2/3/4	External input *Line1*, *Line2*, *Line3*, *Line4*.

Value	Description
CCDTemperatureOK	Only for cameras that support this feature: indicates if camera has reached the desired temperature value.
Strobe1	Source is strobe timing unit.

Strobe

Strobe is an internal signal generator for on-camera clocking functions. Valid if any of the `SyncOutSource` is set to *Strobe1*. Strobe allows the added functionality of duration and delay, useful if trying to synchronize a camera exposure to an external strobe.

StrobeDelay

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	Camera dependent
Default	*0*
Unit	µs
Affected features	n/a
Category	`/IO/Strobe`

The delay from strobe trigger to strobe output.

StrobeDuration

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	Camera dependent
Default	*0*
Unit	µs
Affected features	n/a
Category	`/IO/Strobe`

The duration of strobe signal.

StrobeDurationMode

Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	*Source*, *Controlled*
Default	*Source*
Affected features	n/a
Category	/IO/Strobe

The mode of the strobe timing unit.

Value	Description
Source	Strobe duration is the same as source duration.
Controlled	Strobe duration is set by StrobeDuration.

StrobeSource

Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	*AcquisitionTriggerReady*, *FrameTriggerReady*, *FrameTrigger*, *Exposing*, *FrameReadout*, *Acquiring*, *LineIn1*, *LineIn2*, *LineIn3*, *LineIn4*
Default	*FrameTrigger*
Affected features	n/a
Category	/IO/Strobe

Associates the start of strobe signal with one of the following image capture events.

Value	Description
AcquisitionTriggerReady	Active once the camera has been recognized by the host PC and is ready to start acquisition.
FrameTriggerReady	Active if the camera is in a state that will accept the next frame trigger.
FrameTrigger	Active if an image has been initiated to start. This is the logic trigger signal inside of the camera. It is initiated by an external trigger or software trigger.

Value	Description
Exposing	Active for the duration of sensor exposure.
FrameReadout	Active for the duration of frame readout, i.e. the transferring of image data from the sensor to camera memory.
Acquiring	Active during the acquisition stream.
LineIn1	Active if there is an external trigger at line1.
LineIn2	Active if there is an external trigger at line2.
LineIn3	Active if there is an external trigger at line3.
LineIn4	Active if there is an external trigger at line4.

For detailed information see the camera quantum efficiency plots provided in the camera technical manuals.

https://www.alliedvision.com/en/support/technical-documentation.html

SyncIn

The signal source of the strobe timing unit. See `SyncOutSource` for descriptions.

SyncInGlitchFilter

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	0 to 50000
Default	*0*
Unit	ns
Affected features	n/a
Category	`/IO/SyncIn`

Ignores glitches on the `SyncIn` input line with pulse duration less than set value.

Setting `SyncInGlitchFilter` value increases latency of `FrameTrigger` by same amount.

SyncInLevels

Origin of feature	Camera
Feature type	Integer
Access	Read only
Visibility	Beginner
Affected features	n/a
Category	`/IO/SyncIn`

A 4-bit register where each bit corresponds to a specific `SyncIn` input. For example, if this value returns *2* (0010), *`SyncIn2`* is high and all other sync input signals (*`SyncIn1`*, *`SyncIn3`*, *`SyncIn4`*) are low. The value in the register is binary.

SyncInSelector

Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	*`SyncIn1`*, *`SyncIn2`*, *`SyncIn3`*, *`SyncIn4`*
Default	*`SyncIn1`*
Affected feature	`SyncInGlitchFilter`
Category	`/IO/SyncIn`

Select the sync-in line to control with `SyncInGlitchFilter`.

SyncOut

Used for synchronization with other cameras/devices or general purpose outputs.

SyncOutLevels

Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	0 to 4294967295
Affected features	n/a
Category	`/IO/SyncOut`

The output levels of hardware synchronization outputs, for output(s) in *`GPO`* mode.

`SyncOutPolarity` can invert the `SyncOutLevels`.

SyncOutPolarity

Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	*`Normal`*, *`Invert`*
Default	*`Normal`*
Affected features	n/a
Category	`/IO/SyncOut`

The polarity applied to the sync-out line specified by `SyncOutSelector`.

SyncOutSelector

Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	*SyncOut1*, *SyncOut2*, *SyncOut3*, *SyncOut4*
Default	*SyncOut1*
Affected features	SyncOutSource, SyncOutPolarity
Category	/IO/SyncOut

Selects the sync-out line to control with SyncOutSource, SyncOutPolarity.

SyncOutSource

Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	*GPO*, *AcquisitionTriggerReady*, *FrameTriggerReady*, *Exposing*, *FrameReadout*, *Imaging*, *Acquiring*, *LineIn1*, *LineIn2*, *LineIn3*, *LineIn4*, *Strobe1*, *CCDTemperatureOK*
Affected features	n/a
Category	/IO/SyncOut

The signal source of the sync-out line specified by SyncOutSelector.

Value	Description
GPO	General purpose output
AcquisitionTriggerReady	Active once the camera has been recognized by the host PC and is ready to start acquisition
FrameTriggerReady	Active if the camera is in a state that will accept the next frame trigger
Exposing	Active for the duration of sensor exposure
FrameReadout	Active during frame readout, i.e. the transferring of image data from the CCD to camera memory
Imaging	Active if the camera is exposing or reading out frame data
Acquiring	Active if acquisition start has been initiated

Value	Description
LineIn1	Active if there is an external trigger at Line1
LineIn2	Active if there is an external trigger at Line2
LineIn3	Active if there is an external trigger at Line3
LineIn4	Active if there is an external trigger at Line4
Strobe1	The output signal is controlled according to Strobe1 settings
CCDTemperatureOK	Only for cameras that support this feature: indicates if camera has reached the desired temperature value

ImageFormat

This chapter describes how to influence and determine the image size and resolution. It assumes that the cameras generates a single rectangular image and allows for only one region of interest.

Height

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	Camera dependent
Unit	Pixels
Affected features	`StreamHoldCapacity`, `PayloadSize`, `NonImagePayloadSize`, `ImageSize`, `AcquisitionFrameRateAbs`, `ExposureTimeAbs`, `AcquisitionFrameRateLimit`
Category	`/ImageFormat`

The height of the image.

HeightMax

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Integer
Access	Read only
Visibility	Beginner
Unit	Pixels
Affected features	`StreamHoldCapacity`, `PayloadSize`, `NonImagePayloadSize`, `ImageSize`, `AcquisitionFrameRateAbs`, `ExposureTimeAbs`, `AcquisitionFrameRateLimit`, `Height`, `OffsetY`
Category	`/ImageFormat`

The maximum image height for the current image mode.

ImageSize

Origin of feature	Camera
Feature type	Integer
Access	Read only
Visibility	Beginner
Unit	Bytes
Affected features	n/a
Category	`/ImageFormat`

The size of images for the current format. The image size is impacted by the pixel format and image height.

OffsetX

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	Camera dependent
Default	*0*
Unit	Pixels
Affected features	`StreamHoldCapacity`, `PayloadSize`, `NonImagePayloadSize`, `ImageSize`, `AcquisitionFrameRateAbs`, `ExposureTimeAbs`, `AcquisitionFrameRateLimit`
Category	`/ImageFormat`

The starting column of the readout region (relative to the first column of the sensor).

OffsetY

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	Camera dependent
Default	*0*
Unit	Pixels
Affected features	`StreamHoldCapacity`, `PayloadSize`, `NonImagePayloadSize`, `ImageSize`, `AcquisitionFrameRateAbs`, `ExposureTimeAbs`, `AcquisitionFrameRateLimit`
Category	`/ImageFormat`

The starting row of the readout region (relative to the first row of the sensor).

PixelFormat

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	*Mono8*, *Mono10*, *Mono12*, *Mono12Packed*, *Mono14*, *BayerBG8*, *BayerRG8*, *BayerGR8*, *BayerBG8*, *BayerBG10*, *BayerGB12Packed*, *BayerGR12Packed*, *BayerGB12*, *BayerRG12*, *BayerGR12*, *RGB8Packed*, *BGR8Packed*, *RGBA8Packed*, *BGRA8Packed*, *RGB12Packed*, *YUV411Packed*, *YUV422Packed*, *YUV444Packed*
Affected features	`BinningHorizontal`, `StreamHoldCapacity`, `PayloadSize`, `NonImagePayloadSize`, `WidthMax`, `ImageSize`, `AcquisitionFrameRateAbs`, `ExposureTimeAbs`, `AcquisitionFrameRateLimit`, `Width`, `OffsetX`, `BinningVertical`, `HeightMax`, `Height`, `OffsetY`
Category	`/ImageFormat`

There are various pixel formats that GigE cameras can output. Not all cameras have every pixel format (see the technical manuals for details).

Mono8	One pixel of data for every byte. For color cameras with on-camera interpolation, luminance (Y) channel returned. Format: Monochrome Bit depth: 8
Mono10	One pixel of data for every two bytes, LSB aligned. For color cameras with on-camera interpolation, luminance (Y) channel returned. Format: Monochrome Bit depth: 10
Mono12	One pixel of data for every two bytes, LSB aligned. For color cameras with on-camera interpolation, luminance (Y) channel returned. Format: Monochrome Bit depth: 12
Mono12Packed	Two pixels of data for every three bytes. Does not support odd width x height. Format: Monochrome Bit depth: 12

Mono14	One pixel of data for every two bytes, LSB aligned. For color cameras with on-camera interpolation, luminance (Y) channel returned. Format: Monochrome Bit depth: 14
BayerGB8	Un-interpolated color. Interpolation performed by host software. Format: Raw Bit depth: 8
BayerRG8	Un-interpolated color. Interpolation performed by host software. Format: Raw Bit depth: 8
BayerGR8	Un-interpolated color. Interpolation performed by host software. Format: Raw Bit depth: 8
BayerBG8	Un-interpolated color. Interpolation performed by host software. Format: Raw Bit depth: 8
BayerBG10	One pixel of data every for two bytes, LSB aligned. Un-interpolated color. Interpolation performed by host software. Format: Raw Bit depth: 10
BayerGB12Packed	Two pixels of data for every three bytes. Un-interpolated color. Interpolation performed by host software. Does not support odd width or height. Format: Raw Bit depth: 12
BayerGR12Packed	Two pixels of data for every three bytes. Un-interpolated color. Interpolation performed by host software. Does not support odd width or height. Format: Raw Bit depth: 12
BayerGB12	One pixel of data for every two bytes, LSB aligned. Un-interpolated color. Interpolation performed by host software. Format: Raw Bit depth: 12

BayerRG12	One pixel of data every for two bytes, LSB aligned. Un-interpolated color. Interpolation performed by host software. Format: Raw Bit depth: 12
BayerGR12	One pixel of data for every two bytes, LSB aligned. Un-interpolated color. Interpolation performed by host software. Format: Raw Bit depth: 12
RGB8Packed	One pixel of data for every three bytes. On-camera interpolated color. Format: Color (RGB) Bit depth: 8
BGR8Packed	One pixel of data for every three bytes. On-camera interpolated color. Bit depth: 8
RGBA8Packed	One pixel of data for every four bytes. On-camera interpolated color. Alpha channel (A) is fully opaque, 0xFF. Format: Color (RGB) Bit depth: 8
BGRA8Packed	One pixel of data for every four bytes. On-camera interpolated color. Alpha channel (A) is fully opaque, 0xFF. Bit depth: 8
RGB12Packed	One pixel of data for every six bytes, R, G, B channels LSB-aligned. On-camera interpolated color. Format: Color (RGB) Bit depth: 12
YUV411Packed	Four pixels of data for every six bytes. On-camera interpolated color. Data in YUV411 format. Format: Color (YUV) Bit depth: 8
YUV422Packed	Three pixels of data for every six bytes. On-camera interpolated color. Data in YUV422 format. Format: Color (YUV) Bit depth: 8
YUV444Packed	Two pixels of data for every six bytes. On-camera interpolated color. Data in YUV444 format. Format: Color (YUV) Bit depth: 8

SensorReadoutMode

Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Default	*`Readout12Bits`*
Possible values	*`Readout12Bits`*: 12-bit sensor readout mode *`Readout10Bits`*: 10-bit sensor readout mode
Affected features	n/a
Category	`/ImageFormat`

Readout mode of the sensor. Use this control to switch between 10-bit and 12-bit readout mode.

With 10-bit sensor readout mode you can achieve a higher frame rate. The sensor is capable of higher frame rates but readout is limited by GigE bandwidth and exposure value. You can improve frame rates with a reduced region of interest and shorter exposure values.

Width

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	Camera dependent
Unit	Pixels
Affected features	`StreamHoldCapacity`, `PayloadSize`, `NonImagePayloadSize`, `ImageSize`, `AcquisitionFrameRateAbs`, `ExposureTimeAbs`, `AcquisitionFrameRateLimit`
Category	`/ImageFormat`

The width of image.

WidthMax

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Integer
Access	Read only
Visibility	Beginner
Unit	Pixels
Affected features	`StreamHoldCapacity`, `PayloadSize`, `NonImagePayloadSize`, `ImageSize`, `AcquisitionFrameRateAbs`, `ExposureTimeAbs`, `AcquisitionFrameRateLimit`, `Width`, `OffsetX`
Category	`/ImageFormat`

The maximum image width for the current image mode. Horizontal binning, for example, will change this value.

ImageMode

BinningHorizontal

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	Camera dependent
Default	*1*
Affected features	`StreamHoldCapacity`, `PayloadSize`, `NonImagePayloadSize`, `WidthMax`, `ImageSize`, `AcquisitionFrameRateAbs`, `ExposureTimeAbs`, `AcquisitionFrameRateLimit`, `Width`, `OffsetX`
Category	`/ImageMode`

The horizontal binning factor. Binning is the summing of charge (for CCD sensors) or gray value (for CMOS sensors) of adjacent pixels on a sensor, giving a lower resolution image, but at full region of interest. Image sensitivity is also improved due to summed pixel charge / gray value.

`BinningHorizontal` and `DecimationHorizontal` are mutually exclusive. Setting `BinningHorizontal` > *1* forces `DecimationHorizontal` to *1*.

Color cameras only: Color information is lost while binning is active due to summing of adjacent different filtered pixels on the Bayer filter array.

BinningHorizontalMode

Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Possible values	*Sum*, *Average*
Default	*Sum*
Affected feature	BinningVerticalMode
Category	/ImageMode

Determines whether the result of binned pixels is averaged or summed up. Changing BinningHorizontalMode also changes BinningVerticalMode.

Value	Description
Sum	Binning is accomplished by summing the charge / gray value of adjacent pixels on sensor.
Average	Binning is accomplished by averaging the charge / gray value of adjacent pixels on sensor. This increases SNR by SQRT (number of binned pixels).

BinningVertical

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	Camera dependent
Default	*1*
Affected features	`StreamHoldCapacity`, `PayloadSize`, `NonImagePayloadSize`, `HeightMax`, `ImageSize`, `AcquisitionFrameRateAbs`, `ExposureTimeAbs`, `AcquisitionFrameRateLimit`, `Height`, `OffsetY`
Category	`/ImageMode`

The vertical binning factor. Binning is the summing of charge (for CCD sensors) or gray value (for CMOS sensors) of adjacent pixels on a sensor, giving a lower resolution image, but at full region of interest. Image sensitivity is also improved due to summed pixel charge / gray value.

`BinningVertical` and `DecimationVertical` are mutually exclusive. Setting `BinningVertical` > *1* forces `DecimationVertical` to *1*.

Color cameras only: Color information is lost while binning is active due to summing of adjacent different filtered pixels on the Bayer filter array.

BinningVerticalMode

Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Possible values	*Sum*, *Average*
Default	*Sum*
Affected feature	BinningHorizontalMode
Category	/ImageMode

Determines whether the result of binned pixels is averaged or summed up. Changing BinningVerticalMode also changes BinningHorizontalMode.

Value	Description
Sum	Binning is accomplished by summing the charge / gray value of adjacent pixels on sensor
Average	Binning is accomplished by averaging the charge / gray value of adjacent pixels on sensor. This increases SNR by SQRT (number of binned pixels).

DecimationHorizontal

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	1 to 8
Default	*1*
Affected features	`BinningHorizontal`, `StreamHoldCapacity`, `PayloadSize`, `NonImagePayloadSize`, `WidthMax`, `ImageSize`, `AcquisitionFrameRateAbs`, `ExposureTimeAbs`, `AcquisitionFrameRateLimit`, `Width`, `ExposureAutoMin`, `ExposureAutoMax`, `OffsetX`, `DefectMaskEnable`
Category	`/ImageMode`

Decimation (also known as sub-sampling) is the process of skipping neighboring pixels (with the same color) while being read out from the CCD chip. `DecimationHorizontal` controls the horizontal sub-sampling of the image. There is no decrease in payload size with horizontal sub-sampling.

Value	Description
1	Off
2	2x reduction factor; 2 of 4 columns displayed
4	4x reduction factor; 2 of 8 columns displayed
8	8x reduction factor; 2 of 16 columns displayed

Writing an invalid number for `DecimationHorizontal` will round up to next valid mode. For example, 5 rounds up to 8. `DecimationHorizontal` and `BinningHorizontal` are mutually exclusive. Setting `DecimationHorizontal` > *1* forces `BinningHorizontal` to *1*.

DecimationVertical

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Integer
Access	Read/Write
Visibility	Beginner
Range	1 to 8
Default	*1*
Affected features	`BinningVertical`, `StreamHoldCapacity`, `PayloadSize`, `NonImagePayloadSize`, `HeightMax`, `ImageSize`, `AcquisitionFrameRateAbs`, `ExposureTimeAbs`, `AcquisitionFrameRateLimit`, `Height`, `ExposureAutoMin`, `ExposureAutoMax`, `OffsetY`, `DefectMaskEnable`
Category	`/ImageMode`

Decimation (also known as sub-sampling) is the process of skipping neighboring pixels (with the same color) while being read out from the CCD chip. `DecimationVertical` controls the vertical sub-sampling of the image. You There is a decrease in payload size with vertical sub-sampling.

Value	Description
1	Off
2	2x reduction factor. 2 of 4 columns displayed.
4	4x reduction factor. 2 of 8 columns displayed.
8	8x reduction factor. 2 of 16 columns displayed.

Writing an invalid number for `DecimationVertical` will round up to next valid mode. For example, 5 rounds up to 8. `DecimationVertical` and `BinningVertical` are mutually exclusive. Setting `DecimationVertical` > *1* forces `BinningVertical` to *1*.

For more information on the decimation process, see the *Decimation* application note at:

https://www.alliedvision.com/en/support/technical-papers-knowledge-base.html

ReverseX

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Boolean
Access	Read/Write
Visibility	Beginner
Possible values	`true`, `false`
Default	*`false`*
Affected features	`StreamHoldCapacity`, `PayloadSize`, `NonImagePayloadSize`, `WidthMax`, `ImageSize`, `AcquisitionFrameRateAbs`, `ExposureTimeAbs`, `AcquisitionFrameRateLimit`, `Width`, `OffsetX`
Category	`/ImageMode`

Flips the image sent by camera horizontally. The region of interest is applied after flipping.

ReverseY

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Boolean
Access	Read/Write
Visibility	Beginner
Possible values	`true`, `false`
Default	*`false`*
Affected features	`StreamHoldCapacity`, `PayloadSize`, `NonImagePayloadSize`, `HeightMax`, `ImageSize`, `AcquisitionFrameRateAbs`, `ExposureTimeAbs`, `AcquisitionFrameRateLimit`, `Height`, `OffsetX`
Category	`/ImageMode`

Flips the image sent by camera vertically. The region of interest is applied after flipping.

SensorDigitizationTaps

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Expert
Possible values	`Four`, `Two`, `One`
Default	Camera dependent
Affected features	`AcquisitionFrameRateAbs`, `AcquisitionFrameRateLimit`, `DecimationHorizon`, `DecimationVertical`, `ReverseX`, `ReverseY`
Category	`/ImageMode`

The number of digitized samples outputted simultaneously by the camera A/D conversion stage.

SensorHeight

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Integer
Access	Read only (Constant)
Visibility	Beginner
Affected feature	`DSPSubregionBottom`
Category	`/ImageMode`

The total number of pixel rows on the sensor.

Example: `1216`

SensorTaps

Standard	GenICam Standard Feature Naming Convention (SFNC)
Display Name	SensorTaps
Origin of feature	Camera
Feature type	Enumeration
Access	Read only (Constant)
Visibility	Expert
Vimba Version	Vimba version 1.3 or later
Affected features	n/a
Category	`/ImageMode`

The number of taps on the camera sensor.

SensorWidth

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Integer
Access	Read only (Constant)
Visibility	Beginner
Affected feature	`DSPSubregionRight`
Category	`/ImageMode`

The total number of pixel columns on the sensor.

Example: `1936`

Info

GevDeviceMACAddress

Display name	Device MAC address
Origin of feature	Driver
Feature type	Integer
Access	Read only (Constant)
Visibility	Beginner
Affected features	n/a
Category	`/Info`

The 48-bit MAC address of the GVCP interface of the selected remote device.

DeviceFirmwareVersion

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	String
Access	Read only (Constant)
Visibility	Beginner
Affected features	n/a
Category	`/Info`

The firmware version of this Allied Vision GigE camera.
Example: `00.01.54.1594`

DeviceID

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	String
Access	Read only (Constant)
Visibility	Beginner
Affected features	n/a
Category	`/Info`

The serial number of the camera.

DeviceModelName

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	String
Access	Read only (Constant)
Visibility	Beginner
Affected features	n/a
Category	`/Info`

The camera model name. Software must use the `DevicePartNumber` to distinguish between models.

Example: `GT2450C`

DevicePartNumber

Origin of feature	Camera
Feature type	String
Access	Read only (Constant)
Visibility	Beginner
Affected features	n/a
Category	`/Info`

The Allied Vision camera part number.

DeviceScanType

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Enumeration
Access	Read only (Constant)
Visibility	Beginner
Default	`Areascan`
Affected features	n/a
Category	`/Info`

The scan type of the camera.

DeviceUserID

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	String
Access	Read/Write
Visibility	Beginner
Affected features	n/a
Category	`/Info`

Used for multiple-camera situations for providing meaningful labels to individual cameras.

DeviceVendorName

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	String
Access	Read only
Visibility	Beginner
Affected features	n/a
Category	`/Info`

The manufacturer's name.

Example: `Allied Vision Technologies`

FirmwareVerBuild

Origin of feature	Camera
Feature type	Integer
Access	Read only
Visibility	Beginner
Affected features	n/a
Category	`/Info`

The firmware version build information.

Example: 1.54.**15954**

FirmwareVerMajor

Origin of feature	Camera
Feature type	Integer
Access	Read only
Visibility	Beginner
Affected features	n/a
Category	`/Info`

The major part of the firmware version number (part before the decimal).
Example: **1**.54.15954

FirmwareVerMinor

Origin of feature	Camera
Feature type	Integer
Access	Read only
Visibility	Beginner
Affected features	n/a
Category	`/Info`

The minor part of firmware version number (part after the decimal).
Example: 1.**54**.15954

SensorBits

Origin of feature	Camera
Feature type	Integer
Access	Read only (Constant)
Visibility	Beginner
Affected features	n/a
Category	`/Info`

The maximum bit depth of sensor.

SensorType

Origin of feature	Camera
Feature type	Enumeration
Access	Read only (Constant)
Visibility	Beginner
Affected features	n/a
Category	`/Info`

The type of image sensor. Monochrome or Bayer pattern color sensor type.

Example: `Mono`

SavedUserSets

Allied Vision GigE cameras are capable of storing a number of user-specified configurations within the camera's non-volatile memory. These saved configurations can be used to define the power up settings of the camera or to quickly switch between a number of predefined settings.

Look-up table features cannot be saved. To save the content of a look-up table, use `Controls > LUTControl > LUTSave` or `LUTSaveAll`.

UserSetDefaultSelector

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	*`Default`*, *`UserSet1`*, *`UserSet2`*, *`UserSet3`*, *`UserSet4`*, *`UserSet5`* The number of user sets is camera dependent.
Affected features	See Vimba user interface
Category	`/SavedUserSets`

On power up or reset, this user set is loaded.

UserSetLoad

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Command
Access	Write
Visibility	Beginner
Affected features	See Vimba user interface
Category	`/SavedUserSets`

Loads camera parameters from the user set specified by `UserSetSelector`.

UserSetSave

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Command
Access	Write
Visibility	Beginner
Affected features	See Vimba user interface
Category	`/SavedUserSets`

Saves camera parameters to the user set specified by `UserSetSelector`. The *`Default`* setting cannot be overwritten.

UserSetSelector

Standard	GenICam Standard Feature Naming Convention (SFNC)
Origin of feature	Camera
Feature type	Enumeration
Access	Read/Write
Visibility	Beginner
Possible values	*`Default`*, *`UserSet1`*, *`UserSet2`*, *`UserSet3`*, *`UserSet4`*, *`UserSet5`* The number of user sets is camera dependent.
Affected features	See Vimba user interface
Category	`/SavedUserSets`

Selects a feature user set to load, save, or configure.

Stream

Info

GVSPFilterVersion

Display name	GVSP Filter Version
Origin of feature	Driver
Feature type	String
Access	Read only (Constant)
Visibility	Expert
Affected features	n/a
Category	`/Stream/Info`

Version of the GVSP filter driver.

Example: `01.24.17`

Multicast

Multicast mode allows the camera to send image data to all hosts on the same subnet as the camera. The host PC (or Vimba Viewer application instance) that first enables multicast mode is the master, and controls all camera parameters. All other hosts/instances are the monitors, and can view image data only.

Most GigE switches support a maximum `PacketSize` of 1500 bytes in multicast mode.

If using clients with Linux, you have to configure the IP subsystem to process multicast IP traffic.

MulticastEnable

Display name	Multicast Enable
Origin of feature	Driver
Feature type	Boolean
Access	Read/Write
Visibility	Expert
Possible values	`true`, `false`
Default	*`false`*
Affected features	n/a
Category	`/Stream/Multicast`

Enables multicast mode. In multicast mode all PCs on the same subnet as the camera can receive image data from the camera `MulticastIPAddress`.

MulticastIPAddress

Display name	Multicast IP Address
Origin of feature	Driver
Feature type	Integer
Access	Read/Write
Visibility	Expert
Affected features	n/a
Category	`/Stream/Multicast`

Sets the multicast IPv4 address.

Settings

GigE Vision Streaming Protocol (GVSP): Provides a protocol for streaming data streams. Runs on the UDP protocol.

GVSPAdjustPacketSize

Display name	GVSP Adjust Packet Size
Origin of feature	Driver
Feature type	Command
Access	Write
Visibility	Expert
Affected features	`n/a`
Category	`/Stream/Settings`

Requests the packet size used to be adjusted automatically.

GVSPBurstSize

Display name	GVSP Burst Size
Origin of feature	Driver
Feature type	Integer
Access	Read/Write
Visibility	Expert
Enumeration	1 to 256
Default	*32*
Unit	GVSP Packets
Affected features	n/a
Category	`/Stream/Settings`

The maximum number of GVSP packets to be processed in a burst.

GVSPDriver

Display name	GVSP Driver Selector
Origin of feature	Driver
Feature type	Enumeration
Access	Read/Write
Visibility	Expert
Possible values	*Filter*, *Socket*
Default	*Filter*
Affected features	n/a
Category	/Stream/Settings

The streaming driver to be used.

GVSPHostReceiveBuffers

Display name	GVSP Host Receive Buffers
Origin of feature	Driver
Feature type	Integer
Access	Read/Write
Visibility	Expert
Range	256 to 2048
Default	*512*
Affected features	n/a
Category	/Stream/Settings

The number of buffers to be used by the network socket. Only applicable if not using the filter driver.

GVSPMaxLookBack

Display name	GVSP Max Look Back
Origin of feature	Driver
Feature type	Integer
Access	Read/Write
Visibility	Expert
Range	1 to 1024
Default	*30*
Unit	GVSP Packets
Affected features	n/a
Category	`/Stream/Settings`

The size of the look back window, in packets, when determining if a stream packet is missing. If a stream packet arrives out of order, the driver skips back `GVSPMaxLookBack` packets to see if the packets previous to this point have all arrived. If not, a resend is issued. A lower value allows the driver less time to assemble out-of-order packets; a larger value allows the driver more time. If the value is set too low, the driver will issue unnecessary resends. If the value is set too high and a packet truly is missing, the driver will issue a resend but the camera may no longer have the required packet in its resend buffer and the packet is dropped. The ideal value is system dependent.

GVSPMaxRequests

Display name	GVSP Max Requests
Origin of feature	Driver
Feature type	Integer
Access	Read/Write
Visibility	Expert
Range	1 to 512
Default	*3*
Affected features	n/a
Category	`/Stream/Settings`

The maximum number of resend requests that the host will attempt before marking a packet dropped.

GVSPMaxWaitSize

Display name	GVSP Max Wait Size
Origin of feature	Driver
Feature type	Integer
Access	Read/Write
Visibility	Expert
Range	8 to 1024
Default	*100*
Unit	GVSP Packets
Affected features	n/a
Category	`/Stream/Settings`

The maximum number of received GVSP packets following a resend request to wait before requesting again.

GVSPMissingSize

Display name	GVSP Missing Size
Origin of feature	Driver
Feature type	Integer
Access	Read/Write
Visibility	Expert
Range	0 to 1024 When the value is set to 0 this feature is disabled.
Default	*512*
Unit	GVSP Packets
Affected features	n/a
Category	`/Stream/Settings`

The maximum number of simultaneous missing GVSP packets before dropping the frame.

GVSPPacketSize

Display name	GVSP Packet Size
Origin of feature	Driver
Feature type	Integer
Access	Read/Write
Visibility	Expert
Range	Camera dependent
Default	Camera dependent
Unit	Bytes
Affected features	`GevSCPSPacketSize`, `StreamBytesPerSecond`, `AcquisitionFrameRateAbs`, `ExposureTimeAbs`, `AcquisitionFrameRateLimit`, `StreamHoldCapacity`
Category	`/Stream/Settings`

The GVSP packet size in bytes.

GVSPTiltingSize

Display name	GVSP Tilting Size
Origin of feature	Driver
Feature type	Integer
Access	Read/Write
Visibility	Expert
Range	0 to 1024 When the value set to 0 this feature is disabled.
Default	*100*
Unit	GVSP Packets
Affected features	n/a
Category	`/Stream/Settings`

The maximum number of GVSP packets received from a following frame before dropping the frame.

GVSPTimeout

Display name	GVSP Timeout
Origin of feature	Driver
Feature type	Integer
Access	Read/Write
Visibility	Expert
Range	10 to 5000
Default	*70*
Unit	ms
Affected features	n/a
Category	`/Stream/Settings`

The end of stream timeout. If no stream packet is received before `GVSPTimeout`, the host requests resend, up to `GVSPMaxRequests` times. If still no packet is received from the camera, the packet is marked as dropped.

Statistics

The packet counts in these statistics cover the image transport. Packets used for camera control or event data are not counted. All counters are reset at `AcquisitionStart`.

StatFrameRate

Display name	Stat Frame Rate
Origin of feature	Driver
Feature type	Float
Access	Read only
Visibility	Beginner
Affected features	n/a
Category	`/Stream/Statistics`

The rate at which the camera is acquiring frames, derived from the frame timestamps.

StatFrameDelivered

Display name	Stat Frames Delivered
Origin of feature	Driver
Feature type	Integer
Access	Read only
Visibility	Beginner
Affected features	n/a
Category	`/Stream/Statistics`

The number of error-free frames captured since the start of imaging.

StatFrameDropped

Display name	Stat Frames Dropped
Origin of feature	Driver
Feature type	Integer
Access	Read only
Visibility	Beginner
Affected features	n/a
Category	`/Stream/Statistics`

The number of incomplete frames received by the host due to missing packets (not including shoved frames).

StatFrameRescued

Display name	Stat Frames Rescued
Origin of feature	Driver
Feature type	Integer
Access	Read only
Visibility	Expert
Affected features	n/a
Category	`/Stream/Statistics`

The number of frames that initially had missing packets but were successfully completed after packet resend.

StatFrameShoved

Display name	Stat Frames Shoved
Origin of feature	Driver
Feature type	Integer
Access	Read only
Visibility	Expert
Affected features	n/a
Category	`/Stream/Statistics`

The number of frames dropped because the transfer of a following frame was completed earlier.

StatFrameUnderrun

Display name	Stat Frames Underrun
Origin of feature	Driver
Feature type	Integer
Access	Read only
Visibility	Expert
Affected features	n/a
Category	`/Stream/Statistics`

The number of frames missed due to the non-availability of a user supplied buffer.

StatLocalRate

Display name	Stat Local Rate
Origin of feature	Driver
Feature type	Float
Access	Read only
Visibility	Expert
Affected features	n/a
Category	`/Stream/Statistics`

Inverse of time interval between the last two frames (faulty or not) received by the host. No averaging is performed.

In case of error-free frame reception, `StatLocalRate` is similar to `StatFrameRate`, except that the host clock is used instead of frame timestamps for measuring the time interval between frames. Otherwise, `StatLocalRate` and `StatFrameRate` may differ significantly.

StatPacketErrors

Display name	Stat Packets Errors
Origin of feature	Driver
Feature type	Integer
Access	Read only
Visibility	Expert
Affected features	n/a
Category	`/Stream/Statistics`

The number of improperly formed packets. If this number is not zero, it suggests a possible cable or camera hardware failure.

StatPacketMissed

Display name	Stat Packets Missed
Origin of feature	Driver
Feature type	Integer
Access	Read only
Visibility	Beginner
Affected features	n/a
Category	`/Stream/Statistics`

The number of packets missed since the start of imaging.

If everything is configured correctly, this number should remain zero, or at least very low compared to `StatPacketReceived` value.

StatPacketReceived

Display name	Stat Packets Received
Origin of feature	Driver
Feature type	Integer
Access	Read only
Visibility	Beginner
Affected features	n/a
Category	`/Stream/Statistics`

The number of error-free packets received by the driver since the start of imaging, this number should grow steadily during continuous acquisition.

StatPacketRequested

Display name	Stat Packets Requested
Origin of feature	Driver
Feature type	Integer
Access	Read only
Visibility	Beginner
Affected features	n/a
Category	`/Stream/Statistics`

The number of missing packets that were requested to be resent from the camera.

If everything is configured correctly, this number should remain zero, or at least very low compared to `StatPacketReceived` value.

StatPacketResent

Display name	Stat Packets Resent
Origin of feature	Driver
Feature type	Integer
Access	Read only
Visibility	Beginner
Affected features	n/a
Category	`/Stream/Statistics`

The number of packets resent by the camera since the start of imaging.

StatTimeElapsed

Display name	Stat Time Elapsed
Origin of feature	Driver
Feature type	Float
Access	Read only
Visibility	Expert
Unit	Seconds
Affected features	n/a
Category	`/Stream/Statistics`

The elapsed time since the stream was started.

StreamInformation

StreamID

Display name	Stream ID
Origin of feature	Driver
Feature type	String
Access	Read only (Constant)
Visibility	Beginner
Vimba version	Vimba version 1.3 or later
Affected features	n/a
Category	`/StreamInformation`

The camera's unique ID for the stream.

StreamType

Display name	Stream Feature type
Origin of feature	Driver
Feature type	Enumeration
Access	Read only (Constant)
Visibility	Beginner
Vimba version	Vimba version 1.3 or later
Affected features	n/a
Category	`/StreamInformation`

Identifies the transport layer technology of the stream.

Example: GEV

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